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INTRODUCTION

We are pleased to introduce our 17th and latest volume from our regular conference: Business and Non-profit Organizations Facing Increased Competitions and Growing Customers' Demands, which contains articles highlighting the problems of contemporary for-profit and non-profit organizations. The added value is the inclusion of multifaceted aspects of an organization's functioning, including the sectoral and industrial view. The diversity of the approach to the problems of organization, management, business and economy becomes a valuable interdisciplinary view of the economic reality that surrounds us.

The monograph is divided into four sections. In the first section: **Business and non-profit organizations as the objects of research**, articles are exposing the area of strategic management, including a museum as a research object, surgical workflow, the performance of cultural organizations, and organizational forms of housing resource management. In addition, this section covers a process-oriented view of management, including process maturity of the organization and process approach to the analysis of creative capital; and mixed project-management methodology. In a separate thread, there are articles related to public university mergers based on an example of two academic case studies; the analysis of scientific excellence as a factor influencing academic involvement; and the nature of competition for non-profit and for-profit organizations.

The second section, entitled **Modern tools for business and non-profit organization management**, opens with an article on design thinking and the TransistorsHead tool used to analyze teams through organizational terms. Other tools used in eye tracking, such as enova365 and Soneta, are presented in an article on the optimization of an IT system. In the context of profiling scientific research, not only in the area of academic entrepreneurship but also in the search for research gaps, bibliometrics is undoubtedly a useful tool discussed in a further article. In another article, an attractive tool

for competence analysis is the business model and the construction of the competence assessment method, which could prove to be helpful in assessing the effectiveness of professional careers. Other articles in this section feature the concept of innovation and knowledge management; medical data management based on a precise legal basis; external financing and its impact on the flexibility of enterprises; and a systemic, process and resource approach to port modularity.

In the next section: **Business and non-profit organizations in a market economy**, the primary thematic topic is corporate social responsibility, client capital creation, and social entrepreneurship. We note the greater emphasis on the social aspects of the organization's functioning and on the social economy. The human thread and the so-called ecosystem in business are becoming more and more desirable, and the perspective of business is changing: from a profit-oriented one towards a more societal one.

In the last section, entitled **Business and non-profit organizations - sectoral and industrial aspects**, there are articles discussing the issues of organization in macroeconomic terms. This section opens with an article presenting the structural characteristics of industrial clusters and research streams in this area. Subsequently, we have articles that present: the municipality, from the point of view of the configuration of the network of relations between stakeholders, and their involvement in the creation of smart specialization strategies; the determinants of employment change in the Polish services sector; consumer awareness of the credit market; the transparency of public finances; local food and regional products; consumer behaviour in Ukraine; as well as, trade credit, profitability and leverage in Polish companies.

Every year, this monograph is built on articles that present an up-to-date view of the business and geo-economic reality that surrounds us, whose organizations form the backbone of the economy and its sectors. The dynamics of changes are so significant that such studies bring readers closer to current trends and draw the interest of researchers.

Adam Nalepka, Anna Ujwary-Gil

I.
BUSINESS AND NON-PROFIT ORGANIZATIONS AS THE OBJECTS OF RESEARCH

MANAGEMENT OF SURGICAL WORKFLOW – AN OBSERVATION-BASED ASSESSMENT STUDY

***Joanna Bartnicka*[1]**

Abstract

Surgery is considered as one of the most demanding and challenging domains of medical activities. This is because of the continuous development of procedures and implementation of modern and innovative methods of surgical treatment. However, the application of new medical technologies makes surgical procedures a highly cost-intensive medical area. In this regard, improvement efficiency should be a strategic component of daily management in a hospital. The objective of this paper is to introduce an observation method for assessing surgical workflow, as a component of management process in a hospital. Basically, possible workflow disruptions were cited as factors for delays and deviations from the natural progression of a procedure. In this regard, the research approach assumed investigating intraoperative activities during live surgeries which is quite a new aspect of hospital workflow.

The main method for data acquisition was a direct observation with photo/or video registration of live surgeries. Also, a common checklist containing workflow assessment criteria for recognizing any deviation was developed. Both the sequences and workflow assessment criteria were implemented using CAPTIV software version L7000 enabled for cross-sectional analyzes including descriptive statistics. Also, interviews with surgeons and scrub nurses were conducted in order to recognize the additional factors contributing to intraoperative efficiency.

As a result, 10 factors influencing surgical workflow were recognized that are directly connected with important aspects of management such as the communication aspects of surgical teamwork members or physical workload of the surgeon and scrub nurse.

Keywords: *workflow, operating room, communication, live surgery observation, efficiency, workload.*

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1. Introduction

Surgery is one of the most important and integral elements of health care with more than half a million surgeries performed every day worldwide (Forestier, Petitjean, Riffaud, & Jannin, 2017). Based on many observations of surgical procedures, both open and minimal invasive, that were conducted in different operating rooms and hospitals (public and private) it can be concluded that this kind of medical act is a very demanding area regarding the contribution of human and technical resources. Human resources are represented mainly by people with different specializations and simultaneously the interdisciplinary knowledge of which they are the possessors; who must effectively cooperate, make decisions, and communicate in sometimes very uncomfortable and challenging conditions. In turn, technical resources are represented by medical equipment (including surgical tools and machines) and working space that is basically limited to an operating area and is subjected to the rigors of constant cleaning and disinfecting.

We can observe the great efforts to make medicine ultramodern, seeking the intelligent technologies like surgical robots, or innovative operating techniques like micro-invasive surgery that results in greater life expectancy and a better quality of life. On the other hand, the implementation of modern surgical procedures into hospital processes makes the operating room one of the most cost-intensive domains (Barbagallo et al., 2015). In this regard improvement efficiency is a desirable component of today management in hospital. The first step for achieving this component can be to map the whole surgical process in the operating room and then create a standard surgical workflow and contingencies of the procedures (Fong, Smith, & Langerman, 2006).

In this context, the objective of this paper is to introduce an observation method for assessing surgical workflow, as a component of the management process in a hospital. Basically, the possible workflow disruptions were cited as factors for delays and deviations from the natural progression of a procedure (Weigl et al., 2018; Silver, Kaye, Cornett, Fox, & Slakey, 2017) that contribute to a reduction in efficiency (Weigl et al., 2016), including even medical errors (Wiegmann, El Bardissi, Dearani, Daly, & Sundt, 2007; Cohen et al., 2016).

2. Literature background

Surgical workflow is listed as a research subject in many studies. In the literature, different approaches to surgical workflow are described. Here, the differences are mostly connected with (1) the type of addressee who directly participates in or manages workflow, (2) the type of activity area of workflow that should be improved, (3) the way of workflow modeling and representation.

Regarding the type of addressee, the study on workflow improvements was dedicated directly to surgeons and operating room staff. Here the aim was to unburden the surgeon and operating room staff from manual maintenance and information-seeking tasks by the implementation of an intelligent systems behavior. It was based on automatic adaptation of assistance functions to the contextual situation in the operating room (Franke, Meixensberger, & Neumuth, 2015).

Other research on the application of workflow issues was dedicated to patients and their safety. It studied the integration of a workflow idea with radio frequency identification (RFID) technology for patient identification, location, and tracking with a real-time visual display of ongoing operating-room activities (Liu et al., 2011).

With regards to type of activity, one of the dominant areas of workflow investigations was interruptions and their consequences, as described in (Elfering, Nützi, Koch, & Baur, 2004; Allers et al., 2016). Essentially, interruptions lead to the formation of medical errors. The way to predict medical errors is in the prediction of errors in surgery and generally failures in health care. The survey, conducted among nurses and physicians, indicated that the reasons for interruptions are malfunctions and organizational constraints. Hence, the recommended solution is to redesign work processes and design an appropriate expert decision-making system. That idea, in the context of clinical workflow in minimal invasive surgery, is proposed in (Jalote-Parmar, Badke-Schaub, Ali, & Samset, 2010). A prototype version was established for guiding minimally-invasive procedures based on an intra-operative image-guidance for clinical procedures. Hence, the important component of expert systems was information visualization.

Another subject matter of workflow research was using surgical checklists (Anderson et al., 2018). Notably, a surgical checklist was quoted as an instrument for decreasing intraoperative delays and increasing efficiency as well.

Regarding the way of workflow modeling and representation, there are many studies providing investigation into methods of digitalization of surgical workflow. An example is the computerized tool for supporting treatment procedures (Zasada & Coveney, 2012). In particular, the workflow is used for calculating drug binding affinities, simulating malignant tumor development and investigating cranial haemodynamics. Apart from this, the workflow environments which were proposed are: GridWorm, Taverna, BPEL, and GSEngine.

The surgical informatics system supporting a decision-making process was the subject of research also described in (Jalote-Parmar & Badke-Schaub, 2008), where the study focused on developing a framework for the so-called Workflow Integration Matrix.

There are also different ways of modeling and recording workflow processes. One of the paths is process modeling using 3D visualization and animation based on 2D graph representation (Lemkeet al., 2004).

Another approach to workflow modeling is the use of narrative networks that were implemented to visualize organizational and technological routines in hospitals. The approach emphasizes the variability and multiple perspectives of analyzed processes (Hayes, Lee, & Dourish, 2001). In turn in (Numasakia et al., 2007) a mathematical method was proposed for modeling the classification of the five types of job elements, and representing the relationship between job elements in a quantitative way.

3. Research approach and methods

The research approach assumed investigating intraoperative activities during live surgeries. The reasons for choosing this part of the surgical process were (1) the intraoperative period, i.e., when a patient is in the operating room, it is a time when surgeons have the most influence on the course of treatment; (2) the intraoperative period has received less attention within researchers; and (3) intraoperative efficiency is an emerging science (Abigail et al., 2016). In this context, this paper is an attempt to create research direction by filling the gap concerning points (2) and (3).

The main method for data acquisition was direct observation connected with photo/or video registration of live surgeries. Two different surgical domains were taken into consideration in the research: laparoscopic procedures (including bariatric surgery, cholecystectomy and inguinal hernia) and orthopedic surgeries. The total number of observed surgical procedures was n=46, where n=7 was hip arthroplasty; n=1 was knee arthroplasty; n=38 laparoscopic procedures. The research was conducted in n=5 hospitals (including public and private entities). All observations were complete, i.e., it started when the surgeon came into the operating room and finished when the surgeon left the operating room.

According to qualitative analysis of video materials the standard courses of surgeries, including main sequences and detailed tasks for each type of surgeries, were defined. Also, a common checklist containing workflow assessment criteria for recognizing any deviation within different surgical procedures was developed. Both the sequences and workflow assessment criteria were implemented using CAPTIV software version L7000 (TEA, France) which enabled the synchronization of video material with (1) sequences of surgery and (2) a checklist of workflow assessment criteria. Also, descriptive statistical analyses focused on the number, and duration of, deviated activities that might contribute to a reduction in surgery efficiency.

Also, interviews conducted with surgeons and scrub nurses after certain surgery was an additional method whose aim was to reveal the factors contributing to intraoperative efficiency. In this regard, the communication aspects of surgical teamwork members were recognized. The last aspect of the research approach recognized the physical workload of the surgeon and scrub nurse, particularly in the context of musculoskeletal disorders.

The research material included in this investigation was based on a case study. In this regard, one full surgical treatment was recorded according to the method described above. The treatment was video-recorded, where the starting point was the surgeon entering the operating room and the end point was him/her leaving the room.

4. Discussion and results

A case study of orthopedic surgery - hip arthroplasty - was the background for discussion and consideration of the research approach. The total duration of surgery was 1h and 32min. During surgery, seven people representing the surgical team and consisting of a surgeon, two assistant surgeons, a scrub nurse, an assistant scrub nurse, an anesthesiologist and an anaesthesiologist nurse were involved. The team members were highly experienced in working together.

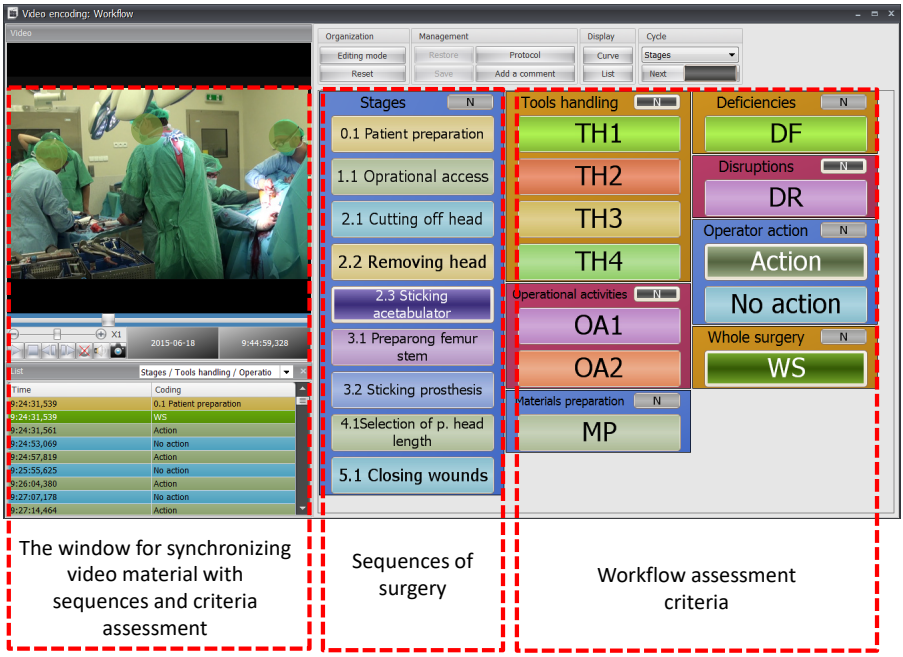
Table 1. Checklist of workflow assessment criteria

Group of criteria	Description
Surgical tool handling (TH)	A tool given by the scrub nurse after an issued command A tool given by the operating nurse without a command Surgeon takes a tool by himself without a command Surgeon takes a tool by himself despite the command directed to the scrub nurse
Operational activities (OA)	Correcting the activities of assisting surgeons by the surgeon Covering tasks of assisting surgeons by the surgeon
Preparation of materials (MP)	Preparation of materials
Other disruptions (DR)	e.g., correcting lighting and other parameters during the procedure
Deficiencies (DF)	e.g., a lack of materials, tools, etc.
Action of surgeon	Surgeon is passive

The standard course of surgery with the primary sequences are as follows (1) Patient preparation; (2) Making operational access; (3) Cutting off femoral head; (4) Removing femoral head; (5) Sticking of an artificial acetabular cup; (6) Preparation of femur stem; (7) Sticking prosthesis; (8) Selecting head size of prosthesis; (9) Closing surgical wounds.

In Table 1 the checklist containing the workflow assessment criteria is presented.

Figure 1 presents the way of synchronizing video frames with both main sequences of the surgery and workflow assessment criteria in the CAPTIV software version L7000. Due to it, this was possible to attribute cross-sectional relations between all interesting components of surgical workflow in function of time.



Note: TH1 = A tool given by the scrub nurse after the issued command; TH2 = A tool given by the operating nurse without a command; TH3 = Surgeon takes a tool by himself without the command; TH4 = Surgeon takes a tool by himself despite a command directed to the scrub nurse; OA1 = Correcting the activities of assisting surgeons by the surgeon; OA2 = Covering tasks of assisting surgeons by the surgeon; MP = Preparation of materials; DR = Disruptions; DF = Deficiencies; Action = Surgeon is active; No action = surgeon is passive.

Figure 1. The mode of synchronization of video frames with both main sequences of the surgery and workflow assessment criteria

The statistical analysis of the relations between different components of the surgical workflow, which were revealed during a detailed study of the video material, often frame by frame, were the basis for discussion about the efficiency issues, particularly from the point of view of time consumed, physical workload and communication problems.

Specific situations affecting workflow were recognized according to the analysis and the use of workflow-assessment criteria. In Figure 2, the chart shows the number of situations that have occurred from the checklist. The

highest number of cases were related to the handling of surgical tools n=168. However, four different circumstances for this action were recognized (see Table 1). The recommended way of handling a surgical tool is when the scrub nurse prepares the tool according to the course of surgery and hands the surgeon the tool immediately after a command or a specific gesture from the surgeon. In this case study, almost 80% of all actions involving tool handling were conducted in accordance with the guidelines. It is significant that the surgeon took a tool 29 times from the instrumental table. Definitely, this situation is acceptable in specific conditions, i.e. (1) the surgeon and scrub nurse are very experienced in working together and know each other's habits; (2) it only concerns repeated activities with high frequency when the surgeon knows the location of the most essential tools. Therefore the average time duration of handling tools can be shorter than being given tools by the scrub nurse. This was confirmed in the case study, where the average times for these two cases were 1sec. and 3 second respectively.

Nevertheless, as presented in Figure 3, the total time for handling tools is almost 27 minutes, which means that this activity takes 29% of the time duration of the whole surgery. The handling of surgical tools is one of the key operations of the surgery course and therefore cannot be eliminated from the workflow process, especially as the investigated case study presents the best results in this regard. Problems were identified with timing provision of tools within other examined surgeries. Mostly, these were searching for specific sizes of surgical instruments or specific medical assortment and a noise that made it difficult for the scrub nurse to understand the surgeon's commands.

Independently of the frequency or timing, attention should be paid to another aspect of tools handling. It is the relationship between the way the scrub nurse gives a tool and the way the surgeon reaches for a tool; and the body posture of both the surgeon and scrub nurse. This kind of activity usually causes overloads in the musculoskeletal system and increases fatigue and discomfort because of the necessity of the axial rotating of the back and neck by the surgeon and scrub nurse. These kinds of dysfunctions were observed in most surgeries.

It is important to manage the layout organization of the triangle: instrument table, scrub nurse, surgeon. Based on our own ergonomics analyses the recommendation was defined regarding this aspect (1) the scrub nurse should have direct hand contact with the surgeon; (2) the instrument table should be placed slightly to the side of a nurse and in the range of the operator's hand; (3) if possible, the instrument table and scrub nurse should be on the dominant hand side of the surgeon operator; (4) the most relevant instruments at any given moment or the most frequently used instruments should be laid out in front of the scrub nurse, in a particular order and nearest to a surgeon; (5) if using the same tools they should be laid out at the same place.

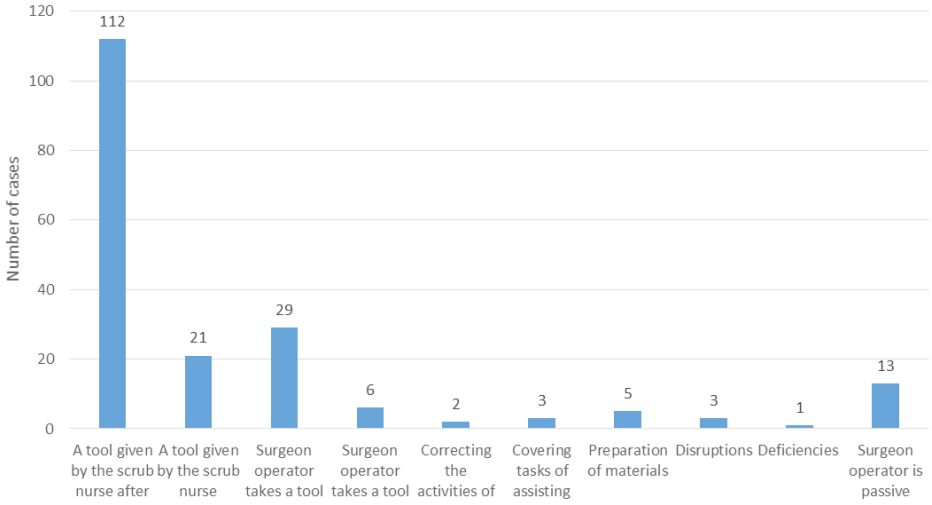


Figure 2. The chart shows the number of situations compatible with the checklist

However, other factors affecting the ergonomics of body posture and safety among other surgeries were recognized: these are laparoscopic surgeries. For instance, the location of the laparoscopic monitor is associated with problematic consequences. The usual postural pattern highlights the tendency to maintain a vertical posture, with less back mobility and weight distribution. A twisted neck results from the monitor position which is located out of the horizontal plane and straight ahead of the surgeon. Additionally, the limited mobility of arms' movements causes postural stress of the upper limbs.

Considering another workflow component, it is significant that 13 situations were noticed when the surgeon is passive and must wait for further action. However, it was mainly related to the expectation of an adhesion of the bone glue used to sticking the prosthesis that blocks other surgical operations.

Among different surgeries, the passive attitude of the surgeon was connected mainly with problems related to the correct working of surgical tools, the malfunction of medical machines, a lack of CO2 gas, etc. In this case, it is proposed that the checklist is used when organizing surgery and preparing the operating room.

Other components of surgical workflow have a marginal impact, but the high quality of the organization and the experience of the surgical team cooperating in this case study should be taken into account.

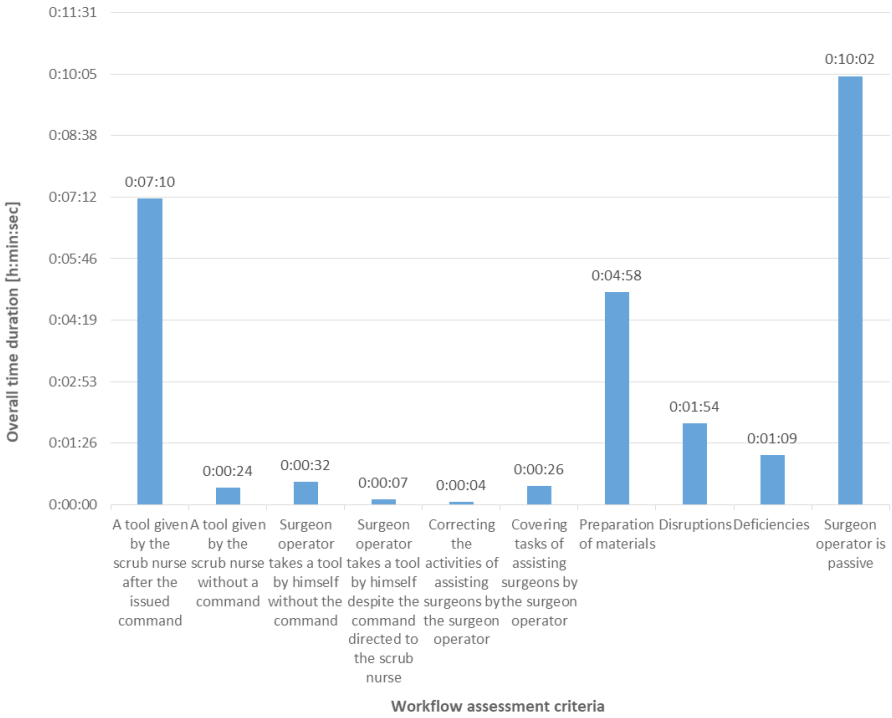


Figure 3. The chart shows the time duration of situations compatible with the checklist

5. Conclusion

Hospitals must focus on improving the efficiency of treatment. One of the most demanding domains in this regard is surgery which is characterized by a high degree of complexity of interdisciplinary knowledge, complicated medical equipment, innovative technologies, and the cooperation of people with different educational and specialization background, etc. In this context, it seems to be important to look for solutions for evaluating and improving the efficiency of surgical workflow. This paper presents an approach to examine surgical workflow based on observational techniques. The video material is a basis for conducting cross-sectional qualitative and quantitative analyses which recognizes factors affecting workflow effectiveness. In consequence, new knowledge about surgical workflow is a key point in creating a management strategy for organizing and controlling the processes that are performed in the operating room.

Particularly, the research outcomes highlight the importance of cooperation between the surgeon and scrub nurse when handing surgical tools. This type of activity is highly time-consuming; thus affecting the efficiency of the whole surgery. Other elements affecting surgical workflow were:

- disruptions such as: corrections to lighting in the operative field; replacing the pump suction and flushing because of a malfunction;
- the passive action of the surgeon results from such causes as: waiting for surgical instruments, waiting for the completion of activities performed by another surgeon, etc;
- deficiencies like: lack of materials, devices, etc;
- cases, where the surgeon covers activities normally performed by an assistant;
- cases, where the surgeon must correct activities performed by an assistant.

Most of the problematic cases are associated with a misunderstanding of the results due to a lack of previously developed scenarios and principles of cooperation, common ways of information exchange, communication rules, etc. There is a high degree of knowledge diversity and interactions between varieties of staff from different units involved in surgical treatment. Additionally, surgical teams are created rather accidentally without conscious creation, verified in terms of effectiveness of cooperation, repetitive compositions of surgical teams. In this regard, it is significant that surgical teams consist of variety types of medical specialists who possess a different kind of knowledge, motivations, personalities and abilities and that they can have different patterns of behavior as well as different educational paths.

The research results have opened up new, interesting areas for future studies regarding surgical workflow improvement such as mental workload and its impact on workflow efficiency. Another area could be searching for specific patterns in surgical workflow of different types of surgeries by conducting comparative analyses. Both the outcomes of this study and the future research perspective seem to be noteworthy because no similar studies have been identified in the literature.

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EFFICIENCY OF CULTURAL ORGANIZATIONS

Małgorzata Gałecka[1] and, Katarzyna Smolny[2]

Abstract

The aim of the presented study is the diagnosis of the effects of the operational activity of regional cultural organizations in the context of accessibility. The diagnosis is also a study of the condition of the public finance sector and an attempt to find indicators (variables) determining the most effective financing methods for an operational activity of cultural organizations. For this purpose, the authors developed indicators determining an efficient activity of regional theatres as public culture organizations. Identification of variables, which may be the basis for objective procedures for subsidizing cultural organizations in Poland, was set as the supporting purpose in this article.

The authors share the view, that accessibility is the primary factor determining the efficiency of public cultural services. Hellwig's method of the capacity of indicators information and development was used to identify efficiency drivers for public Theaters as performing art organizations. Ranking based on financial and operational metrics led to best organizations' exemplar that can play a model role. The study showed the most impactful indicators like the subsidy to the theater-goer, number of performances, and the number of citizens for each seat in the auditorium.

The use of Hellwig's method, the selection of variables and the creation of a ranking of the theaters were our original contribution. Further research will focus on exploring other concepts of accessibility testing and expanding data with qualitative metrics.

Keywords: *efficiency, culture, accessibility, performing art organizations, cultural economics, Hellwig's method.*

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1. Introduction

The tasks in the area of culture are funded mainly by local self-governments (further: lsg). In the years 2010-2014, from among all lsg units the major part of the funds from the lsg budget was allocated by the provinces (voivodeship, regional). This underlines a considerable commitment of lsg at this level to the development of culture. The size of expenditure for culture and national heritage in the overall structure of the provincial budgets, however, differs substantially. In addition, the percentage of expenditure for culture in relation to total expenditure of the provincial self-government decreases slowly but systematically. Partly, this is due to the extension of the scope of tasks financed from provincial self-government budgets but also to a noticeably decreasing number of artistic institutions. Despite this, provincial self-governments best implement expenditure plans for culture. The worst, in this respect, are municipalities with poviat rights (Modzelweska & Kukołowicz, 2015).

The authors considered accessibility an important factor determining the efficiency of cultural public services. Efficiency, defined in the context of accessibility, should become an important criterion of public spending followed by purposefulness and compliance with the law. Public accessibility of culture is understood as the accessibility of services that at the same time are: targeted toward achieving the social objective, associated with the sector of culture and implemented in the framework of public funding directly by public administration or on its behalf (Kożuch & Kożuch, 2011). The „accessibility" of the cultural offer is frequently present not only in the legal acts but also in the literature. The doctrine takes the view (Thorsby & Withers, 1979; Ilczuk, 2002), that the accessibility of culture should be defined by the opportunity to participate (Kultura Dostępna, 2015) in it and can be analyzed in spatial (Guzik, 2003), economic and social terms. This statement seems to be the key, as it places the accessibility of cultural services among the basic indices concerning the state of culture and its real potential impact on various dimensions of social and thus economic life. The development of cultural services is directly dependent on the accessibility of financial resources (Trzeciak, 2011) or/and the ability to acquire financial resources from the outside (Amans, Mazars-Chapelon & Villesčque-Dubus, 2015). An alternative view is that all factors analyzed by the economics of culture are dependent on economic factors. In this context, economic efficiency of the services provided is essential.

The authors proved that public institutions generate their own revenue to a small extent and their activity is based on subsidies granted by the organizer (Gałecka & Smolny, 2017). The authors assumed that the theatre is an example of a unique cultural unit. This choice was no coincidence. A vast majority of theatres are financed by lsg.

2. Literature background

In the literature, quality and quantity (Trzeciak, 2011, p. 16) are indicated as the main objectives of the operations performed by non-commercial cultural entities. The authors do not address the problem of quality of theatrical services. The authors for the purposes of this article assumed that all initiatives taken by public theatres in Poland are of sufficient quality in order to treat them as cultural.

The source literature strives to develop procedures and tools to help manage units of lsg with a view to effective expenditure of financial resources (Owsiak, 2014; Dylewski, Filipiak, & Gorzałczyńska-Koczkodaj, 2004) and determination of efficiency measurements for individual public services (Pietrzak, 2011). This issue is particularly noticeable in respect of health service (Bem, Ucieklak-Jeż, & Prędkiewicz, 2013, 2014; Dwornikowska-Dąbrowska, 2012) or education (Balcerzak, 2008). Orientation on the constant increase of efficiency in public services provided at the level of lsg units is justified considering the difficult situation of public finance, constantly growing expectations of self-governing communities (Kachniarz, 2012; Opolski & Modzelewski, 2009) and above all, the continuous increase in public expenditure that, in the context of cultural services, has its "hidden agenda" (Baumol & Bowen, 1966). Culture is one essential means by which both normative and cognitive structures are conveyed (DiMaggio & Powell, 1983; DiMaggio & Powell, 1991). In the literature, the relationship between national culture and entrepreneurship was verified positively (Bruton, Ahlstrom, & Han-Lin, 2010). According to Toffler (1996), the quality and policy of the state have a more significant impact on economic development than cheap labor or technologies. Sometimes the theatre is even referred to as an economic indicator (Moritz, 1974).

In the literature, the social dimension of expenditure for culture, in particular, is emphasized and the subsidization of cultural organizations (further: CO) has a broad justification in the source literature and in the legal acts (Młynarska-Sobaczewska, 2013). Public theatre should be primarily accessible to everyone and open to a diversity of opinions. This is considered to be a precondition to avoid any harmful unilateralism in public theatre (Kosiński, 2015). The differing types of audience that public theatre should seek are a basic consequence of the financing from public funds (Łukaszewicz, 2015), which is consistent with the provisions of the law on public finance. Improvement of the program offered by CO is a task specified in the financial plan of the Ministry of Culture and National Heritage and is evaluated on the basis of the number of persons participating in the art projects in comparison to the previous year (Pietrzak, 2011). Accessibility is thus understood as

providing access to culture for all citizens including ethnic and language minorities, the disabled, the unemployed, prisoners, seniors, etc.

It is worth mentioning that "accessibility," understood as providing the possibility to use the offer addressed to a wide audience, including various types of viewers, is also present in world literature (Thorsby & Withers, 1979; O'Hagan & Neligan, 2005). The number of cultural services offered is directly connected to the possibility to use the offer by the largest number of people and in the literature the volume of tickets sold is regarded as the basis of usefulness (Thorsby et al., 1979). The turnout and thus indirectly the supply of cultural services may be the basis for calculation of the function of theatre usefulness also according to Hansmann (1986). In Thorsbie's later works there even appears a function of theatre production based on the assumption that the result of the theatre's activities translates into the number of viewers in general (Thorsby, 1994).

In Italian studies, we come across an indicator measuring theatre services and it is understood as: the number of guest performances and own productions played in a given theatre and outside of it (Fiazoli & Filippini, 1997). The potential access to cultural services as the number of seats in the concert hall multiplied by the number of concerts was also assumed by Heilbrun (2003).

3. Research approach and methods

The objective of this article is to diagnose the effects of cultural organizations' activities in the context of accessibility based on the example of theatres for which provincial self-governments are their organizers**.** This diagnosis is simultaneously a study of the status of the public finance sector and an attempt to find indices determining the most efficient financing of theatre activities as CO. To achieve the objective indicated above, coefficients determining the efficiency of provincial theatres as public institutions of culture and the impact of the individual variables on this efficiency are to be specified. Thus, as an auxiliary objective, determination of variables which may give rise to objective procedures for subsidization of cultural units in Poland was adopted. The authors share the view that the fundamental factor for the efficiency of cultural public services is their accessibility. For the purposes of this article, the accessibility of cultural services was defined as the quotient of the number of viewers of permanent productions at the theatre in relation to the number of seats available in the theatre on a permanent basis (in other words: theatre-seat utilization rate).

For identification of variables that demonstrate a significant link to the efficiency of CO activity, the method of capacity of indicators information and synthetic indicator of development by Z. Hellwig (1968, 1974) was used.

Individual capacity of indicators information indices for variables was defined by means of the following Formula 1:

$$h_{kj} = \frac{r_j^2}{1+\sum_{l=t}^{m_k} |r_{lj}|}, (j = 1,2, \ldots\ldots, m_k) \quad (1)$$

h_{kj} – individual information capacity of the value j-th of this variable in l-th combinations, r_j - the value of the correlation vector R_0, r_{lj} - the value from the correlation matrix R, l - the number of the combination, j- variable number in combination ($j=1,2\ldots.m_k$), m_k – the number of the variable in k-th combination.

h_{kj} indicator has greater values, the higher the correlation coefficient rj is. After calculating values of the individual capacity of indicators information for all the variables included in the combination, the integral capacity of the combination for the data carriers is calculated.

The combination for which h_k value is the highest is selected. For the purposes of the article, this method is being used to emphasize the importance and the selection of major measures of efficiency for the activity of CO for which the voivodeship is their organizer.

The indicator of development (also known as Hellwig's development measure - DM) is used for linear ordering of objects described by many diagnostic variables replaced by one synthetic variable. By means of this method, you can organize the results of cultural organizations' operations from the „best" to the „worst." This means that as a result of the method used, one may organize the investigated CO according to the efficiency of services provided, based on the accessibility understood as a theatre-seat utilization rate. The successive stages of the structure of development measure are as follows:

1) Standardisation of diagnostic variable values.
2) Determination of the reference point coordinates z_0.
3) Designation of the distance of each object from the model by using Euclid's formula.

The lower the value of the distance is, the more favorable its situation in relation to the investigated phenomenon is.

The subject of the study on the efficiency of CO is public theatres, for which their organizer is a voivodeship. The data for the study were obtained by way of individual queries concerning the financial statements and substantive reports of CO for the years 2011 - 2015. The indicators adopted for the analysis were taken from the official publications of the Central Statistical Office (Local Data Bank). The research sample consisted of 26 theatres, for which its voivodeship is the organizer. For each theatre, the correlation between variables over the years 2011-2015 was investigated. Due to the lack of a possibility to accurately diagnose the cultural sector in the financial

and substantive sphere (even for such basic information as the number of participants, the number of seats in the audience, or turnout), not all provincial theatres were taken into account in the study.

4. Discussion and results

In the article, the authors selected nine variables affecting the efficiency of CO activity. The accessibility of CO marked as Y is a dependent variable having a decisive influence on the efficiency of the cultural institution activity. This variable was illustrated as the quotient of the number of viewers of permanent productions at the theatre in relation to the number of seats available in the theatre on a permanent basis (in other words: theatre-seat utilization rate).
In order to select the factors affecting the development of accessibility shown as theatre-seat utilization rate, we calculated the correlation coefficients between individual variables characteristic of the analyzed CO:
X1 - the share of financial result in the costs
X2 - the share of subsidies in the total revenue
X3 - the share of own revenue in the total revenue
X4 - the number of premieres per stage
X5 - the number of shows/performances per stage
X6 - population per one seat in theatres and music institutions
X7 - the unemployment rate
X8 - subsidy per one viewer
X9 - viewers and listeners in theatres and music institutions per 1000 population
Variables from items 1 to 5 and variables no 8-9 were characterized as stimulants. Variables 6 and 7 were marked as dis-stimulants.

A high proportion of subsidies in the total revenue or per one viewer shows essentially: economic inefficiency of the CO. The role of public theatres as CO is however not to strive for a financial surplus but to spread culture in the broad sense of the word. For this purpose, accessibility of a given facility is important. It is characterized by a large number of viewers in relation to the infrastructure possessed.

The high share of subsidy in the total revenue increases the accessibility of cultural services because it is an essential source of funding for public CO (Gałecka & Smolny, 2017). A high subsidy is a stimulus for the smooth functioning of both small and large theatres. Small theatres, due to their spatial infrastructure are unable to obtain high revenue that could adequately cover the costs of performances. Grand institutions of culture have many more opportunities to obtain own revenue but their fixed costs are very high, and thus they are less financially flexible. The authors identified X2 and X8 variables as stimulants.

We defined variables 6 and 7 as a dis-stimulant. We are of the opinion that the lower the number of population per one seat in theatres and music institutions in a given region, the greater the accessibility of CO is. In turn, the low unemployment rate could translate into increased interest in cultural services. For each theatre, we investigated a correlation between variables over the years 2011-2015. Subsequently, we examined the obtained correlation vectors and matrices using the method of capacity of information bearers (the Hellwig's method). The results obtained are shown in Table 1.

Table 1. List of studied variables in regional theaters

Theatres	X1	X2	X3	X4	X5	X6	X7	X8	X9	H	WPI
Teatr Muzyczny im. D. Baduszkowej in Gdynia				1				1		H51	0.93601
Teatru Dramatycznego im. A. Węgierki				1		1				H47	0.96912
Teatr Wierszalin in Supraśl				1			1			H4	0.95648
Teatra Polski in Szczecin	1				1					H14	0.96503
Teatr im. Stefana Jaracza w Olsztynie		1			1					H15	0.67727
Teatr im. Aleksandra Sewruka in Elbląg								1		H25	0.98019
Teatr im. Stefana Żeromskiego in Kielce	1					1		1		H64	0.98273
Teatr Dramatyczny im. J Szaniawskiego in Płock	1								1	H30	0.97453
Teatr im. Stefana Jaracza in Łódź	1			1	1					H46	0.98488
Teatr Wielki in Łódź			1					1		H41	0.99699
Teatr Rozrywki in Chorzów					1					H13	0.66400
Krakowski Teatr Scena STU					1	1		1		H104	0.99415
Teatr im. J. Słowackiego in Kraków	1	1	1					1		H110	0.98843
Teatr im. St. I. Witkiewicza in Zakopane					1					H13	0.88932
Teatr im. Jana Kochanowskiego in Opole					1	1		1		H104	0.99486
Teatr im. Wiliama Horzycy					1	1				H55	0.98448
Teatr im. J. Osterwy in Lublin						1		1		H63	0.84647
Teatr Wielki im. S. Moniuszki in Poznań			1						1	H43	0.91243
Teatr Nowy im. Tadeusza Łomnickiego in Poznań	1	1	1							H7	0.99691
Teatr im A. Fredry in Gniezno				1	1			1		H98	0.97249

Theatres	X1	X2	X3	X4	X5	X6	X7	X8	X9	H	WPI
Teatr im. W. Bogusławskiego in Kalisz		1					1			H23	0.92197
Teatr Polski in Wrocław	1	1				1				H20	0.97543
Teatr Dramatyczny im. J. Szaniawskiego in Wałbrzych					1	1		1		H104	0.82299
Teatr im. H. Modrzejewskiej in Legnica				1				1		H51	0.16739
Teatr im. Jana Osterwy in Gorzów Wlk.	1			1		1				H48	0.99456
Lubuski Teatr im. Leona Kruczkowskiego in Zielona Góra								1		H25	0.87402
Sum	8	5	4	7	10	9	2	12	2		

The applied Hellwig's method indicates that for the theatres combinations of X1, X4, X5, X6 and X8 variables were chosen most often. The most frequent variables X8, and X5 were ranked second. X6 indicator was ranked third. Indicators X1 and X4 were also relatively frequent. The share of subsidy in total revenue did not play an essential role. The information validity criterion and the variable occurrence frequency criterion in various sets were the basis for formulation of the set of eliminated and selected variables. We finally selected the following variables and used for the study purposes: X1, X4, X5, X6 and X8.

Table 2. Classification of regional public theatres

Position	DM	Theatres	voivodeship
1	12.434	Krakowski Teatr Scena STU	Małopolskie
2	12.616	Teatr Wielki in Łódź	Łódzkie
3	13.519	Teatr Wielki im. S. Moniuszki in Poznań	Wielkopolskie
4	13.671	Teatr im A. Fredry in Gniezno	Wielkopolskie
5	13.684	Teatr im. W. Bogusławskiego in Kalisz	Wielkopolskie
. . .			
22	16.830	Teatr im. Stefana Jaracza in Olsztyn	Warmińsko-Mazurskie
23	16.853	Teatr im. St. I. Witkiewicza in Zakopane	Małopolskie
24	16.872	Teatr im. Jana Kochanowskiego in Opole	Opolskie
25	17.636	Teatr Polski in Wrocław	Dolnośląskie
26	17.950	Teatr im. H. Modrzejewskiej in Legnica	Dolnośląskie

Source: own elaborations *) only top 5 and bottom 5 presented.

The selected variables make a group of coefficients directly affecting the efficiency of public institutions of culture in the context of their accessibility. Consequently, the result was the classification of theatres.

The studies show an essential position of Krakowski Teatr STU, Teatr Wielki in Łódź, Teatr Wielki S. Moniuszki in Poznań, Teatr im. A. Fredry in Gniezno or Teatr Bogusławskiego in Kalisz. The position of the subsequent theatres is shown in Table 2.

Teatr STU emerged as the one that seems to be the closest to the model theatre. This theatre had a positive financial result, a large number of performances per stage (mean: 191, with a mean value for all theatres: 111 performances per stage), a high number of premiers per stage (mean 3.4 premiers; with mean value for all theatres: 2.6) with a low value of subsidy indicator per one viewer (mean 54.5 PLN/person, where a mean value for all theatres was 147 PLN/person).

Teatr Wielki in Łódź had a high number of premiers per stage (an average of 4.2), the highest (compared to others) mean financing of subsidy per viewer (average 495 PLN/person), and the number of performances per stage below the average (85.8). Similarly, Teatr S. Moniuszki in Poznań took a leading position as regards the number of premiers (average of 3.9 per stage). Moreover, during the year, on average it showed 87.8 performances per stage with co-financing per one viewer oscillating around 230 PLN.

Teatr im. H. Modrzejewskiej in Legnica was the last in the ranking. Its indices were as follows: subsidy per viewer (mean value) 124 PLN/person, the lowest value of the number of performances per stage (mean value 49 performances per stage) and the number of premiers below the average for all the investigated theatres.

Similar results may be obtained after elimination of X1 and X6. We eliminated X1 indicator due to the non-commercial nature of the CO. We eliminated X6 indicator due to the problematic nature of this indicator - a number of people per one seat in the theatre in the permanent auditorium includes all institutions, not only those financed by the province, but also those financed by municipalities and directly from the state budget.

A significant change pertains to the first place of the ranking with J. Osterwa Theatre in Lublin (lubelskie province). The theatre had a positive financial result in relation to costs, a large number of performances per stage (mean value: 172), a high number of premiers per stage (mean 3.6). Subsidy financing per one viewer was on average 183 PLN/person. The change in the classification was caused by removal of X6 statistical index defined as a dis-stimulant. Lubelskie province has a very high number of population per one seat in theatres and music institutions (more than a thousand people), which significantly affects

the result. It is therefore worth verifying the inclusion of this indicator in the econometric model for the efficiency of cultural organizations' activities.

After the elimination of the above variables, subsidy per one viewer (X8 variable) had a significant impact on the change in the „model" unit. Between Theatre STU and Theatre in Lublin and other leading theatres - e.g., Theatre in Lodz, significant discrepancies concerning values of this ratio are noticeable. The other parameters concerning the number of performances, premiers and even the financial results were very similar. At this point, it should be mentioned that X8 variable was defined as a stimulant. This model ranked closer to the model unit with the most favorable values for the selected characteristics.

5. Conclusion

We investigated the efficiency of public theatres seen through the lens of their accessibility. The primary objective of the study was to determine the factors directly affecting the efficiency of the activities carried out by public institutions of culture. To achieve the above objective the method of integral capacity information was used. Owing to it:

- we selected efficiency (accessibility) indicators for public theatres in Poland;
- out of the nine explanatory variables included in the survey, ultimately three of them remained in the model;
- we developed a set of the most important characteristics: the financial indicator - the share of subsidy to the number of viewers (X8). The number of premiers per stage (X4) and the number of performances per stage (X5) occurred to be of significance as well;
- the financial results in relation to total costs (X1) appeared relatively frequently.

It may be taken into account in order to rationalize economically the activities of theatres. These results appear to be logical and have justification in practice. Also, the investigation showed that other indices taken into consideration are of no greater importance, which simplifies the potential model of theatre subsidization.

These indices may serve to support the process of public governance, evaluation of public policies at different levels of territorial organization, taking into account such dimensions as the widely discussed accessibility, efficiency or efficacy of the activity in the qualitative and quantitative dimension. They may also be helpful for the analysis of various aspects of the functioning of entities operating in the sphere of culture. As regards the selection of variables for the econometric model to measure the efficiency of CO, combinations that take into account the variables designated in article

should be created. Depending on the aim of study, it is worth extending it by additional ones connected with: the quality and scope of services offered, spatial and transport distance from the services, unsuitability of services for people with disorders or disabled persons, unsuitability of services for people and communities of ethnic minority groups, cost of fees and tickets or even the function of director/manager held by an artist or an economist.

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PROCESSES MATURITY OF AN ORGANIZATION – CONCEPT AND IMPLEMENTATION

***Paweł Mielcarek*[1]**

Abstract

The presented concept of process maturity assessment of an organization has been proposed on the basis of literature studies. The inference is based on inductive procedures and will be verified by empirical studies.

The aim of this article is to present the author's concept of process maturity as well as specific conditions of its implementation in an organization. The process maturity proposal consists of three dimensions: strategic, operational and effects. Then for each dimension three areas are indicated. As a result, a complex and multidimensional concept is presented that enables a move from a functional to a process-oriented organization. The level of process maturity is indicated by an assessment of each dimension and area. Altogether there are five levels of process maturity, where the zero level means no maturity and the fifth level is full maturity. In the second part of this paper, attention is paid to the issue of implementation of process maturity. Some recommendations and some operational framework examples are presented as well as key barriers concerned with this project.

In terms of value added, the presented concept can be used to assess the maturity of the entire organization, as well as the individual process or process area. Also, the utility and complexity of the proposed model will allow a better understanding of the whole process for decision makers and ensure the controllability of the project of introducing process orientation into an organization. Therefore, this text is addressed to people concerned with practical and theoretical determinants of process maturity.

Keywords: *process maturity, process-oriented organization, process, organization, model.*

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1. Introduction

The assumption of a process orientation is that the optimization of activities should focus on the process, i.e. the main and natural factor determining the efficiency of an organization (Grajewski, 2007, p. 54). The development towards process orientation includes internal organizational changes that enable an organization to transition from being functional, through a process-based phase, to finally being an oriented organization (Cieślińsk, 2009). The outline of organizational development can be divided into three phases of change (Perechuda, 2005):

1) From organizations with functional orientation to process orientation.
2) Covering the development and improvement of process-oriented structures and management systems.
3) Leading to the implementation of the company's orientation to the event. Process maturity is a concept that describes the level of implementation of business process orientation (BPO) in an organization.

Therefore, it is assumed that the higher the process maturity, the more benefits from BPO will occur in a given organization.

2. Literature background

Process maturity is the ability of the organization, including its processes, to systematically improve the delivered results as part of its operations (Kalinowski, 2011). In particular, it is perceived as the extent to which processes are formally defined, managed, flexed, measured and affected (Grajewski, 2007).

A slightly different approach perceives process maturity as the optimal allocation of organizational resources in stable and metered processes (Grela, 2013). Therefore, it is a focus on the situational approach to assessing process maturity. This definition emphasizes the importance of production factors in achieving the organization's goals and it was assumed that it concerns developed process-oriented organizations (*the processes of the organization are stable and measured*). The adoption of a model state, therefore limiting the whole phenomenon to only a high level of maturity precludes the possibility of indicating intermediate stages of development. This also reduces the utilitarian character of this approach.

Based on a functional perspective, which focuses on describing the way of creating a complex thing, two aspects determine the process maturity of an organization. The first is the level of advancement of applied methods and techniques of process management (Bitkowska, 2009). The second is the degree of awareness and knowledge about the functioning of processes

in an organization used in decision-making by management (Brajer-Marczak, 2010; Krukowski, 2016). The consequence of the functional approach to the description of process maturity is the adoption of a deterministic paradigm, in which the decision-maker will indicate an adequate level of maturity for a given situation and stage of the organization's development.

Those two perspectives are the main views as to how process maturity is described in the literature. However, according to the Association of Business Process Management Professionals, there are over 150 different models of process maturity (Kalinowski, 2011; Spanyi, 2004). The first of the models of process maturity proposed in the literature is the Capability Maturity Model (CMM) developed by Software Engineering Institute / Carnegie Mellon University (Humphrey, 1995). It has been assumed that managers' understanding of the principles of the process approach will allow for the systematic management of processes in such a way as to respond to the changing needs of clients, and to effectively and quickly achieve the goals set by the organization. As part of this model, selected areas of an organization's operation are assessed. An even more detailed approach was applied in the Process and Enterprise Maturity Model proposed by Hammer (2007). In the PEMM model, process maturity is determined for each process separately.

However, there are also models that allow the assessment of process maturity of a whole organization (Fisher, 2004; Harmon, 2003; Kerremans, 2008). From this group, some of the models are designed based on a matrix framework, in which a particular level of process maturity is defined by different criteria. For instance, in Fisher's concept, strategy, control, process, employees and ICT, are all indicated: (2004).

The concept that is presented in this paper is allocated in an iterative approach of the implementation of process orientation in an organization. In particular, for this view, an important aspect is describing the logic of the implementation of the process approach, based on the conditions of the environment, the organization's goals and the estimation of the incurred efforts to the obtained effects. Each cyclical analysis of these variables would allow one to make the best managerial decisions in the field of enterprise development and the introduction of BPO.

Therefore, the purpose of the article is to present the author`s concept of process maturity of the organization, including an individual assessment of three dimensions: strategic, operational and obtained effects, which combined together indicate the level of process maturity. In addition, to facilitate better decision making, key success factors and barriers were introduced for each of its maturity levels. This should improve utilitarianism and ensure a better adjustment of the indicated concept to the specific needs of the organization.

3. Research approach and methods

The following assumptions have formed the basis for developing the concept of process maturity. First of all, the design of the model was aimed at achieving the utilitarianism of the concept, which would translate into the possibility of using it in organizations of various sizes, stages of development or business profile.

Secondly, it was assumed that a process-oriented organization is an entity embedded in the supply chain. Thus the process maturity of the organization will be partly conditioned by its interaction with the environment (see Figure 1).

Thirdly, elements of a process-oriented organization are components of the management system. Thus they should be embedded in the strategic management subsystem. For example, the objectives of processes should be related to the strategic goals of the organization and a change in the business model should be coupled with a change in the process management system. At the same time, this assumption is based on the systemic perception of the organization, i.e., the result of functioning depends on the interconnections between individual elements of the system and the synergy effect.

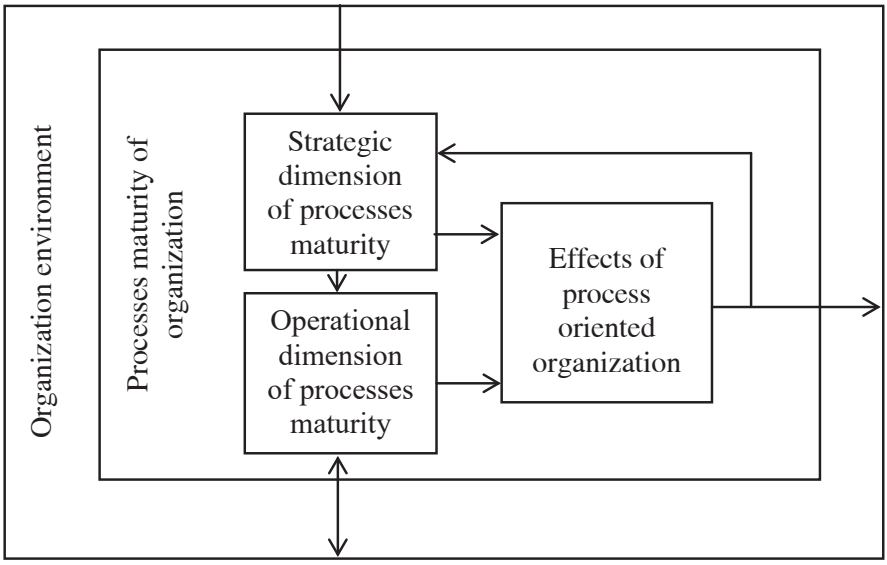

Figure 1. Model of processes maturity of organization

Fourthly, the proposed model includes three dimensions that create the process maturity of the organization: strategic, operational and effects. Each of the dimensions consists of the following three areas (see Table 2-4). The dimensions are rated on a scale from 0 (meaning there is no process maturity)

to 4 (meaning the highest level of maturity - the maturity of the process system) (see Table 1). Diagnosis of the process maturity level of a given organization is based on the criteria included in the tables. Final assessment of the maturity of a given dimension (strategic, operational, effects) is a result of the lowest achieved score for the included areas. For example, when assessing the strategic dimension of process maturity, it was found that there is a third level in the area of strategy, the second level in the area of organizational culture, but the first level in the area of the structure. Therefore, the total assessment of process maturity of the strategic dimension will be 1. On the other hand, the final assessment of the process maturity of the entire organization is decided by the sum of the points obtained from all three dimensions (see Table 1).

There is also the possibility of a short assessment of the maturity of the selected process area or a specific process. In this case, the assessment is made only on the basis of the criteria set out in Table 3 (for the operational dimension of process maturity) and the central column of Table 1.

Table 1. Levels of processes maturity of organization – grading scale

Levels of processes maturity	Individual process	Organization
Level 0. No process maturity	0 points	0-1 point
Level 1. Definition of process / processes	1 point	2-4 points
Level 2. Implementation of process / processes	2 points	5-7 points
Level 3. Embedded and improvement of process/processes	3 points	8-10 points
Level 4. Maturity of process / processes	4 points	11-12 points

4. Concept of process maturity model

The concept of process maturity assessment is based on three dimensions and reflects the logic of introducing the process approach to the organization. First of all, the preparation of conditions and the organizational environment conducive to the implementation of the process approach is assessed. These are strategic tasks requiring a long horizon of operation, which is a condition for the maintenance and durability of the changes introduced. The elements to be assessed include:

- the organization's strategy and its translation into ongoing processes;
- the organization's structure, including defining roles and powers, and selecting units involved in the coordination and support of process management;
- the organization's culture, including the attitudes of employees and management.

Subsequently, it is possible to focus on the operational dimension, i.e., on the management of a particular process or processes. This dimension includes the following areas:

- identification and integration of processes, setting process objectives, designing the course of activities within the process, defining the links between processes;
- the measurement system, or indication of the measures and the method of measurement of the process-oriented organization;
- applied methods and tools for process management.

Table 2. Strategic dimension of processes maturity – gradation scale

Maturity level	Strategic dimension of processes maturity		
	Strategy	**Culture**	**Structure**
0	No organization development strategy	Lack of awareness of the benefits of using process orientation	Structure based on the specialisation of activities, lack of support in the horizontal dimension and cooperation
1	The strategy includes long-term and short--term goals	High level of resistance of employees against changes, increase of knowledge about process orientation	Units supporting process management in the sphere of process definition and coordination are created (e.g. Processes Office, Process Support Team Office)
2	The organization's goals are cascaded for process purposes but there is no feedback in planning	Valuation of the importance of process orientation by management, identification of change agents	The owners of processes and process teams are indicated, as well as the competences assigned to them
3	Shaping the organization's goals based on a repeated cycle: implementation of strategic goals - implementation of processes	Dissemination and acceptance of process orientation among employees. Changes initiated by the chief executives and process owners	Matrix structure of the organization based on two complementary functional and process dimensions is implemented
4	Integration of processes with strategy, processes enable redesigning the business model	Full dissemination of the attitude towards continuous improvement of processes. Employees engaged in continuous process improvement	The structure flattens. Process management units support continuous process improvement and provide methodological support for owners and others employees

Subsequently, it is possible to focus on operational dimension, i.e., on the management of a particular process or processes. This dimension includes the following areas:

- identification and integration of processes, setting process objectives, designing the course of activities within the process, defining the links between processes;
- the measurement system, or indication of the measures and the method of measurement of the process-oriented organization;
- applied methods and tools for process management.

Table 3. Operational dimension of processes maturity – gradation scale

Maturity level	Operational dimension of processes maturity		
	Identification and integration	**Measurement system**	**Methods and tools**
0	Activities are carried out in a random and unstable manner	Lack of measurement of implemented activities	Process management methods are not systematically applied
1	Process-specific goals are defined, maps are created, and links between individual processes and/or activities are designed	Projects for measuring selected process areas or processes are undertaken	Organization activities are standardized. Procedures and / or ISO systems are applied
2	The objectives of processes are integrated with strategic goals but there are problems with coordination between individual processes	Measurements of process / processes are integrated with the measurement system including the level of the entire organization and workplaces	Basic methods of process improvement (e.g. lean management, TQM, best practices) are applied. Processes are supported by workflow IT tools
3	Processes throughout the organization show a high level of integration. Goals of supply chain entities' processes are recognized and integration with these processes is started	Measurement system is supplemented by measurements of the effectiveness of individual and group activities (process teams). Process measures are applied to selected processes of entities from the supply chain	Advanced methods of process improvement (e.g., six sigma reference models) are used. Processes are supported by ERP IT tools
4	Process management is extended to the entities of the supply chain, the processes of the organization are integrated with the processes of cooperating entities	Measurements allow the assessment of the effectiveness of the activities of organizations and entities in the supply chain	Scenario management and pre-event management are applied. Common use of methods: just in time, the pull system, one piece flow

The last dimension focuses on the effects obtained from the implementation of the process approach. In particular, the following issues are assessed:

- improvement of processes, including operational and strategic improvement implemented in a continuous and systemic manner;

- creating added value for external and internal clients;
- the ability to change in response to the actions of external entities, as well as endogenous changes initiated by the organization.

Table 4. Effects of process-oriented organization – gradation scale

Maturity level	Effects of process-oriented organization		
	Process improvement	**Value creation**	**Change capability**
0	Lack of systematic improvement of processes. Single projects to improve the effectiveness of activities are not disseminated throughout the organization	Low repeatability of achieved results, there are problems with the quality of manufactured products and delivered services	Low level of an organization's ability to adapt to changes in the environment
1	Processes become repetitive and stabilized. Based on feedback from processes, the main issues for improvement are indicated	A focus on creating value for an external client based with the goals of organizational units	The ability of the organization to adapt to changes increases, the communication system is developed / improved
2	Projects of operational process improvement are spread. Waste is eliminated. Individual projects for process improvement of strategic importance are implemented	The internal client's requirements in key processes are defined. Quality built into the process	Moderate level of ability to adapt to changing organizational goals and changes in the environment developed / improved knowledge management system
3	A fully operational process management system based on continuous process improvement in operational and strategic terms is established	Focus on creating value for the external client by providing value to the internal client	High level of ability to adapt to the environment. The ability to create changes in the environment is increasing
4	Full agility of the organization's processes enabling changes of the business model and continuous strategic renewal is implemented	Outsourcing of processes with low efficiency is applied. The process system is aimed at creating added value throughout the supply chain	High ability to create changes in the environment and rapid adaptation of organization

The assessment in the above three dimensions allows for a comprehensive examination of the process's maturity of the organization, i.e., in strategic and operational terms as well as the results obtained. The adequate level of process maturity is achieved by the organization through the iterative implementation of individual elements of the process orientation. This logic is based on the coupling between the components of the process management system and the obtained effects of the process-oriented organization (see Figure 1). For example, a change in the process management system implies the need to

update the strategic goals of the organization, which are then transposed into operational activities and processes. The cycle ends with an assessment of the obtained effects and decision to stop or continue implementation of the process orientation. However, setting the proper level of maturity of the organization is not the only complex phenomenon in this task. Equally challenging is enabling adequate conditions for the successful implementation of process orientation.

5. Discussion and results - implementation of process maturity model

A project to implement business process orientation is a complex, time-consuming and risky phenomenon. During its realization, management will repeatedly assess the level of process maturity. Therefore, of crucial importance for the project's success, is to ensure the right sequence of implementation and development of dimensions that build process maturity (see Figure 2).

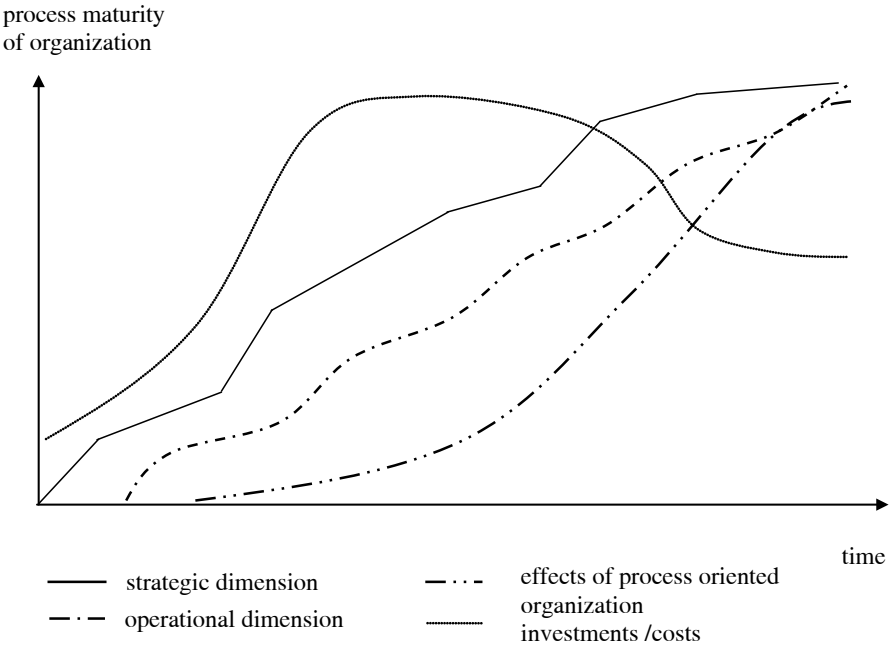

Figure 2. Relations between three dimensions of process maturity and costs

A correctly planned project in the first place requires that one ensures appropriate organizational conditions, and that means focusing on a strategic dimension of process maturity. After obtaining the appropriate level of development in this area, the next activity should concern operational

dimension. The consequences of the above activities should be getting adequate effects of process-oriented organization. It is worth noting that the expenditures concerned with the implementation of BPO exceeded the obtained results in this matter. Moreover, the specificity of elements of process management system creating strategic dimension (especially creating strategy, changes in the organization structure), due to its discontinuous character, are presented in the figure below as a form of a broken line. While activities considered as operational dimension have a rather incremental character and are introduced in an evolutionary manner – a wavy line in the figure below.

The relationship between the three dimensions of process maturity and incurred investment/costs shown in the chart below is a model approach illustrating the expected development of process maturity of the organization. However in practice, there may be cases of organizations having a different set of development of process maturity dimensions, e.g. a lower level in the strategic dimension of process maturity in relation to the other two areas (for example 1; 3; 3) or a clear advantage of certain dimension over the two others dimensions (for example 1; 2; 4 or 2; 4; 2). However, yet, those states are rather treated as a dysfunction of implementation and are considered as suboptimization. This means that it may indicate the short-term emergence of symptoms of a high level of process maturity, which will not be based on a suitably, balanced development of the process management system. In the long term, the effect of inertia in the organization may cause regression of the obtained process maturity level. Therefore, the above discourse can be summarized with a recommendation in the form of a formula: synergy of the process management system tends to the maximum if the level of the strategic dimension ≥ level of the operational dimension ≥ level of the effects of process-oriented organization.

Moreover, failure to maintain the above-mentioned dependence may be the result of, among others, insufficient employee knowledge, a decrease in support in terms of investments for the implementation of the process approach, or a reduction in employees' motivation to continuous processes improvement (see Table 5).

Dysfunctions of the implementation of process orientation, presented in the above table, are often encountered examples. In practice many more different cases are observed. However, decision makers should consider those kinds of obstacles and side effects when planning the implementation of BPO projects.

6. Conclusion

The aim of this article is to present the author's concept of process maturity as well as specific conditions of its implementation in an organization.

Table 5. Examples of dysfunction of the implementation of process orientation

Dimeson	Dysfunctions descriptions	Negative results	Maturity level
Strategic dimension	Lack of management support for BPO implementation	Decreasing support for bottom-up initiatives; Not sufficient or wrong allocation of the organization's resources to implement BPO projects; Lack of leadership; Rising conflicts on a middle management level	Usually appears on 0-3 level
	Organization structure doesn`t adjust to demands of BPO	Decrease in process efficiency due to impropriate roles and powers distribution; Too little competence of process owner contributes to loss of controllability and benefits of processes	Usually appears on 1-2 level
Operational dimension	Dysfunctional of measurement system	Measurement system is not enough developed, lack of information needed for process improvement	Usually appears on 1-2 level
	Lack of integration organization`s processes with processes of supply chain entities	This can hinder value creation and decrease customer satisfaction, if this state is permanent this can threaten long term success of organization and compromise its competitive position	Usually appears on 3-4 level
Effects of process--oriented organization	Difficulties with defining and implementing concept of internal customers	This issue will occur in quality problems, extending the duration of activities, costs rise and in consequence decreasing customer satisfaction	Usually appears on 2 level
	Lack of integration between business model changes and process improvement	This issue will result with discontinuity of organization operation every time a strategic shift is applied in organization. In some extreme cases this could mean that after changes in business model there will be decrease in achieved maturity level	Usually appears on 4 level

The presented framework is characterized by utilitarianism and scalability, providing the opportunity to evaluate both the entire organization and a single process, as well as applying it in an iterative and situational approach. The iterative assessment of process maturity allows, in given conditions, the optimal path of development. By obtaining a separate assessment for each of the three dimensions (strategic, operational and effects), it raises controllability of a BPO implementation project. Thus it is possible to indicate appearing dysfunctions and effects of suboptimization, which allows one to eliminate the waste of resources and improve the efficiency of operations.

This author`s proposal also allows one to design and introduce BPO based on a comparison of the objectives set before the organization with the conditions of the environment and the effects obtained from its implementation. On this basis, decision-makers can determine what the appropriate level of process maturity for a given organization is. This is especially important because the development of BPO in a first and second dimension is associated with incurring significant

investments, which will be discounted only on the condition of obtaining the appropriate level of development in a third area (effects of a process-oriented organization). At the same time, it should be emphasized that the adequate level of maturity in a given situation depends on many factors. Thus, it cannot be claimed that every organization should strive to obtain the highest, fourth level of procedural maturity as soon as possible.

Summarizing, the presented concept of process maturity stands out from other models presented in the literature, by capturing the dual nature (situational and dynamic based on the iterative approach) of process maturity, scalability allowing the assessment of both the entire organization and individual process, and embedding process maturity of the organization within the environment, including in the supply chain and in the strategic management system.

The presented concept also has some limitations. The first one is the choice of dimensions and areas used to construct the framework. Although the proposed variables result from the analysis of the literature, there is certainly a need for further discussion on the selection of individual components. Another issue that could contribute to completing the above-described concept is the need for empirical verification. Implementation of the above proposals should contribute to improving the applicability of the concept and its further objectification.

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MUSEUMS AS A RESEARCH OBJECT IN THE STRATEGIC MANAGEMENT FIELD

Marta Najda-Janoszka[1], Magdalena Sawczuk[2]

Abstract

The aim of the article is to identify and examine the main thematic paths shaping the strategic approach in the research on the management of museums. The study was based on a systematic review of scholarly papers using a bibliometric method and a qualitative content analysis. The investigation included theoretical and empirical research papers indexed in the Scopus and Web of Science databases. Based on the collected information, three main thematic paths were identified, i.e. a stream focused on issues related to financing museums, a second path focused on the management structure, and a final client-visitor oriented approach. The obtained results enabled the identification of significant research gaps with reference to the competitive environment analysis of museum units.

Keywords: *museum, strategic management, museum management, strategic approach.*

1. Introduction

Contemporary museums have been the subject of research across varied disciplines. Scholars have explored museums as educational, cultural, and even entertainment institutions, and as organizations that integrate society, conduct promotional and marketing activities, and operate as tourist attractions. According to developed lines of enquiry, museums can build and strengthen the identity of its stakeholders, those who are involved in the internal activities of the organization such as employees, funders, and those who are not considered as formal members of the organization - suppliers and clients (Lindqvist, 2012; Scott & Lane, 2000). Despite the observed increase in interest in museums as organizational units in which complex management

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processes occur, there has been a noticeable paucity of studies on museum management, especially regarding a strategic approach. Given the specificity of the museum institution, in terms of its distinct structure and activity profile, directing research attention to this type of organization in order to explore the strategic management perspective can be considered as a valuable challenge. The aim of this article is to identify and analyze the main thematic paths shaping the strategic approach in the museum management field. The research was based on a systematic review of the subject literature using a bibliometric method and a qualitative content analysis. The article is organized as follows: Section 2 presents the methods and research design used. In Section 3, the results of the systematic literature review are presented. A discussion on three main research paths that have been identified is included in Section 4. The study closes with conclusions and avenues for further research on the strategic perspective in museum management.

2. Methodology

The analysis of the extant scholarship on museum management was carried out using a systematic review of the literature. It allowed us to capture the main trends of development in a given thematic area and to determine relations between demarcated paths of enquiry (Czakon, 2011; Haustein & Larivičre, 2015). In addition, a systematic literature review provides the basis for identifying research gaps (Tranfield, Denyer & Smart, 2003; Sisson & Ryan, 2017; Roszkowska-Menkes, 2017). Nevertheless, considering the recognized limitations of the bibliometric method (Haustein & Larivičre, 2015) the conducted research also included a qualitative content analysis. The search was conducted within two major databases to ensure the completeness of the work set. The selected Web of Science and Scopus databases are generally considered highly comprehensive for scholarly work (Roszkowska-Menkes, 2017). The data were extracted on April 7, 2018.

As part of the adopted procedure, the search for literature items was narrowed down to the thematic area defined as: business, management, and accounting. This restriction was aimed at minimizing the risk of including publications in which the main line of discussion does not draw from nor contribute to the management field. Reviews, editorials, and in-press publications were excluded from the search. Moreover, the study also included an additional criterion referring to the impact and prestige of scholarly journals. This filter was based on the Journal Citation Report ranking (2017) and covered the 30 highest indexed journals in the field of management.

Key words used in the search were defined in a preliminary study, aimed at providing an overview of the general state of research on museum management.

During that initial stage, a "snowball" method was used - a bibliography from one article indicated subsequent publications, which were then analyzed. The journals examined included, among others: *Museum Management and Curatorship, Journal of Cultural Economics, Nonprofit Management & Leadership, Public Management Review, Strategic Management Journal, Academy of Management Journal,* and *Organization Studies.* A thorough review of the gathered scholarly works, as well as materials publicized by museum institutions, allowed us to construct a conceptual map for the study (Sisson & Ryan, 2017).

The main study was built around the central category of *museum,* being the very subject of the research. Other thematic terms included: *strategy, management, organization, finances, funding, economy, audience* and *visitors* (Table 1). The selected thematic terms refer directly to the main areas of museums' functioning recognized in the literature. The *organization* and *management* categories are considered basic for the defined research area. Numerous studies have emphasized the organizational and managerial challenges associated with the change in the way museums work – more and more often they operate in parallel as institutions that cultivate culture and art, and as service organizations that conduct commercial activities. Nevertheless, the *management* category has been applied primarily in the context of managing collections and exhibits, and less frequently in classical business terms. The *funding* keyword covers aspects related to financial resources received from public and private organizations (including entities recognized as founders). On the contrary, the term *'finances'* relates more broadly to the general assessment of the economic status of museum institutions. Studies referring to the *economy* term have presented considerations regarding both key problems, the acquisition of financial resources and formulas for managing the funds received from private and public entities. Moreover, this category allows us to link museums with two emerging concepts: *experience economy* and *culture economy.* These two last terms shift the attention toward customer relations. Given the specificity of the museums' value proposition, *audience* stands out as an important category, which refers to the concept of *"audience development*" and more generally recognizing museums as social spaces. A growing body of research has highlighted the reorientation of museums from object-focused towards people-centered. The term *visitors* conveys a broader meaning, embracing not only people who come to museums but also people visiting other cultural and entertainment places. However, the visitor classifications and characteristics of activity barriers have also been applied to the museum space.

The search for scientific articles followed the use of phrases consisting of the central category and the thematic terms: *museum & management, museum & organization, museum & finances*, etc. Phrases were sought in the titles of publications, abstracts and keywords and subject terms. Considering that at the

preliminary research stage a limited number of publications had already been observed, it was decided in the main study not to introduce a time frame for searching. The oldest studies identified date back to 1974 (Figure 1). The research sample obtained for the bibliometric analysis consisted of 233 publications. Publications were further examined to determine whether museums stand for the main research object and whether the discussions truly build on the management concepts. The sample was narrowed to a set of 81 items, which were subjected to a qualitative content analysis.

3. Identification of research paths

The research sample included 233 publications. The distribution across the defined categories is presented in the table below (Table 1). Indicators presented in the next-to-last column show the total number of publications from Scopus and Web of Science, after exclusion of repeated results in both databases. The collected data indicate a relatively limited interest in museums as research objects in the field of management. Moreover, the evidenced difference in the number of publications among *title*, *abstract and keywords* criteria suggest that museums have often been referred to in the wider context of analysis, as one of several examples and not the main object of enquiry. Overall, the number of studies collected for each category proved to be relatively modest. This is particularly evident in relation to the most prestigious management journals on the JCR list. Nonetheless, several defined categories, i.e. *visitors, management, organization* and *strategy* obtained a significantly higher number of indications than the other terms.

The aggregate data obtained from the Scopus and Web of Science databases were ordered according to the date of publication. The results were presented in a graphical form to enhance further analysis (Figure 1). Given that the search procedure did not include a predefined timeframe, the date 1974 on the chart indicates the year of publication of the oldest works identified in the study. The time distribution of publications has shown a particularly dynamic growth in the number of studies related to categories: *strategy, management, organization, visitors.* Nevertheless, other categories have also exhibited an increase in indications. Since 2010, the emerging concepts of museum experience, experience economy and consumer satisfaction have been gaining growing attention. For *finances* and *funding* categories it can be noticed that a growing interest has been directed toward issues related to funding sources, as opposed to the problem of a general assessment of the economic status of museums. The growth dynamics observed in recent years (2008-2018) supports the assumption that museum management can be considered a relatively new research area.

Table 1. Basic bibliometric indicators

	Scopus		Web of Science		Scopus + WoS	JCR top 30 management journals (2017)
	title	Abstract + keywords	title	Topic		
MUSEUM and STRATEGY	7	39	3	22	69	2
MUSEUM and ORGANIZATION	4	48	1	24	71	2
MUSEUM and MANAGEMENT	11	54	4	24	82	1
MUSEUM and FINANCES	2	7	0	3	13	0
MUSEUM and ECONOMY	1	11	0	2	15	0
MUSEUM and FUNDING	2	10	1	8	19	0
MUSEUM and AUDIENCE	1	16	0	7	20	1
MUSEUM and VISITORS	19	88	4	14	93	1

Note: 1, 2 - area: business, management, accounting ; 3 - Duplicated results excluded.

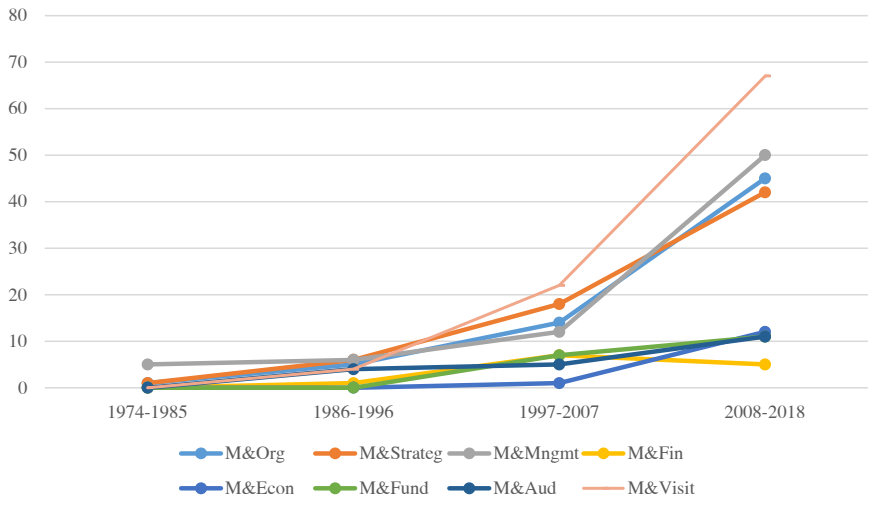

Figure 1. Time distribution of publications

The next stage of the analysis included a thorough verification of the context of use for each defined category. 77 publications were excluded from an in-depth context analysis due to limited access to the main body of the article. During the context analysis, 75 studies were rejected because of marginal references to the defined categories. Finally, the analysis covered 81 publications from the Scopus and Web of Science databases (duplicated works were excluded). The results we obtained allowed us to draw connections between categories defined in the conducted research (Figure 2). The graphic illustration of links has been based on the number of studies in which abstracts have included a certain combination of the given categories. The thickness of the line reflects the strength of the connection measured by the number of publications. It has been observed that identified configurations have been supported by a relatively small number of studies, but this was mainly due to the fact that the entire set of scholarly works on museum management (area: business, management, accounting) has been limited (Table 1).

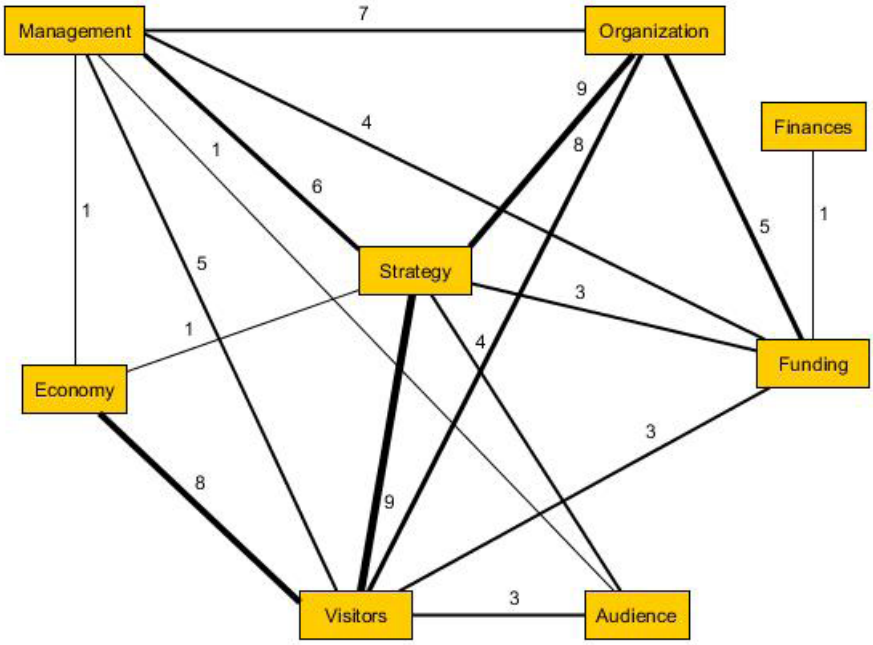

Figure 2. Relations between categories

The developed map of linkages has allowed us to identify relatively strong relationships that stand out from the others in terms of the number of supporting

publications, i.e. *strategy - visitors, economy - visitors, management - strategy, strategy - organization*. Nevertheless, considering not only the intensity (number of publications per relation) but also the extent of connections (number of relations for a given category), *funding* has also been included in the group of strongly related categories. Undoubtedly, *strategy* has represented the central category within the constructed map. The intensity and extent of links have formed the basis of a departure point for further examination of lines of enquiry presented in the collected studies with the use of a qualitative content analysis. The analysis allowed us to organize the insights into three main research paths focused on financing, organization and management, and customer relationships.

4. Analysis of identified research paths

The conducted analysis included both quantitative indicators (individual categories, relations between categories) as well as a detailed verification of the context of use of the defined categories (Sisson & Ryan, 2017). As the result of the analysis, three main, interrelated research paths have been identified, i.e. a stream focused on issues related to financing museums, a second path focused on the management structure and a final client-visitor oriented approach. The following sections present key insights regarding those paths.

4.1. Financing

In studies that have highlighted the issue of financing, the discussions have revolved around the problem of structuring funding sources, broken down into the public and private sectors. By and large, funds received from governmental institutions account for more than half of all financial resources museums have, hence museums are strongly dependent on those funds (e.g., Woodward, 2012; Gilmore & Rentschler, 2002). The extant literature has emphasized the problem of insufficient amount of funds received, and consequently the necessity to look for additional sources of income (e.g., Vicente, Camarero & Garrido, 2012; Mejón, Fransi & Johansson, 2004; Barron & Leask, 2017; Konrad, 2013). The amount of support received depends on several factors including museum age and collection value (Hughes & Luksetich, 1999). From a strategic management perspective, research on the relationship between structural features (size, ownership status) and the level of innovativeness of museums is of particular interest. Published results have indicated that publicly financed museums tend to invest more resources in organizational innovations, e.g., those related to the digitization of catalogs, databases (Vicente et al., 2012). On the other hand, investments in technologies used in

creating visitor-experience tend to be similar in publicly funded institutions and those financed from their own funds (Vicente et al., 2012). It has been argued that faced with problems regarding insufficient financing, museums can take advantage of such additional financing opportunities as publications, space rental, a museum shop or a café (e.g., Hutter, 1998).

The abovementioned expanded portfolio of financing possibilities has been discussed in the context of custodial orientation, sales orientation and customer orientation (e.g., Camarero & Garrido, 2009). The custodial approach has been focused on traditional research activities and care for the high artistic value of the organization and the quality of its resources. Thus, it has been emphasized that the main resource of the museum are exhibits, those available at exhibitions and also those stored in special conditions. Museum institutions show visitors only selected exhibits, while a large number of them must be stored in warehouses. Custodial activity, i.e. protection, maintenance, identification, quality assessment and placement of the resource in the appropriate context, also refers to the problem of resource erosion and the assessment of ambiguous resources. Considering the fact that the core museum activity is and should be a collection of exhibits, the management of such organizations can be approached with the resource-based view (RBV) (Najda-Janoszka, 2016; Le Breton-Miller & Miller, 2015). In the custodial orientation, financial issues have been increasingly discussed with reference to the management model of the *event-driven museum* (Greffe, Krebs & Pflegier, 2017). According to that model, the organization of temporary exhibitions represents the key component and an important strategic challenge. Hence, studies discussing the financial security of such temporary-projects have focused primarily on issues of media promotion and sponsorship (Greffe et al., 2017). The second of the abovementioned orientations has introduced a quite different approach. Sales orientation has concentrated on the three main objectives pursued by the museum, namely the acquisition of recipients, encouragement to repeat visits and competition with other providers of a cultural offer (Camarero & Garrido, 2009). That orientation focuses on expanding the range of additional services, e.g., opening a museum store, a restaurant. The last of the three approaches, i.e. customer orientation, puts visitors at the center. Hence, the attention has shifted towards the needs of visitors and the challenges related to adapting the message to the visitor's profile (Camarero et al., 2009). The problem of raising funds has then been considered in the context of tasks performed in order to improve the level of visitor satisfaction.

It has been emphasized that possibilities for implementing a chosen approach are conditioned by both the range and importance of the museum's collection, and the characteristics of its key assets and audience (Greffe et al., 2017). Museums having smaller, narrowly defined collections are not expected

to host large groups of domestic tourists or those arriving from abroad. Although museums are often linked with the tourism industry (Najda-Janoszka, 2013), only a few have the opportunity to become a popular tourist attraction, a so-called *branding museum* (Silderberg, 1995; Greffe et al., 2017). Nevertheless, recent studies have discussed a unique feature of local museums, which is more difficult to verify in large organizations, namely strong relationships with local communities (e.g., Burton & Griffin, 2006). Hence, for local museums, researchers have proposed a model known as *empowering the local community* (Greffe et al., 2017). The problem of choosing an appropriate orientation for raising additional revenues has been discussed with regard to the strategic and tactical level of management – tasks performed by museum directors and curators. However, the review of published empirical studies has indicated that the main, almost exclusive, source and filter of information remain the directors of museum institutions (Woodward, 2012).

Based on the literature review, it can be concluded that within the financing perspective, the most recommended approach has been a combination of a custodial and commercial orientation (e.g., Evans, Bridson & Rentschler, 2012). It has been argued that despite the observed different impact on the performance of the museum in the social and economic dimension, both orientations can be regarded complementary. In particular considering the challenges faced by museum institutions that have to be simultaneously places of study, entertainment, social integration and the proper storage of cultural and scientific heritage. However, scholars have also highlighted the fact that museums have a reduced flexibility in terms of the possibility to change offers according to market needs and trends (Camarero & Garrido, 2009). In addition, the problem of combining custodial and commercial orientation requires a particularly careful interpretation of the mission and vision of a given museum (Camarero & Garrido, 2009). Meanwhile, numerous publications have presented detailed characteristics of the task-and-skill profiles of museums, while there has been a lack of in-depth studies introducing a dynamic perspective and focusing on the complex implementation process of a chosen strategic option (O'Hagan, 1998; Reussner, 2003).

4.2. Management structure and organization

A second research stream identified as a result of the qualitative content analysis refers to the management structure dimension. The extant literature has differentiated museum institutions according to the level of organizational independence and the extent of a decisional centralization (Vicente et al., 2012). Accordingly, the *line department* organization is dependent on the governing body and does not have a budgetary independence. The directors of such

organizations are appointed through government bodies or in accordance with the procedure applicable to public positions. In the case of the *arm's length institution*, a museum is managed by trust councils that have their own legal status and set out the main lines of operation of such museum (Vicente et al., 2012). Given that public funds are usually granted for a period of one year, there are possibilities to diversify resources. Museums defined as *private ownership* belong to and are managed by private individuals or companies. They are financed directly by the owners or from generated revenues. Other types discussed in the literature are represented by *non-profit-making* or *charitable organizations,* which are financed through a combination of public and private finances, yet with a leading source being donations. Such museums are managed by fiduciary councils, but collections and buildings are owned by museums (Vicente et al., 2012). It is also worth mentioning, that some studies have referred to an interesting type labeled as a *corporate museum*. Such museums belong to a particular company, and operates with the aim of presenting its history to employees, guests or a broader public (e.g., Nissley & Casey, 2002).

Further, several studies have drawn attention to the impact of political factors on the museums' management style (e.g., Camarero & Garrido, 2009). It has also been observed that people involved in museum administration do not always want to clearly define their actual activities, preferring instead a relative ambiguity on the matter (O'Hagan*,* 1998). In such a vague environment it is almost impossible to assign an appropriate cost to certain functions. Hence, managers can be more flexible while implementing tasks and can more freely follow the agenda of their own or of a certain group of stakeholders (O'Hagan*,* 1998). Researchers have emphasized that museums have become entities that operate as both non-profit organizations and service-organizations which thoroughly and systematically study the attendance at their facilities (Boter, Rouewendal, Wedel, 2005). However, it has also been emphasized that, despite the fact that public museums can perform commercial activities, the profits gained can only be used for purposes fully compliant with the so-called statutory goals (e.g., Mejón et al., 2004). Given such a limitation, the extant scholarship elaborating on management issues has most often referred to a general categorization of private and public museums.

4.3. Customer relationships

According to the results obtained, the area of marketing activities and relations with customers has been the most widely described in the literature on the subject. For many researchers, the point of departure has been the recognition of museums as places where the local identity as well as social capital can be shaped and strengthened. Discussions have also included the issue of museum

brand identification by analyzing its components, i.e. products, people, organizational links (*branding museum* - Greffe et al., 2017). Given the general product categories, i.e. basic and extended, the collections and exhibitions have been referred to the first one, and the services such as educational programs, museum stores to the latter (Pusa & Uusitalo, 2014). According to a growing body of research, the key task for museum managers has become creating and transferring public value to the society by showing a positive impact on the individual and collective life of citizens (e.g., Weinberg & Lewis, 2009). However, the mere possession of a rare exhibit has not been considered sufficient to decide about public value. It has been argued that public value is interlinked with the mission of an organization, and implies a combined, positive impact of art, history and science on the lives of citizens. Furthermore, recent works have suggested that traditional functions of museums no longer become sufficient justification for financial support (e.g., Vom Lehn & Heath, 2016). Growing expectations have been related to a deeper engagement of audiences and promotion of education. Hence, researchers have shifted their attention from the exhibit-orientation towards the visitor-orientation when discussing the main approach to creating exhibitions. As mentioned earlier, managerial options observed in museums include custodial orientation, sales orientation, customer orientation and a combined business and custodial approach (e.g., Camarero & Garrido, 2009, Reussner, 2003). According to the presented lines of enquiry customers have become the central category of interest. To make the viewer/customer engaged and interested in the museum's offer, the key task is to gather relevant and rich information about the needs, motives, behavior of the customer beforehand (e.g., Goulding, 2000). Audience research has been conducted in the United States since the beginning of the 20th century, while in Europe it developed almost a century later (Cerquetti, 2011). The use of market research and the concept of developing a museum as a guest-oriented institution have been receiving growing scholarly attention, in particular in the context of the strategic level of museum management (Reussner, 2003). Drawing on the social function of museums, an increasing consideration has been directed toward the concept of social inclusion – with regard to the cultural, political, economic and pure social dimensions (Azmat, Fujimoto & Rentschler, 2015). At the risk of exclusion are usually people with various types of disabilities, as well as addicts, groups from different cultural and ethnic backgrounds. The problem of social exclusion and inclusion in a special way relates to the concept of "*audience development*," which was developed in the 1990s in political circles. The concept was built on the idea to make culture available to all people (Kawashima, 2006). In studies elaborating on building relations with visitors, the emphasis has been put on participation, i.e. concentrating the activity on the recipients, by enabling them

to construct individual meanings and providing them opportunity to express it (Knudsen, 2016; Simon, 2010). Based on observed practices, researchers have distinguished several models of participation, such as contribution projects, collaborative projects, creative cooperation and "guest" models (e.g., Simon, 2010). The common ground across those models has been the elevation of the audience with the top management in the background stage. Also, in the so-called "*superstars*" museums, characterized by top-attractiveness, broad audiences and the most intensive promotion in tourist guides, this participative approach has been considered the most effective (Johnson & Thomas, 2008, Greffe et al., 2017). Faced with the transformation of the environment and the need to take promotional measures, museums may also apply the idea of *market repositioning toward entertainment* (Kotler & Kotler, 2000). A form that differs from the classic museum, but clearly highlights the entertainment aspect, is a *museopark*, which is a combination of a museum with an amusement park. Researchers have been discussing thematic strategies for developing the appropriate cultural and scientific profile of such entities (Mencarelli & Pulh, 2012). The entertainment direction, together with the social work orientation and the focus on museum experience improvement, has been considered viable and promising directions for developing the audience (Kotler & Kotler, 2000).

Another concept discussed with regard to the problem of building relationships with visitors has been the experience economy and the experience marketing (e.g., Mencarelli & Pulh, 2012; Pine & Gilmore, 1998). Accordingly, the exhibition stands for only a part of the entire museum experience. Hence improvements relate also to other services and amenities provided. Museum experience embraces a wide range of emotional, physical, spiritual and intellectual elements – the more senses involved in a particular experience, the stronger the memory (e.g., Balloffet, Lagier & Courvoisier, 2014). Drawing on the principles of the experience economy, a coherent composition of a series of interrelated experiences and the emotional involvement of visitors, have become the key managerial task in museums (Pine & Gilmore, 1998). In studies discussing museum experience, it has been emphasized that every single visitor comes to an institution with a specific individual context, as no one is completely neutral (Pine & Gilmore, 1998). Moreover, according to the recent studies, regardless of whether the leading concept is participation, creation of experience, social inclusion or entertainment enhancement, museums can function as interactive places. In that context, interaction involves establishing a direct connection with visitors and requires physical involvement on their part. Although major discussions have revolved around the usage of multimedia for creating interactive exhibitions, technology has not been considered a prerequisite of interaction (e.g., Balloffet, Lagier & Courvoisier, 2014).

5. Conclusions

On the basis of the conducted literature review, it can be concluded that the museum management area has been receiving growing scholarly interest. The results obtained have shown a considerable number of studies referring to the categories of *visitors, management, organization* and *strategy* within the core components, i.e. abstracts and key-terms. The gathered general data suggest that museum management can be considered as a relatively new research area since the total number of studies has been relatively modest, but the growth rate has increased greatly in recent years. However, it is also important to underline, that nearly one-third of the articles in the research sample have referred to the strategic perspective in museum management in a rather cursory manner, indicating a rather early stage of exploration. A further in-depth analysis of 81 publications allowed us to draw links between the basic categories defined in the conducted research. The central position of strategy and strong relationships for the categories of *organization, management, visitors, funding* have been confirmed. Drawing on the intensity and extent of identified links, a qualitative content analysis was conducted. As a result, three main interrelated research paths have been identified – first one focuses on issues related to financing museums, the second one revolves around the management structure and the final one follows the customer-visitor approach. Nevertheless, the analysis has revealed a general shortage of in-depth research into the strategic approach in museum management. Presented analyzes have indicated attempts to define criteria, formulate goals and plans; however only in a relatively narrow, limited way referred to a comprehensive strategy and long-term horizon of operation. Only a few studies have introduced a truly strategic perspective of managing a museum unit (Reussner, 2003, Varbanova, 2013). The strategic context has usually appeared when discussing the organization of larger exhibitions, which are planned about four years in advance. The results obtained from the analysis indicated a significant research gap in the recognition of the competitive environment of museums. The influence of a macro-environment, i.e. political, social and economic factors, on the situation of museums, has been quite broadly explored, while in the context of a micro-environment only the category of clients has gained the wider attention of researchers. The analyzes that have been presented provide interesting insights regarding detailed characteristics of people visiting museums, as well as barriers to participation in cultural activities. However, there has been a lack of studies exploring other factors of the competitive environment, i.e. competitors, suppliers, substitutes, complementary goods and services. Identification of these factors and verification of their impact on museums becomes a key challenge for the research on the strategic perspective

of museum management. It can be regarded as a promising and valuable future avenue of exploration. A partial access to a large part of the studies included in the sample can be considered as a limitation of the research calling for a careful interpretation of results, as well as for a continued exploration using additional collections of scientific literature.

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ORGANIZATIONAL FORMS OF HOUSING RESOURCE MANAGEMENT IN POLAND

Adam Nalepka[1]

Abstract

Housing resource is the totality of flats located in residential and non-residential buildings. Managing real estate properties that constitute a housing resource has a specific character primarily arising from the permanent occupancy of users in them. It requires a constant supply of certain services to the flats (water, electricity, heat, etc.). The specificity of residential property management is also significantly influenced by legal regulations, common ones, concerning the use of all residential properties, as well as special regulations, the different individual forms of ownership, and type of residential premises. This paper pays special attention to the classification, and then the characteristics of organizational forms applied in housing resource management in Poland. The attempt to comprehensively approach the institutionalization of residential property in Poland is a good starting point for in-depth research into this problem.

Keywords: *property management, residential property, institutional management forms.*

1. Introduction

In most general terms, real estate property management consists in taking decisions and performing activities aiming at the provision of appropriate and safe use of real estate property, maintaining it in a non-deteriorated condition, in accordance with its intended use, and conducting effective economic and financial management. Therefore, real estate property management consists in taking or indicating strategic and tactical decisions concerning real estate property and on that basis taking activities in the sphere of use, administration and investment to achieve the owners' (investors') goals. The object of the

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management can be real estate property performing various utilitarian, social and economic functions.

Among real estate, a special place is occupied by the housing resource. The source of the specificity of residential property management is primarily the permanent stay of users in them, which requires a constant supply of some services to flats: water, electricity and heating, gas, disposal of solid waste and liquid waste, keeping the property clean, servicing and maintenance, renovation and construction, etc. What is also important in shaping the tasks of management are legal regulations that residential property management is subjected to, different for the various forms of ownership, type of real property and their structure and furnishings.

The aim of this paper is the identification, classification and characteristics of organizational forms used in residential property management in Poland.

As the starting point of the deliberations, the characteristics of the ownership structure of the housing resource in Poland were adopted, and this indicates the variety, and real significance, of the different institutional forms of residential property management.

However, the framework of this paper does not allow us to present fully the issues related to organizational forms of managing various types of residential property resources. The attempt made to approach the problem of organizational forms of residential property management in Poland in a comprehensive and systematic way may, as it seems, be a convenient starting point for in-depth research into this problem.

2. Literature background

Residential properties are buildings with a prevailing housing function, of various structures, often including commercial or service units, garages, storage rooms in the basements or free-standing, etc. The properties can be equipped with numerous installations and devices providing specific functionality and comfort of the facility. It is particularly visible in newly-built residential buildings (Kamiński, 2014).

Residential property management must enable the permanent residence of people. The specific character of managing housing resources arises from the variety of ownership forms and legal titles of governing residential properties and premises (residential and utility ones). Table 1 presents the current ownership structure of Poland's housing resources.

Table 1. Ownership structure of housing resources in Poland (as of 31.12.2016)

Specification	Number of flats	Share %	Area in thousands of m2	Share %
In total	14,272,010	100	1,053,252	100
housing co-operatives	2,073,935	14.5	102,336	9.7
municipalities (council flats)	868,517	6.1	38,306	3.6
firms	79,308	0.6	4,565	0.5
the Treasury	29,127	0.2	1,474	0.1
social housing associations	98,221	0.8	4,843	0.6
natural persons	11,097,157	77.8	900,294	85.5
including:				
- tenants' associations	2,896,622	20.3	151,523	14.4
- outside tenants' associations	8,200,535	57.5	748,762	71.1

Source: own study based on Managing (2017).

The specific character of residential property management also arises from the division of the area of the property into premises (residential and utility ones), being at the users' (owners,' tenants') disposal, and shared areas. Thus, operating residential property management consists of managing individual premises, which, as a rule, is implemented by the users, and in managing shared parts, implemented by the property manager.

Table 2. Age structure of Poland's housing resource (as of 31.03.2011)

Year of construction	Buildings		Flats	
	in thousands	% share	in thousands	% share
before 1918	404.6	7.3	1,166.5	9.0
1918 - 1944	809.2	14.6	1,451.6	11.2
1945 -1970	1,363.5	24.6	3,110.5	24.0
1971 - 1978	654.0	11.8	2,073.7	16.0
1979 - 1988	753.8	13.6	2,151.4	16.6
1989 - 2002	670.6	12.1	1,516.4	4.6
2003 - 2007	321.5	5.8	596.2	4.6
2008 - 2011	205.1	3.7	414.7	3.2
under construction	27.7	0.5	52.2	0.3
unidentified	332.6	6.0	427.3	3.3
Total	5 542.6	100.0	12,960.5	100.0

Source: own study based on National (2013).

The process of residential property management and related problems is significantly influenced by the age of residential buildings. The year of the building construction indicates the type of applied technologies and standards of workmanship. The resources built with the use of newer technologies are usually characterized by a higher standard of flats and higher durability in the usage. The age structure of housing resource in Poland is presented.

The biggest, over 50-percent share, is made up of buildings and flats erected in the post-war period, in the years 1945 – 1988. Older ones, built before 1944 and newer ones, built after 1989, give a similar share in the housing resource in Poland, around 20%.

The specificity of residential property management is also influenced by the motives for investing and the underlying goals of possessing residential and utility premises.

3. Research approach

Numerous entities operate in the area of residential property management in Poland: housing co-operatives, organizational units of municipalities, firms and state institutions having flats for their employees, social housing associations, tenants' associations, private owners of detached houses and tenement houses, specialized firms managing properties (see also Nalepka, 2013, p. 17 and the next). The entities have developed a number of organizational and legal forms of managing residential properties. They will be characterized in further parts of the paper.

4. Organizational and legal forms of managing residential properties

4.1. Housing co-operatives

Housing co-operatives are non-profit entities, conducting activities which basically aim at fulfilling the housing needs of their members and their families, managing these properties (more in Bończak-Kucharczyk, 2008, p. 337), as well as social and educational and cultural activities for their members and the environment (more in Myczkowski, 1997, p. 145).

The way in which a housing co-operative operates, including the management of housing resources is based on the provisions of the Housing Co-Operatives Act (HCA, Article 1, section 1), and the provisions of the housing co-operative statute.

The housing co-operative management functions are performed by the Management Board. Management tasks are divided among the President,

his/her deputies, and subordinate organizational units. In the organizational structure of a housing co-operative the following units are most often isolated: general, investment, housing resources management and the accounts.

From the point of view of the goal of the paper, attention will be focused on the housing resources management unit. It implements the operational management of residential properties of the co-operative. The tasks are implemented by adequate units and organizational positions, examples of which can be:

- housing resources management department which deals with maintaining the shared parts of the property;
- housing estate administrations being in direct contact with the residents and their environment;
- technical unit which deals with periodical inspections of equipment and installations, as well as their day-to-day maintenance, performing small repairs in the buildings;
- heating department which supplies hot water and central heating to the housing co-operative buildings. In order to do that, it can use its own boiler-houses;
- repair and renovation department establishes repair and renovation needs, organizes repairs using their own resources or it orders their execution to external entities, carries out the acceptance of repair and modernization works.

Organizational units of the housing resources management department are supported by various positions within the housing co-operative.

4.2. Organizational units of municipalities

The aim of council housing resources is to meet the housing needs of low-income households. Municipalities have developed a number of organizational forms of managing council residential properties (Ciepiela, 2001). The management of municipal residential properties is usually entrusted to self-governmental budgetary entities, budgetary units, municipal companies or social housing associations.

Self-governmental budgetary entities (single or multi-business ones) manage residential properties based on the resolution of the municipality council assigning a budgetary entity and defining the subject of its activities. In practice, we do not come across cases of concluding property management contracts between a municipality and its own budgetary entity. A budgetary entity, as an entity managing council residential properties, does not have a legal personality and this hampers its ability to carry out numerous matters related to effective resource management. A self-governmental budgetary entity does not receive residential properties for permanent administration, which

prevents it from using numerous instruments of financing for modernization-development projects which are available on the market (Pawelec, 2003).

Municipalities also entrust residential property management to budgetary units. Budgetary units managing council residential properties usually arise as a result of the transformation of self-governmental budgetary entities. Such decisions are taken when a municipality approaches the "debt threshold". Such a transformation enables them to increase revenues to the municipal budget (gross budgeting of budgetary units) and reduce the share of credits in the municipal income, averting the risk of compulsory administration. The principles of managing council residential properties by budgetary units are basically the same as in the case of budgetary entities.

Managing housing resources of the municipality is entrusted to single-person companies of the municipality (municipal companies) (Szczepaniak, 2013), joint stock companies or limited liability companies. The established company manages residential properties of the municipality based on an instruction to take over their management, issued by the city mayor (president) (Pawelec, 2003). In practice, the cases of concluding "property management agreements" between the municipality bodies and the established municipal company are extremely rare. Contribution-in-kind of managed residential properties is not made to municipal companies, which brings about similar negative consequences as in the case of a budgetary entity.

A special role in managing council residential properties is performed by social housing associations, owned or co-owned by the municipality. The municipality can hand over the management of municipal residential properties to social housing associations based on the contract of mandate (ASRC, Article 27, section 2, subsection 4).

Municipalities can also order the management of council residential properties to professional property management firms. It leads to the privatization of the management process. Then, the Municipality Council works out a housing strategy, formulates the policy of financing the council housing management, the President of the municipality establishes the principles and tools of municipal residential property management, and specialized departments of the Municipal Office arrange the management choosing specialized firms managing residential properties in tenders and supervise the activities of such firms. Municipal bodies supervise the process and assess the scope and the quality of the tasks performed. The selected firms operate outside the municipality structures, which enables them to separate the ownership functions from the function of managing residential properties of municipalities.

4.3. Firms and state institutions, having flats for their employees

Residential properties, commonly defined as "company flats," are residential units which used to be at the disposal of firms (enterprises) and were rented to their employees or other individuals performing work for the firms (Luty, 1992). Company flats were an instrument of the personnel policy of firms (state-owned, at the time), and they were used to attract highly qualified people to work in a given enterprise. The tenancy agreement for such a flat was concluded for the time of the employment relationship[2].

Company residential properties were most often managed by:

- organizational units of these firms;
- ownership-dependent co-operatives or companies.

In the first case, the basic functions of residential property management were performed by employees, usually employed in HR or administration units, in separate departments or sections. The localization of these organizational units in the company structure, their name, staffing and the scope of tasks were varied, dependent on the size of the managed housing resources. The scope of activities of these organizational units rarely included all the functions of managing housing resources and, therefore, the units cooperated with other organizational units of companies, which fulfilled the tasks related to legal, financial, accounting, repair and maintenance, supply and transport services, as well as HR, social and training tasks.

In numerous firms, the tasks related to managing company residential properties were entrusted to ownership-dependent co-operatives or companies, which are organized in accordance with the subjective regulations.

4.4. Social housing associations

Social housing associations are one of the instruments of housing policy. The basic task of social housing associations is to build houses with moderate rents, financed as a whole or in part from public funds (see more in Szelągowska, 2011, p. 13), and their use as a lease (ASRC, Article 27). Associations can also manage residential buildings they do not own, pursuant to a contract for mandate.

Social housing associations can be established in three organizational and legal forms (ASRC, Article 23, section 1): limited liability companies, joint stock companies, co-operatives of legal persons. It means that a social housing association is an independent economic entity with legal personality.

The scope of activities of social housing associations includes investment and operating activities.

2 The Act on the Ownership of Premises of 24 June 1994 abolished the institution of company flats and equated the rights of tenants of former company flats and the rights of tenants of other residential units.

Operating activities of social housing associations consist of managing their own residential properties and residential properties of other owners, pursuant to contracts for mandate. The basis for financing their operating activities is rent at an economic level, which covers the costs of the use of the property and the servicing debt. The revenues from the operating activities of social housing associations as non-profit organizations are accumulated for future investment in flats for rent, and are not allocated for the division among the partners or members. It is, as it seems, one of the basic reasons for the weak development of the social housing association system in Poland (see more in Szelągowska, 2011, p. 299). It seems that enabling social housing associations to function for profit could stimulate them to operate more actively.

4.5. Tenants' associations

A tenants' association is a form of organization of owners of residential units in multi-unit buildings, which has been functioning in Poland for a relatively short time, the aim of which is to maintain the shared areas in a proper condition and manage the property efficiently. It is created by virtue of law, upon the transfer of the ownership of the first individual unit in a multi-unit building to another person (AOP). Tenants' associations can be created by public entities or natural persons who have purchased residential units (see more in Turlej, 2004, pp. 58-59). Matters of tenants' associations are settled by all the owners in the form of resolutions passed by a majority of votes of the owners of units or in accordance with the principle that one vote falls to one owner.

The Act on the Ownership of Premises differentiates between large and small tenants' associations. The difference between them consists primarily in a different shape of shared areas management (Lewandowski, 2004). In the case of a small association, the management functions can be performed directly by all unit owners. In a large tenants' association, the management function is performed by the association's body, called the association management board, chosen by the resolution of the owners. It manages the association's matters and represents it outside and in the relationships between the association and individual unit owners (see more in Turlej, 2004, p. 128). The owners of residential units can also entrust the management of the property shared areas to a professional management firm. Establishing cooperation with a management firm can ensure proper maintenance of the technical condition of the shared areas and the appropriate comfort of residence. The choice of shared area management form depends on the attitude of the tenants' association members and the willingness to actively participate in the management process (see more in Gospodarowanie, 2002, p. 65).

Separate ownership of the premise, and therefore of the tenants' associations, can be established on residential properties:

- newly-created by developers;
- of municipalities privatizing council units;
- companies selling their residential units.

4.5.1. Tenants' associations created in developer properties

Upon the completed investment process, in the case of residential properties, the developer splits flats and commercial premises into separate ownership, in order to sell them. When isolating and selling the first unit in the newly-created residential property, the developer chooses one of the following methods of managing the shared areas:

- it undertakes the activities of managing the tenants' association, so-called developer administration;
- it entrusts the management of the tenants' association to a property management firm chosen by itself.

In the case of successive sale of premises, the chosen way of managing the shared areas is usually imposed on each buyer and is obligatory for all buyers until it is changed by the members of the association.

The developer decides to take over the obligations of the shared areas management when (Najbar, 2002):

- it is one of the objects of activities of the developer company;
- it is treated as side, short-term activities, aiming at raising additional funds;
- it is to provide control over the actions of unit owners with regard to potential claims arising from the reveal of physical defects of the building, which, under warranty, the developer is obliged to remove at its own expense;
- it wants to maintain full control over unfinished investments;
- there are problems with selling flats and the necessity for an occasional lease occurs.

In this case, the developer undertakes all obligations related to the property management, decides about the management costs, the amount of its remuneration, sometimes also about the duration of such a kind of management. The interest of developers in managing tenants' associations is beginning to fall. It results mainly from the fact that effective management of the created housing resources and the package of operations expected by the unit buyers appears to be to too big an organizational burden (a necessity to hire experts) and the reason for an increase in costs, usually higher than any profit on these activities.

Entrusting the shared areas management to a specialized property management firm by the developer usually takes place when the developer

is not interested in expanding its scope of activities and has sold most of the premises, and the costs of maintaining the shared areas it is encumbered with, are relatively low. As a rule, such a firm is known to the developer before.

4.5.2. Tenants' associations created in council properties

As a result of the municipalization of state assets, municipalities have obtained substantial resources of residential properties. In the situation of legally restricted possibilities to establish the amount of rents for residential units and high costs of maintaining these properties, municipalities sell individual units. In consequence, municipalities become members of tenants' associations.

The associations can be managed in the transitional period by organizational units of the municipality: budgetary entities, budgetary units or municipal companies which have managed the properties so far (AOP. Article 40, section 1). Such a condition can last only until the owners of the units properly order the principles of managing the shared areas. Then, the owners of the units can determine the way of managing the shared areas, and entrust management tasks to a specialized property management firms.

4.5.3. Tenants' associations created in company properties

Due to the necessity of permanently subsidizing residential property management, companies have begun to privatize their flats, at the same time becoming members of tenants' associations. The situation of numerous tenants' associations created on the basis of company housing resources is very unfavorable, and the main reason for this is the poor technical condition of the buildings.

The tenants' associations that arise are most often managed by the company organizational units or by isolated companies. As tenants' association members, firms try to control the management process in various ways to protect themselves against the unpredictable decisions of tenants' associations. The concern of tenants' associations' members about an increase in the costs of managing the shared areas due to a possible change of the manager, is in many cases a motive for maintaining the company in the role of the association's manager.

4.6. Private owners of detached house and tenement houses

In the case of managing private residential properties, we can indicate two different situations (see more in Bończak-Kucharczyk, 2003, p. 189). The first situation is when the owner himself uses the property. The choice of

the method and the scope of the implementation of tasks related to managing such a property depend on the owner. They are subject to his expectations, tastes, and preferences. The owner himself takes decisions on maintaining, supplying and using the property and often fulfills them on his own, and makes the necessary financial settlements. The owner of such a property does not keep books, does not submit any reports to anyone and does not submit any statistical information. He also creates plans for his property by himself, and implements a specific management strategy.

The other situation is when an owner manages the whole or a part of a property used by other people based on tenancy agreements. Then, the owner has to additionally comply with the tenant protection regulations, fulfill the general obligations of the lessor, and others agreed in the tenancy agreement. He also has to fulfill tax obligations (on rent revenues) and reporting obligations.

4.7. Specialized property management firms

The owner can delegate the property management to a specialized property management firm (Nalepka & Najbar, 2007). The basic document regulating the relationship between the owner and the management firm is the property management agreement (Przybylski, 2001). Such a firm implements chiefly the property owner's goals, agreed upon in the property management agreement, and in particular, it maintains and increases the real value of the property. The property management firm should reconcile the interests of the owner and the tenants, which may be conflicting, and choose between short-term benefits and long-term value of the property.

To let the property management firm perform its functions efficiently, it should bring about clear-cut specification of goals by the property owner, conduct comprehensive analysis of the local real estate market, consider the constantly changing legal regulations governing property management, keep direct contact with tenants and create a proper atmosphere of cooperation in the team providing services in the properties (see more in Gawron, 2010, p. 24).

In the case of residential property management, we can indicate two situations in which, on the one side, there is a property management firm, and on the other side there is:

- the owner (co-owners) of the residential property intended for lease;
- tenants' association.

Owner-occupiers hardly ever delegate the management to specialized firms except in cases where they vacate the property and decide to rent the property in whole or in parts (of individual units).

In residential properties, in which the ownership of at least one unit has been separated, a tenants' association is created by virtue of law. Efficient

management of a property by tenants' associations, compliant with applicable regulations, requires them to appoint a management board or entrust the shared areas management to a specialized firm under a notary act.

5. Conclusion

Residential property management is a complex and difficult task, different than managing others, with regard to their functions, types of properties. The specific character of residential property management arises from the legal regulations that residential units are subject to, and the different kinds of flats in respect of ownership. What is also important here is the performed function which is the permanent, uninterrupted use of the premises (the residence of the users), which requires the continuity of providing specific services (supplies) to the flats.

The other situation is when the owner manages the whole or a part of the property used by other people based on tenancy agreements. Then, the owner has to additionally comply with tenant protection regulations, fulfill the general obligations of the lessor, and others agreed in the tenancy agreement. He also has to fulfill tax obligations (on rent revenues) and reporting obligations.

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IS SCIENTIFIC EXCELLENCE A GOOD PREDICTOR OF ACADEMIC ENGAGEMENT IN KNOWLEDGE TRANSFER? EMPIRICAL EVIDENCE FROM TOURISM ACADEMIA

Marcin Olszewski[1], Marlena A. Bednarska[2]

Abstract

Over the years, many tourism academics have expressed some concern about the paucity of university-industry cooperation, and particularly university-to-industry knowledge transfer (Frechtling, 2004; Xiao & Smith, 2007). This study aims at investigating the role of scientific excellence in academic engagement in knowledge transfer activities. Based on data obtained from scientists involved in tourism research we found that individual excellence, and especially participation in research projects as contractor, is positively related to engagement in knowledge transfer to industry. We also found a positive effect of getting the title of professor on knowledge transfer activities. Moreover, contrary to our prediction, we identified no association between institutional excellence and knowledge transfer initiatives.

Keywords: *scientific excellence; academic engagement; knowledge transfer; tourism.*

1. Introduction

Despite growing interests in factors affecting knowledge transfer from universities to business, relatively little research has been dedicated to the tourism industry and tourism academia. This limited empirical attention is somewhat surprising given the vital role of university-to-industry knowledge transfer as a determinant of innovativeness and competitiveness of the tourism industry (Higuchi & Yamanaka, 2017; Hudson, Meng, Cárdenas, & So, 2017)

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and the problem of low innovativeness of tourism enterprises (Camisón & Monfort-Mir, 2012; Hjalager, 2002). Previous studies recognize that there is a complementarity of scientific excellence and commercialization success within the biotechnology industry (Zucker, Darby, & Armstrong, 2002) but this might not be the case for all scientific fields and disciplines (Krabel & Mueller, 2009). The study focuses on academics scientifically involved in tourism research. On the basis of existing literature, we posited that the better the scientist is in his/her research the more active he/she is in the knowledge transfer process.

The aim of this study is to examine the role of scientific excellence in determining academic engagement in university-to-industry knowledge transfer. In this paper, we investigate whether the differences in individual and organizational metrics of scientific superiority are reflected in researchers' engagement in knowledge transfer. The paper is structured as follows. In Section 2, we review the existing body of literature on scientific excellence as a determinant of academic engagement, and on that basis, we propose the hypotheses tested in this paper. Section 3 describes variables used in the study and the methodology of data collection and analysis. Section 4 presents and discusses the results of our empirical analysis. Finally, Section 5 concludes by summarizing the most important findings and suggesting directions for future research.

2. The role of scientific excellence in determining academic engagement – literature background

There is a growing body of research aimed at investigating the role of scientific excellence in academic engagement, but very few studies have explored this issue in a tourism setting. According to Perkmann et al. (2013, p. 427) "the best and most successful scientists are also those who engage most with industrial partners." Moreover, Clarysse, Tartari, and Salter (2011) found that scientific excellence and entrepreneurial activity go hand-in-hand. In biotechnology, the probability that the best scientist conducts joint research or moves to a firm is higher than for the other scientists (Zucker et al., 2002). Boardman and Ponomariov (2009, p. 151) suggested "a synergy between a wide range of traditional academic activities and roles and interactions with the private sector." On the basis of previous research we took three measures to identify scientific excellence:

- formal excellence – scientific degree or title as a proxy of career advancement;
- individual excellence – success in receiving public grants (awarded on the basis of competitive applications);
- institutional excellence – rating obtained by the faculty in the parametric evaluation.

2.1. Formal excellence – academic position

Empirical evidence on the relationship between academic position and the university-to-industry knowledge transfer is inconclusive. Schartinger, Schibany, and Gassler (2001) argue that scientists with a habilitation degree are more committed to the traditional role of universities, which includes the education and dissemination of the research results through publications. Broad involvement in commercial knowledge transfer activities is not a part of a traditionally understood academic role.

According to D'Este and Patel (2007), the academic status of researchers significantly influences the variety of interactions with industry. They suggest that "individuals who are well established in their academic careers will be more likely to capitalize on their reputation to increase their engagement in commercialization activities" (p. 1295). Clarysse et al. (2011, p. 1091) found that "professors are twice as likely to engage in entrepreneurial activities than their non-tenured colleagues." It may result from the fact that scientists before obtaining their habilitation degree are trying to meet promotion requirements in terms of basic research and publications. This pressure and concurrent lack of time are important factors hindering engagement in relations with industry. Based on this reasoning we developed the following hypothesis:

Hypothesis 1. Academics with higher scientific degree or title are more likely to engage in knowledge transfer activities.

2.2. Individual scientific excellence – public grants

Studies on the role of individual scientific excellence in determining university-to-industry knowledge transfer are inconclusive. On one hand, university researchers who received public grants may be less interested in cooperation with industry. These scientists are unmotivated to look for funds in the private sector and they can have less time to engage in transfer activities. They are more willing to concentrate on long-term (basic) rather than short term (applied) research (Bozeman & Gaughan, 2007). Boardman and Ponomariovs' (2009) results indicated that there is no direct impact of commitment to research grants on the different types of interaction with industry, excepting co-authoring academic papers with industry personnel. Scientists who were awarded research grants may be selective in terms of industry-related opportunities to cooperate and can choose only those with direct link to their research agendas.

On the other hand, grant funding, which is based on the peer-review process, can be indicative of overall scientific excellence. As stated by Muscio

and Nardone (2012, p. 712), "production of high-quality research is a necessary condition for knowledge transfer." Previous studies indicate that there is a link between academics' ability to obtain grants and ability to obtain financing from the private sector. Bozeman and Gaughan (2007), based on a sample of 1564 academic researchers, found that success in receiving public grants has a moderate effect on academic researchers' propensity to work with industry. This link is based on the assumption that scientists who obtained government grants are more productive and, thus, more attractive for industry. As noted by Boardman and Ponomariov (2009, p. 144), the ability to win grants "…in turn could indicate to private companies a potentially fruitful university-industry interaction". The above arguments lead to our second hypothesis:

Hypothesis 2. University researchers who have successfully applied for public grants are more likely to engage in knowledge transfer activities.

2.3. Institutional excellence – parametric evaluation of the department

Institutional excellence could be regarded as another condition for engagement in knowledge transfer activities. On one hand, Ponomariov (2008) found that the academic prestige of an institution has a direct negative effect on scientists' interactions with the private sector. On the other, the results of Stuart and Ding (2006) reveal that scientists from the best universities in the USA are almost three times more likely to engage in relationships with industry. According to Perkmann, King, and Pavelin (2011, p. 548) "the higher a department is ranked in terms of research quality, the more likely its members will get involved in some type of collaboration with industry." This is in line with the research of Clarysse et al. (2011). Using a large-scale panel of academics from a variety of UK universities they found that academics who work at research departments with a high research status have a little higher chance of being involved in an entrepreneurial venture. D'Este and Iammarino (2010) found that the quality of the department has a positive effect on attracting distant business partners. Moreover, Muscio et al. (2012) provide evidence that departments that achieve higher scores in research evaluation are able to attract higher levels of private funding in the form of contract research agreements.

Positive relations between institutional excellence and collaboration with industry can be explained in two ways. First, scientists in highly ranked departments have more financial resources for research, which leads to more valuable knowledge. Moreover, cooperation with scientists from highly ranked departments can be perceived as more prestigious and thus attract more business partners. Therefore, we argue that institutional excellence facilitates scientists' contact with industry, which leads to the following hypothesis:

Hypothesis 3. Individuals employed in faculties with a higher category, according to Polish parametric evaluation, of scientific units are more likely to engage in knowledge transfer activities.

3. Research method

The empirical analysis is based on a questionnaire survey carried out in 2018 among scientists involved in tourism research. In order to find contact details, we drew information from the Polish Science database maintained by the National Information Processing Institute, covering a population of academic researchers in Poland. The sample frame included only those scientists who declared a tourism and hospitality specialization. As a result, we obtained 469 records. Next, we excluded scientists who, after obtaining their degree, left academia and whose contact details (e-mail address) could not be traced. Invitations, with a link to the on-line survey questionnaire, were sent to 325 scientists. 22 e-mail addresses were incorrect so, consequently, the questionnaire was completed by 303 respondents. Finally, we received 76 usable questionnaires from participants, representing a response rate of 25%, which is an acceptable result compared to other web-based studies (Goethner, Obschonka, Silbereisen, & Cantner, 2012).

The dependent variable in our study represents the researcher's overall engagement in knowledge transfer activities within the last 3 years (i.e., from 2015 to 2017). We focused on this time frame because we expected that it would reduce the response difficulty. In order to conduct analysis, we categorized scientists into two groups: those engaged and those not engaged in knowledge transfer.

To test our first hypothesis, we employed the variable capturing formal excellence (academic position). It was measured by the degree or title obtained by the scientists. For the purpose of the analysis, we classified participants into two groups: junior scientist – doctor (Ph.D.), and senior scientist – doctor with habilitation or full professor. To test our second hypotheses, we operationalized the individual scientific excellence as a successful grant application. We assessed if the respondent received a research grant and what was his/her role in the project (i.e., principal investigator or contractor). The last of our hypotheses relates to institutional excellence, which was measured by category according to Polish parametric evaluation and could take four values: A+ (best one), A, B, C. This assessment was carried out by the Committee for Evaluation of Scientific Units – an advisory body to the Minister of Science and Higher Education. The Committee carries out a comprehensive cyclical assessment of scientific research and development of research units according to international standards. Again, we coded this

variable dichotomously: faculty of higher quality (A+ and A category) and faculty of lower quality (B and C category).

In order to examine relationships between variables under study, we applied the chi-square test of independence. Three null hypotheses (H0) of no association between variables were formulated and tested. Data were analyzed using the IBM SPSS Statistics version 24.0.

4. Results and discussion

Table 1 depicts the sample breakdown by age, gender, and the highest degree or title obtained. The majority of respondents were men between 36 and 45 years who held a doctoral degree. Of all the participants, almost three quarters (73%) declared that they were involved in knowledge transfer to industry in the period of 2015–2017. The most popular forms of such activities were: participation in industry conferences and workshops (73%), analyses and reports commissioned by industry (63%), and consulting services (50%).

Table 1. Respondent profile

Variable	Category	Share (%)
Age	under 36	10
	36–45	52
	46–55	20
	56–65	11
	66–75	7
Gender	male	59
	female	41
Scientific degree or title	doctoral degree	68
	habilitation degree	25
	full professor title	7

To test our hypotheses we compared characteristics of scientists involved and not involved in knowledge transfer to the tourism industry, taking into account three variables: formal excellence measured by scientific degree or title; individual excellence measured by success in receiving public grants; and institutional excellence measured by a rating obtained from the faculty in the Polish parametric evaluation. Tables 2–4 provide an overview of the shares of active scientists across dimensions under consideration.

4.1. Formal excellence – scientific degree or title

As shown in Table 2, holding a higher scientific degree or title has little effect on scientists' propensity to collaborate with industry. Both groups of scientists

were equally represented in the subsample of scientists engaged in knowledge transfer compared to their share in the overall sample.

Table 2. Engagement in knowledge transfer activities and formal excellence (in %)

Scientific degree or title	Share in the overall sample	Share in the subsample of scientists engaged in knowledge transfer
Doctoral degree	68	68
Habilitation degree and full professor title	32	32

Moreover, we found that 72% of academics with a doctoral degree and habilitation degree were involved in knowledge transfer to industry. Only getting the highest position in the university hierarchy results in an increased visibility among entrepreneurs and thus in increased intensity of cooperation (80% of full professors were engaged in knowledge transfer) but the differences are not statistically valid. Since the p-value is greater than the critical value of 0.05, we do not reject the null hypothesis, because there is not enough evidence to suggest an association between formal excellence and engagement in knowledge transfer ($\chi2(1) = 0.029$, $p = 0.865$). It means that our empirical findings do not provide support for Hypothesis 1, which argued that academics with higher scientific degree or title are more likely to engage in knowledge transfer activities. These results seem to confirm earlier findings by Schartinger et al. (2001).

4.2. Individual excellence – success in receiving public grants

As shown in Table 3, grant holders (and especially contractors) were overrepresented in the subsample of scientists engaged in knowledge transfer compared to their share in the overall sample.

According to our research, 78% of academics who were involved in publicly funded grants (as principal investigators or contractors) undertook cooperation with business. Among those who were not involved in research grants, the share of individuals transferring knowledge to enterprises fell to 65%.

The contractors' participation in university-industry relations is very high (84% of all). According to the chi-square test of independence ($\chi2(1) = 0.167$, $p = 0.683$), there is not enough evidence to suggest an association between being a principal investigator and engagement in knowledge transfer.

Table 3. Engagement in knowledge transfer activities and individual excellence (in %)

Grant holders	Share in the overall sample	Share in the subsample of scientists engaged in knowledge transfer
Principal investigator	24	25
Contractor	43	51

However, a valid association was found between being a grant contractor and transferring knowledge to industry ($\chi 2(1) = 3.970$, $p = 0.046$). These results partially confirm Hypothesis 2, which stated that university researchers who have successfully applied for scientific grants are more likely to engage in knowledge transfer activities.

Being a principal investigator is associated with an increased amount of research and administrative duties. Managing research grants leads to additional responsibilities that may limit the time needed for university-industry interaction. In addition, the financial benefits associated with grant projects reduce the financial pressure to seek additional sources of income outside of the university.

These results make it possible to reconcile previous seemingly contradictory studies. Muscio and Nardone (2012) argued that research work is conducive, while Boardman and Ponomariovs (2009) maintained it is not conducive, to business involvement. Taking into account the division into principal investigator and grant contractor it allows us to confirm the assumption that involvement in the relationship with business requires access to new knowledge; however scientific duties of principal investigators and prestige coming from research can discourage them from business activities.

4.3. Institutional excellence – rating obtained by the faculty in the parametric evaluation

According to this research, more tourism scientists are employed in faculties with a relatively low rating. Half of them work in faculties with a B rank and more than 7% in faculties with a C rank. We posited that faculties with A+ and A ranks would be classified as higher-quality units and those with B and C ranks as lower-quality units. As shown in Table 4, lower-quality faculties were overrepresented in the subsample of scientists engaged in knowledge transfer compared to their share in the overall sample.

In our sample, 81% of scientists employed in lower-quality faculties were actively involved in knowledge transfer activities, but this share decreases to 61% in higher-quality faculties. However, results indicate that there is

no statistically significant difference in engagement in knowledge transfer activities based on institutional excellence ($\chi 2(1) = 3.466$, $p = 0.063$). Thus hypothesis 3 couldn't be supported.

Table 4. Engagement in knowledge transfer activities and institutional excellence (in %)

Rating of the faculty	Share in the overall sample	Share in the subsample of scientists engaged in knowledge transfer
Higher	42	36
Lower	58	64

This finding is in line with prior studies on research grants. The best scientists employed in the best departments are predominantly focused on conducting research and have little motivation to engage restricted resources into cooperation with industry. A similar conclusion was drawn by Ponomariov (2008).

5. Conclusions

The objective of this paper was to examine the role of scientific excellence in determining the academic engagement in knowledge transfer to industry. Previous studies suggest that there is a positive relationship between academics' scientific productivity and propensity to engage in knowledge transfer (Bekkers & Bodas Freitas, 2008; Gulbrandsen & Smeby, 2005; Haeussler & Colyvas, 2011).

Our results partially supported the links between scientific excellence and engagement in knowledge transfer in a tourism context. We found a significant positive association between participation in research project as a contractor and knowledge transfer engagement. We also confirmed a positive effect of getting the title of professor on knowledge transfer activities. Moreover, contrary to our prediction, we identified that individuals employed in faculties that achieved the highest scores in parametric evaluation are not the most involved in university-industry cooperation.

On one hand, scientific excellence, and especially participation in research grants, involves access to new knowledge, which makes scientists more attractive for business. Innovative enterprises are not interested in acquiring popular and easy-to-get knowledge. Establishing relationships with researchers receiving scientific grants will increase the ability to get valuable and rare knowledge and help build competitive advantage based on that resource. On the other hand, collaboration with industry is not very attractive

for the best scientists. Having such an opportunity, scientists prefer to engage in research rather than in cooperation with industry.

It is important to note that our study has some limitations. Firstly, the data were collected at a single point in time for a restricted time frame (last 3 years). At this moment, we could exclude scientists who were very active in previous years but inactive from knowledge transfer activities in the analyzed period for some reason. Secondly, we focused on the researchers' overall engagement in knowledge transfer activities, which was coded as a dichotomous variable. Accordingly, we cannot draw any conclusions regarding forms and intensity of university-to-industry knowledge transfer. Finally, the data were collected only from scientists involved in tourism research. Therefore, generalizations beyond the specific context of this research must be guarded.

Future studies should take into account other groups of scientists to capture how the role of scientific excellence varies across disciplines, industries, university types and locations. Moreover, a longitudinal study could help to monitor changes in scientists' activities in knowledge transfer and explain how academic engagement with industry and its determinants vary over time. Also, it is important to note that this study explored only the perspective of scientists. Further research should include the managerial perspective and assess to what extent scientific excellence is an important factor for tourism companies.

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IMPLEMENTATION OF A MIXED PROJECT MANAGEMENT METHODOLOGY: A CASE STUDY OF A CHOCOLATE CONFECTIONERY COMPANY

Katarzyna Piwowar-Sulej[1], Krzysztof Podsiadły[2]

Abstract

The aim of the article is to present – on the basis of literature studies and the case study method – the nature of projects which are carried out in the confectionery industry focusing on a specific mixed project management methodology called Innovation for Market (IFM).

The case study is related to a large chocolate producer (a branch of a global corporation with more than 10 factories in Europe). The analyzed company implements its own project management methodology in all factories based on a traditional approach, but its original methodology combines the waterfall approach not only with Lean Management but also with other management tools and concepts – even with HPWS (High-Performance Work Systems). The article presents the advantages resulting from this original approach (with the focus on the last modification of this methodology), the challenges for the company and the directions for further research.

Keywords: *project, confectionery industry, chocolate industry, project management methodology, waterfall approach, lean management, six sigma.*

1. Introduction

The confectionery industry produces goods which use a significant amount of sugar and sugar substitutes. They are generally low in micronutrients, but rich in calories and carbohydrates. The confectionery industry consists of three categories: chocolate confectionery, sugar confectionery and gum products.

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The chocolate industry is characterized by the most dynamic growth on the one hand and by the highest risk on the other hand. According to the World Cocoa Foundation, more than three million tons of cocoa beans are consumed worldwide annually. Global demand continues to rise due to increasing demand for confectionery from emerging markets. The overall chocolate market rose thirteen percent between 2010 and 2015 to 101 billion dollars, according to Euromonitor, a market research firm (Barnato & Graham, 2016). Due to these facts the chocolate industry market is characterized by high competition. Two of the most important challenges for this industry are the price increase of the main ingredients used in production, i.e., cocoa beans, milk, sugar, fat and oils, nuts or almonds, and the increase in labor costs. The price of cocoa is caused by the decreasing availability of this main ingredient. Mars Incorporated warns that by 2020 the number could swell to 1 million metric tons, i.e., it will increase more than 14% (see more in Fold, 2001, pp. 405-420). In the longer term, the deficit could reach 2 million metric tons. This level may be reached by 2030 (Ferdman, 2014). One of the main reasons for this situation is the growing consumption. The second one is specific production of cocoa bean. 70% of the total world production comes from West Africa (Ivory Coast, Ghana, Nigeria and Cameroon). In this region, cocoa is grown by small business farmers who use extensive cultivation methods. Further increases in cocoa production have to come from an increase in yield of the existing mature trees and from the replanting of old unproductive cocoa farms (see more in Wessel, 2015, pp. 1-7).

Due to the above facts, all global confectionery companies need to take on innovative projects which allow them to grow or to simply keep the same position on the market. A project represents an action performed to achieve a unique objective, involving many actors (team-oriented), carried out according to a plan, whose aim is to implement a change with the use of special methods (see more in Kotarbiński, 1997, p. 193). Numerous methods, techniques and complex solutions (standards and methodologies) have been developed to support project management processes (see more in Piwowar-Sulej, 2016, p. 249). Project management methodologies can be generally divided into two groups: traditional (based on the waterfall approach) and modern (agile).

The aim of the article is to present the character of projects which are carried out in the confectionery industry with the focus on a specific mixed project management methodology called Idea for Market (IFM). The case study is based on a large chocolate producer (a branch of a global corporation). One of the employees of the global organization developed IFM as a complete project management methodology in order to improve project management under specific conditions.

2. Brief description of the research methods

The first research method which was used for the purpose of this article is literature studies. In a literature review, researchers describe, evaluate and clarify what is already known about the research area. The author used a stand-alone review (Easterby-Smith, Thorpe & Jackson, 2015), in order to provide an overview and synthesis. A review of subject literature was carried out by analyzing databases such as Web of Science and Scopus. Such keywords as "project management methodologies" in combination with "new product development," "food industry," "confectionery industry" and "chocolate industry" were used. Then the author read all the articles in order to check if they really focus on similar topic as that which is presented in this article. The focus was put on academic papers (in Polish and English) that have been published in the last nine years (2009-2018).

The second research method was case study. This method is defined as "a detailed description of a real subject, phenomenon or process, made in order to explain the causes, effects and conditions resulting from a given process" (Lachiewicz & Matejun, 2010, p. 88). For the purpose of this article, the research process was of a cognitive nature. It is not necessary to formulate hypotheses in order to achieve a cognitive purpose. Among different types of case studies, one can distinguish those which focus on one research subject (Denzin & Lincoln, 2005) and don't lead to generalizations and those which are comparative (with only a qualitative analysis of results) (Dul & Hak, 2008). Flyvbjerg (2006) states that the experience with specific case studies allows a beginner to become an expert. The case study can also point to topics of further research.

Data for the case study were collected in the process of direct observation and real participation in projects conducted in ten factories of the analyzed company. Each of the factories can be treated as a separate organization. They have their own specific operation model, different production profile, historical background and machine park. The new mixed project management methodology was implemented in all factories. The timeframe of the empirical research is from June 2016 to January 2018, but the company's documents provided data from before the implementation of IAM. These data collecting methods are acknowledged as appropriate for a case study method (see more in Yin, 2009, pp. 54-59).

3. Types of projects and project management methodologies in the confectionery industry

The innovation project activities are outcomes of the competitive marketing strategy, whose main task is to move the organization from its present position

to a stronger, more competitive one (see more in Golob & Podnar, 2007, pp. 245-256). The change in position is done by adapting and responding to global trends and forces such as competition market changes and technology, by developing and matching resources and capabilities with the firm's opportunities (see more in Brown & McDonald, 1994, pp. 322-339). The aim of the strategy can be reached through research and development, which are conducted in many different areas. The basic activities are focused on creating new products and launching them successfully on the market. The aim of other projects is margin management, decomplexity, improving the sensory profile and healthiness, improving food safety, adding convenience or expanding the selection of finished goods to consumers (see more in Earle & Earle, 2012, pp. 125-140). Based on the above categorization of the research areas, the business reporting requirements and the complexity of activities, nine groups of projects were defined in the confectionery industry.

The second group of projects is those activities which are linked with the implementation of limited edition or seasonal products.

The third group of projects covers all ideas and initiatives related to promotion, such as:

- graphics changes, when a promotional flash is added to existing packaging;
- added premium, when an edible or non-edible premium is added to an existing packaging;
- banded pack or multipack, when a number of existing packs are banded together for promotional purposes or a promotional multipack is introduced;
- added value, when extra weight or extra fill is added to an existing product as a promotional and;
- mixed display, when a combination of existing products are packed onto a Display Unit.

The fourth group is packaging change projects. These projects are related to the new packaging structure like consumer unit or a situation when the structure of either a consumer unit or a case unit is changed. They can also be linked with graphics changes. This group includes projects about packaging size change which replace a current consumer unit with a different one as a permanent stock keeping unit (SKU). The last project type in this project group is linked with declaration change when a declaration on a package or label needs to be changed for legal, regulatory, or food safety purposes only.

The next group of projects is connected with improvements. During these initiatives, the product or packaging is changed to improve its performance.

The sixth group is productivity projects which deliver cost savings and increase the profit margin.

One can also distinguish trademark licensing projects when third-party branded products are manufactured and the product under license is used as an ingredient or third party manufacturer-owned product where the product is used as an ingredient and the brand name is used on the label.

The eighth group consists of delisting projects when a product or range of products is delisted from the portfolio on a permanent basis. The main role is to minimize any obsolescence risk in the areas of finished goods, packaging materials or raw materials.

The last group is other projects, which are any other activities which do not fit into the first eight groups. This can be, e.g., a project where the aim is a major sourcing change (like sugar sourcing from Poland to Latin America).

Within the confectionery industry, there are also projects implemented whose aim is, e.g., a merger, the organization of an advertising campaign, a change in a particular IT system or the implementation of modern management concepts like Lean Management. However, the goal of this article is to present projects related to the core business. For the effective implementation of basic projects different project management methodologies can be implemented.

As mentioned in the introduction, project management methodologies can be generally divided into two groups: traditional (based on the waterfall approach) and modern (agile). Traditional project management methodologies include a set of developed techniques used for planning, estimating and controlling activities. The aim of those techniques is to reach a desired result on time, within budget, and in accordance with specifications. This framework includes the waterfall methodology that is very sequential and linear; based on a clear scope from the start and tackling each step in order. The most popular traditional project management methodology is Project Management Body of Knowledge (Project Management Institute, 2004). The main characteristics of this approach include five process groups and ten knowledge areas. These process groups are: initiating, planning, executing, monitoring and controlling, and closing. Pons (2008) states that this project management methodology, with its structured task definition and software tools, is generally useful for managing new product development projects.

The main difference between modern and traditional methodologies lies in the attention paid to planning. In the case of the former, plans and activities are adjusted as needed. Moreover, one of the pillars of the *Agile Manifesto* is treating people and human interactions as more important than formal processes and tools (see more in Unhelkar, 2012, p. 23). Defining characteristics of agile project management also include a focus on teamwork, direct communication and quick exchange of information.

There is also the so-called Lean Project Management (LPM) methodology which has its beginning in the 90's and derives an essence from the concept

of Lean Management. The aim of different lean production techniques is to reduce waste, ensure just-in-time delivery, create effective value streams, and ensure continuous improvement (see more in Deshpande et al., 2012, pp. 221-223). LPM was applicated for the first time in the creation of software in the form of so-called lean software development. The creators of this methodology were Popendieck and Popendieck (Peterson & Wohlin, 2009, p. 2). There are seven principles of this methodology: eliminate waste, amplify learning, decide as late as possible, deliver as fast as possible, empower the team, build integrity in and see the whole. The lean software production is based on the value stream mapping which graphically illustrates the flow of resources, information and the sequence of tasks. Thanks to this solution one can avoid unnecessary activities and the organization can identify the places of waste and, after the analysis, design a way to reduce, limit or eliminate them. The purpose of this action is to implement a value-adding flow (see more in Popendieck & Popendieck, 2003, pp. 13-15). It is worth mentioning that Lean Project Management is more associated with agile project management methodologies than with a traditional project management approach (Pitagorsky, 2006). Pons (2008) says that Lean Project Management is a developing rather than mature concept and is currently loosely defined and variously implemented. It may have potential for projects that use existing knowledge and techniques involving configuration (variant) design. Whether Lean Project Management is suitable for new product development is less clear. Therefore more research is required to validate the Lean Project Management methodology. This statement was formulated in 2008.

As was indicated before, the authors conducted literature studies. The results of the databases scanning are presented below. The authors selected publications from the last nine years (2009-2018).

Table 1. Articles about project management methodologies published in the last nine years

Database	Year of publication / Key words	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Web of Science	Project management methodology new product development	20	27	26	33	28	49	39	37	53	6	318
	Project management methodology food industry	7	2	3	2	5	5	8	3	2	0	37
	Project management methodology confectionery industry	0	0	0	0	0	0	0	1	0	0	1
	Project management methodology chocolate industry	0	0	0	0	0	0	0	0	0	0	0
Scopus	Project management methodology new product development	74	48	39	61	51	55	44	45	51	7	475
	Project management methodology food industry	12	10	12	4	11	4	6	4	3	2	68
	Project management methodology confectionery industry	0	0	0	0	0	0	0	0	0	0	0
	Project management methodology chocolate industry	1	0	0	0	0	0	1	0	0	0	2

The main conclusion after deeper analyses of the articles themselves is that none of the articles pertain to the specific issue of project management methodologies. For example, Cram and Marabelli (2018) describe only general project management approaches which are associated with the above-mentioned traditional and modern project management methodologies. The other authors focus on factors of project success and methods of measuring projects results (see more in Chang, 2013, pp. 1197-1210; Mohagheghi et al., 2017, pp. 3869-3888), business models (see more in Von den Eichen, Freiling & Matzler, 2015, pp. 29-38) or the specifics of manufacturing processes (see more in Lim et al., 2017, pp. 684-700).

4. Characteristics of the Idea for Market (IFM) methodology

The Idea for Market (IFM), which is based on traditional project management methodologies and focuses on manufacturing projects, was developed on the basis of experience gained in the confectionery industry. IFM consists of harmonized business practices, processes, documents, tools, and specially trained Project Coordinators (PC), to efficiently and effectively drive project management.

There are four key phases in the IFM approach, beginning with the development of an idea, and concluding with an evaluation. Each phase has associated key milestones, documents, tools, and clearly defined roles and responsibilities. The full IFM methodology consists of 23 key milestones and around 190 detailed activities.

The first project management phase is idea development. IFM provides a tried and tested best practice approach as well as tools and documents to improve the effectiveness of this phase and to enable identification of fewer but more profitable projects. The marketing department is able to fully focus on the consumer since all the other phases of the project are led by the PC. Due to this approach, the organization can achieve benefits like better strategic alignment upfront, deeper consumer insights based on a sound analysis of the situation and better financial understanding and rigor.

The second phase is project development. Following the approval of a Project Design Brief (PDB), the Project Coordinator is responsible for leading the Project Development Phase. Coordinating all activities ensures that the correct resources are aligned and focused on developing the most effective business solution.

The third phase is the project execution. After the approval of an Implementation Request (IR), the PC is responsible for driving the delivery of the previously developed and business-approved project plans, ultimately ensuring the smooth commercialization of the idea into the market. The

benefits from this phase are flawless first-time execution, on time and within budget, a significant reduction of waste and other associated project costs and faster speed to market.

The fourth phase is evaluation. All projects need to be evaluated. The detail of this evaluation, however, is dependent on both the project group and the requirements of the business. Evaluations are split into two types, quality of the project execution and performance of the idea in the marketplace versus the previously defined criteria of success. The intention is not to evaluate for the sake of evaluation, but to ensure continuous improvement of project execution, idea generation, and business performance. Thanks to this, the company can achieve benefits like better ideas through the global sharing of lessons learned, flawless execution by leveraging experience from across the organization, improved business performance and continuous improvement of best practices and associated tools.

As mentioned before, 23 key milestones have been identified within the four phases of the IFM methodology. Each of these milestones consists of a number of individual functional steps or activities for which the following elements have been defined:

- detailed description of the activity;
- key questions to be answered;
- best practice tools available;
- roles and responsibilities, and;
- key documents.

In the manual for each phase, the project team can find information about the activities which need to be carried out and documents which need to be prepared. The IFM model provides clarity of the roles and responsibilities during the project lifecycle. Moreover, it is still developed, i.e., through adaptation of the fundamentals of the Lean Management concept. The analyzed company uses the same Lean Management concept as Toyota did and presents the LM philosophy in the form of "lean house" (Liker, 2004, pp. 48-50). For continuous improvement projects, the Six Sigma method was implemented. The main objective of the Six Sigma method is to eliminate root causes and identify improvements for the process. The problem solving is structured in a five-step approach built around the DMAIC process (Define, Measure, Analyse, Improve, Control) (see more in De Mast & Lokkerbol, 2012, pp. 604-614). The boundary condition before addressing capability issues is that the process stability is required (see more in Dinsmore & Cabanis-Brewinhe, 2006, pp. 125-135). Therefore one can state that IFM is a mixed project management methodology.

It is worth mentioning one more time that Lean Project Management is more associated with agile project management methodologies than with

a traditional project management approach (Pitagorsky, 2006). The analyzed company made an effort to combine these quite different ways of thinking (traditional project management methodology with lean approach).

After a few years, the stakeholders identified the need to integrate all concepts and methods used in different areas to one common approach. The decision was taken to build the capability of the whole organization through the implementation of an integrated approach, which brings together the basics of Lean Management, Six Sigma method, Total Productive Maintenance concept (with Autonomous Maintenance and Progressive Maintenance) and the idea of High-Performance Work Systems. The main focus of TPM is put on undertaking actions in order to prevent machine failures in the entire use of the machine park. HPWS are described as systems of horizontally and vertically aligned employment practices designed to affect both the ability and the motivation of employees (for more see more in Wilmott & McCarthy, 2001; Appelbaum & Berg, 2001, pp. 271-293).

It was stated that the most critical milestones are related to preparing and receiving approval for the Innovation Brief (IB), Project Design Brief (PDB), Implementation Request (IR) and First Production Ratification (FPR). Therefore, the last modification of the IFM includes implementation of the Idea and Activity Management (IAM) concept. This integrated approach focuses on achieving zero incidents, defects and losses along with 100% employee involvement.

The IAM – as one of the pillars of the IFM – changes the project management phases through the implementation of the sub-phases (design reviews, DR), new critical milestones and the modification of some primary milestones. The main objective of introducing IAM is to provide a clear understanding that all required process steps were completed and the appropriate documentation was prepared. It also is a useful way to link the documents from the key milestones from IAM to IFM methodology.

The most important new tools are:

- Integrated Design Scope (IDS) and Integrated Design Brief (IDB);
- Maintenance Prevention Workshop and Database;
- FMEA (Failure Modes and Effects Analysis);
- Cross-functional Vertical Start-Up (VSU) Teams and Technology Team and Training (TT&T), and;
- Commissioning, Qualification and Verification (CQV).

The IDS presents the core elements that should be included in the IDB and that will be developed further in the next project management phase. IDB defines what is needed for a successful appropriations application for investment expenses and eventual start-up. The documents have eleven sections where the critical-to-quality (CTQ) indicators and critical-to-process (CTP) indicators are

defined. Critical to quality are the internal product characteristics required by the consumers. They have a direct and significant impact on actual or perceived product quality. Critical to process indicators are the internal critical process parameters which allow managers to make the right amounts of defect-free products as related to CTQ and other key line performance measures. Within the MP Workshop operators' and technicians' points of view are taken into account to improve the future performance of the equipment. The outcome from the workshop is MP Database. FMEA means Failure Modes and Effects Analysis and it is a powerful tool which evaluates the ways in which a process or a product can fail and develops contingency plans to address them. The objective of this tool is to reduce the risk and problems at an early stage to ensure Vertical Start-Up is achieved. It requires cross-functional teamwork with experienced team members from engineering, maintenance, site, safety, sanitation and suppliers. CQV is a well-established industry-wide step approach with the aim of delivering excellence on project start-up by focusing on equipment, people, material and process. It is divided into three steps:

- C – Commissioning – demonstrating process capability through at least a one-hour wet run, product within the defined consumer quality specification (CTQ and CTP);
- Q – Qualification – demonstrating process capability with a 24-hour run product within the defined consumer quality specification and target line performance, and;
- V – Verification – demonstrating process capability over sixty shifts achieving VSU targets across a range of normal operating conditions.

The IAM concept was implemented in the analyzed company in 2016. In the next chapter, the results of this implementation will be presented.

5. Results of Idea and Activity Management implementation in the analyzed company

The research showed that the new approach gave the same results in each of the studied factories. Many advantages resulting from the implementation of IAM were noticed. The main benefits are connected with:

- high-quality design of the coming product and new processes – defined CTQ (critical to quality) and CTP (critical to process);
- integration of traditional project management and other concepts (Lean Management, Six Sigma, TPM, HPWS) in the plants;
- accurate risk assessment in projects;
- extended project execution with implementation of the commissioning and qualification process;
- stronger focus on the control phase, and;

- decreased number of issues during the installation and commissioning phase.

Before the IAM was implemented, only five percent of projects that utilized IFM achieved their incremental revenue, margin contribution and manufacturing vertical start-up targets. The majority of the projects were characterized by a long start-up period and low general efficiency (GE). Also, the hand-over process needed improvement. All these factors had an important impact on capacity, productivity and service quality. The main source of the problem was that when the project was coming to the execution phase (fabrication, installation and commissioning) the number of issues would start to increase. This meant that the potential problems were not identified earlier and not resolved during the design and development phase. The problem-solving was very difficult in the execution phase. The project was closing after the First Production Ratification (FPR) and manufacturing teams were left alone with the challenges. The low GE, high level of waste and a significant number of breakdowns also had a negative impact on the morale and motivation of not only project teams but also of manufacturing teams. Thanks to the implementation of the IAM the focus was moved into the idea development and project development phases. Thanks to well-defined CTQ and CTP the products and processes were better designed and the key criteria of success were better recognized. Recognition of potential issues which can appear during the following project management phases became possible with the use of the extended risk assessment.

One of the most important parts from the manufacturing point of view was the extension of project execution with implementation of the commissioning and qualification process and a higher focus for the control phase - implementation of the verification process. Thanks to this, the manufacturing team has support at the start-up of the production, and the manufacturing targets like GE, waste level, production plan execution, are targets for the whole project team.

After implementation of the IAM, the targets were achievable already in the first weeks of production with a proven shorter start-up. In the past, project targets were not controlled, but they did have a significant impact on the results of the team. One of the standard situations was that, after the start-up of the new product, targets dropped and commonly returned to the previous level after a few months.

6. Conclusions and directions for further research

Project management is an area that many companies struggle with. You may have a great idea for a product, but if it is not managed well at every step, it

can lead to disappointing results for the company. In the past decade, agile and lean project management methods have become more popular and the prevalent view was that this growth has been at the expense of traditional project management approaches. As presented in this article, the analyzed company uses its own project management methodology based on the traditional approach. However, its IFM methodology combines the waterfall approach not only with Lean Management but also with other management tools and concepts – even with HPWS. Therefore one can call it a mixed project management methodology.

The detailed subject of the study was the results of implementation of Idea and Activity Management (IAM) which is the last modification of the analyzed methodology. The article presents an original solution used in the field of project management. As stated, there are many advantages resulting from the original concept. However, it also brings new challenges for the company.

There are difficulties with measuring whether the planned parameters (CTQ and CPT) are achieved. The old production lines cannot deliver reliable and repeatable data. In the case of new production lines, some of the parameters cannot be measured due to safety reasons. Deeper analyses require more involvement from the team members and additional resources. The number of activities and documents significantly increases, but the number of employees does not. The potential benefits from the IAM implementation should be invested into people and equipment in order to achieve a comparable standard of the production lines across different sites. It would also be challenging to introduce a completed IFM methodology in companies other than those operating in the confectionery industry. Future research can include a comparison of the results achieved in different industries and identifying the reasons for differences.

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CONDITIONS AND NATURE OF COOPETITION OF FOR-PROFIT AND NON-PROFIT ORGANIZATIONS

Janina Stankiewicz[1], Marta Moczulska[2], Bartosz Seiler[3]

Abstract

Nowadays, it is observed that relationships between organizations are becoming more and more complex. Relationships between entities operating in the same market are changing. They combine competition with cooperation. In the subject literature, this relationship is referred to as "coopetition." First of all, it is analyzed between for profit (market) organizations (enterprises). On the other hand, non-profit organizations (social and non-governmental) are taken into account to a lesser extent. These types of organizations are characterized by significant differences, which, according to the authors, may have an impact on the formation of coopetition. The results of the literature review confirming the research gap in this respect are presented. The aim of the article is to identify the conditions and nature of coopetition in the relations of for-profit and non-profit organizations. Semi-structured interviews were conducted with six deliberately selected organizations – three market and three social ones. The obtained research results may form the basis for quantitative research.

Keywords: *for-profit and non-profit organizations, cooperation, competition, coopetition.*

1. Introduction

In contemporary literature on the subject, attempts are made to overcome the dichotomous division of relations between organizations manifesting through competition and cooperation. A progressive complexity of inter-organizational

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contacts is observed, which is reflected in, among others, the application of the term "coopetition," referring to the situation of simultaneous occurrence of competition and cooperation (Brandenburger & Nalebuff, 1996). This concept was used primarily in the analysis of the activities of enterprises – profit-oriented organizations. However, since the 1970s, more attention has been paid to these issues related to the functioning of organizations that operate in the public interest (civic, non-governmental, non-profit, social).

According to the authors, in the considerations regarding the issue of coopetition, the issue of its specificity is important. The aim of the article is to identify the conditions and nature of coopetition in the relations of for-profit (market) and non-profit (social, civic) organizations. In the implementation of this goal, the literature on the subject and secondary data were used, and partially structured interviews were conducted with six deliberately selected organizations – three market and three social. The article presents the results of research for the meso level, i.e., between organizations.

2. Literature background

2.1. The specifics of for-profit and non-profit organizations

Among private organizations, two main types can be distinguished. The first one includes entities whose goal is to achieve a profit (enterprises), the other – those that operate *pro publico bono* (civic, social, non-profit, non-governmental). Enterprises are a natural subject of interest in economic sciences, including management sciences. An increased interest in civic entities dates back to the second half of the last century, which is why knowledge about their functioning is less advanced than in the case of market entities. One of the basic, preliminary issues that researchers in the non-profit sector undertook was to recognize the specificity of non-profit organizations in comparison with commercial ones. The market is taken as the reference point. The literature on the subject indicates that the company's characteristics are shaped by the nature of the market and its institutions (see more in Kożuch, 2011, p. 62). Non-governmental organizations, however, function in the social sphere, constituting the manifestation of civic self-organization. From the perspective of the objective of the measure, in the case of enterprises, the overriding principle is to achieve economic benefits, i.e., to generate profit or increase its value (see more in Kożuch, 2011, p. 65). Civic entities arise and conduct activity to make social changes (see more in Drucker, 1995, p. 10). They are activated, among others where the market and the state fail (Hansmann, 1987; Weisbrod, 1988). They carry out many different purposes,

representing the interests of specific groups and communities (this is different from public organizations whose task is to represent wider categories of voters) (see more in Bogacz-Wojtanowska, 2016, p. 14).

The results of the subject literature analysis allow us to state that from a management perspective the specificity of civic organizations is expressed in (Hudson, 1997; Anheier, 2005; Domański, 2010; Kożuch, 2011; Kafel, 2014; Mirońska, 2016):

- non-financial business goals – they do not seek economic benefits, and when they achieve a profit they have a ban on its distribution (they operate in accordance with the not for private profit principle); they are missionary in nature, they work for the public good;
- nature of transactions – their beneficiaries use the services free of charge or below market costs, because they are paid by the donors; the relationship between the financing services and the recipients is indirect. Thus they are characterized by a dual management system (oriented towards "output" and "input");
- type of service and the nature of relationships with beneficiaries – they provide social services, often of a complex nature, also indirectly through lobbying for social change; relations connecting them with beneficiaries are based on emotional closeness and a personalized approach to aid recipients; the recipient of services is "our man", treated not in the same way, but adequately depending on the needs;
- type of membership and use of social work – they are created from a bottom-up initiative, engagement is voluntary and their functioning is based on the social work of members and volunteers, as a result of which a specific organizational culture develops, in which there is acceptance for informal, personal relationships, consensus and commitment;
- type of relationship with the environment – their activity depends on many social groups; the circle of stakeholders includes, not only external customers (e.g., beneficiaries, donors) and internal (members, employees and volunteers), but also various authorities supervising their activities, or even the whole of society, benefiting from the effects of their activities; their functioning is subject to strong supervision of public opinion, and the key resource is social legitimacy.

Non-profit organizations differ from market ones. A comparison of these differences is presented in Table 1.

According to the authors, the indicated differences between social and market organizations (enterprises) will influence the formation of coopetition.

2.2. Coopetition as an expression of the complexity of organizational relations

In the traditional approach to the world of organization, three main types of relationships between entities are mentioned (Czakon, 2007): co-existence, competition (competing) and cooperation.

Table 1. Characteristics of market and social organizations

Reference	Characteristic	For-profit organizations	Non-profit organizations
General	objectives / functions	paid	non-paid; social, political, educational, cultural, etc.
	management system	focused on „outputs"	dual, focused on „inputs" and outputs"
	source of social legitimacy	economic effectiveness	ethical operation, moral standards, social effectiveness
Meso level	position	relative independence	high dependence on public and commercial organizations (being the donors)
	relationships with the environment	competition	extensive network of partnership
Micro level	organization values	obedience efficiency in action	solidarity, reciprocity, loyalty, participation, consensus
	organizational structure	hierarchy, formalization	low level of hierarchy and formalization
	determinants of management style	hierarchy subordination	democracy autonomy in operation
	membership / participation	„economically forced"; affiliation for economic purposes hired employee / subordinate	voluntary; non-economic affiliation, ideological affiliation, convergence of views, principle of similarity
	employees / (characteristics of employees)	paid	social
	size	„large"	„small"
	relationships with the environment	rivalry	cooperation

The first refers to a situation in which the objectives of entities are implemented and verified independently of each other, and therefore there are no direct impacts. The second is the opposite situation in which the entities want to achieve the same goals, which, assuming that winning one means failure of the other, causes competition. The third one is based on helping, strengthening the activities of one entity through the other - positive dependence. Thus, two

basic groups of participants stand out: competitors and co-operators. It should be noted that among them are the recipients and suppliers who constitute entities important for the functioning of the organization. It is similar with the so-called complementary organizations, i.e., those whose activities contribute to the added value (Figure 1).

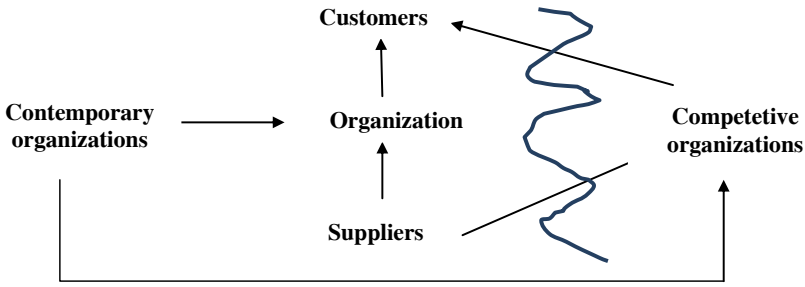

Figure 1. Diagram of classic relationships between different types of organizations

Relations of contemporary organizations, as emphasized by Brandenburger and Nalebuff (1996), are characterized by variability and complexity. On the one hand, in the opinion of the authors mentioned above, this relationship, referred to by them as coopetition - is based on cooperation aimed at developing a new product, creating value, on the other hand - competition both in the market and on jointly generated benefits. Narrowly, emphasizing the essence of coopetition, Bengtsson and Kock (2000) define it as a relation containing at the same time elements of cooperation and competition (Figure 2). Let us bring both concepts together.

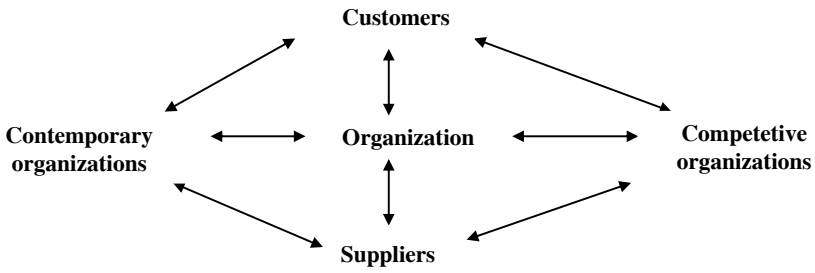

Figure 2. Model of coopetition according to Brandenburger and Nalebuff

Source: Brandenburger & Nalebuff (1996).

Competition is according to Romanowska and Gierszewska (1995, p. 107) "an aggressive, possessive, fight in which opposing parties strive to evoke a sequence of events that enables achievement of the set goal, which can only be achieved by one of the rivals." On the other hand, according to Karolczak-Biernacka (1981, p. 24), competition is considered as "striving to outweigh the results of other or own achievements regardless of external precepts." Taking into account the attitude towards the other party and related methods of conduct Kotarbiński (1982) describes it as a negative cooperation, i.e., a fight (first) and a positive one – competition (the other).

Cooperation is a more complex process. Taking into account the meso level, i.e., between organizations, it is necessary to first of all pay attention to the two terms used: cooperation and collaboration.

According to Kaczmarek (2000), cooperation can be considered in the general and economic-organizational aspect. In the first one, it means "contributing to something," "working with someone." In the second one, it concerns various kinds of relationships created between individuals or social groups that strive at the same time to achieve a common goal or enable each other to achieve divergent goals. Similarly, cooperation is perceived by Jakowicka (2004). She grasps them as a relation of two entities, between which the mutual reinforcement of activities by the other party takes place. The author emphasizes the essence of this relationship in facilitating someone's task performance by providing help when they need it. However, collaboration is the communication between two entities (Jakowicka, 2002, p. 139):

- which take the form of mutual arrangements;
- whose participants should be aware of the limitations that lie in collaboration, which manifest themselves in weakening the individual's freedom of decision making, as well as limiting independence in acting without coordinating it with others (crossing borders leads to cooperation disorders);
- in which individuals performing partial tasks in achieving a common goal, should be aware of the task and goal being undertaken jointly and which have to be loyal to each other and trust.

Also, Pszczołowski (1978, p. 273) defines cooperation as "positive cooperation, multi-entity operation, whose participants mutually help each other." He defines collaboration as "cooperation consisting in coordinating the partial tasks to be performed, provided for by the division of labor."

Let us point out that the terms cooperation and collaboration, in the subject literature, are used not only interchangeably but are also "mutually" used to explain concepts (see more in Bedwell, Wildman, DiazGranados, Salazar, Kramer, & Salas, 2012). The results of the analysis of definitions show that the essence of these concepts is different.

In this context, it is worth paying attention to the classification of cooperation presented by Tomski (2008). The author, taking into account the ties between cooperating entities, points to (Figure 3): unconscious cooperation, conscious cooperation, collaboration, cooperation and integration. The first also defines the coexistence of enterprises, that is, their seemingly independent functioning.

The second means that organizations "see" mutual existence and take action with a different subject. It can be considered in a positive aspect (cooperation aimed at achieving a common goal) as well as negative (mutual disabling of divergent goals). Conscious cooperation may also differ in the degree of tightening the bonds and the durability of relationships (e.g., one-off/sporadic/regular). The third - collaboration - is conscious cooperation, which is characterized by a positive aspect of relationships and the durability of the relationship (extended cooperation time). The fourth type, or cooperation, manifests itself in increasing the degree of tightening the relationship and the permanence of the relationship, up to the integration, i.e., the creation of a new entity.

It is worth emphasizing, after Arcidiacono (2007), that the main difference between concepts concerns the level of the task and the way in which the subject participates in the collective process. The author indicates six variable characteristics for each type of activity:

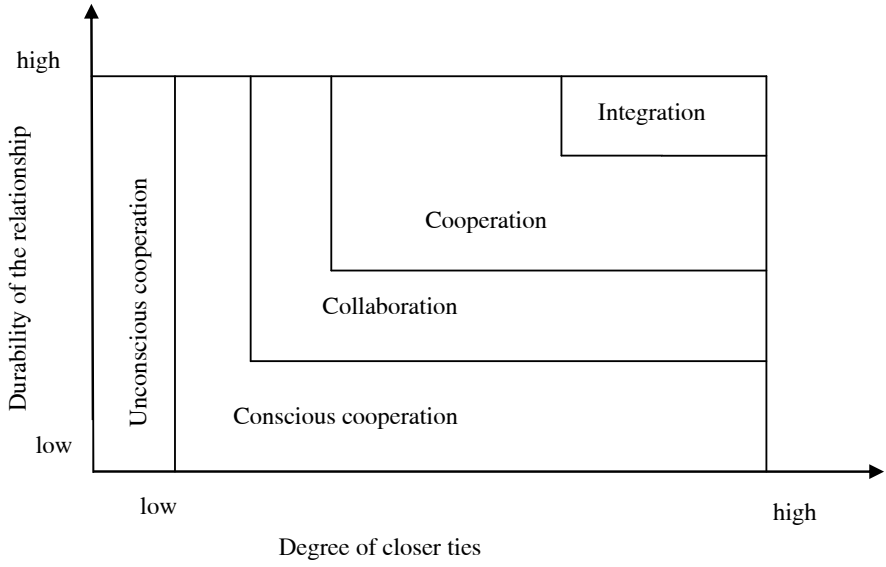

Figure. 3. Classification of cooperation

Source: Tomski (2008, s. 36).

1) In collaboration, people engage in similar activities, and in cooperation - in various ways.
2) In collaboration, participants tend to share knowledge and experience, and in cooperation - to differentiate it.
3) In collaboration, people have a similar status, while in cooperation asymmetry in status is more likely.
4) In collaboration, the goals are mutually negotiated and shared, instead of being allocated in cooperation.
5) Collaboration requires continuous interaction.
6) Collaboration implies learning together and internalization, as well as new knowledge, is the result of social interaction.

It can be concluded that cooperation and collaboration are on different poles of the continuum, describing the participation of the individual in collective work. It takes into account the degree of dependence on other participants and at the same time involves the division of tasks, responsibility, the manner of transferring information, sharing knowledge[4].

Summing up, let us show some classification of coopetition. Taking into account the relationship of cooperation and competition, Bengtsson and Kock (2000) distinguished the following types:

- with the dominance of competition;
- with a balance of cooperation and competition.

Considering the Brandenburger and Nalebuff model (1996), it is worth paying attention to the direction of relations between entities, writing about the coopetition: vertical, horizontal and multilateral. Taking into account the goal of coopetition, they point to a coopetition of type (after Barczak, 2014, p. 58):

- A, in which the goal and time are clearly defined;
- B, in which companies do not define the duration of links;
- C, when companies decide to cooperate, otherwise they will be forced out of the market.

2.3. Coopetition in for-profit and non-profit organizations

According to the results of the literature review, carried out at the beginning of August 2016, including articles published since January 1980, there were 9152 items in the EBSCO database, the title of which contained the word related to coopetition[5] or also constituting a compilation of terms related to its substance, i.e. cooperation and competition (Hamel, Doz, Prahalad, 1989)[6]. The results of the analysis showed that publications concerning the issue of

4 Nissen, Evald and Clarke (2014, p. 474) compare cooperation and collaboration to notions: task work and team work, pointing to the differences between the two forms of action. On the other hand, Polenske (2004, p. 1031), indicates that "collaboration" is a term close in meaning to the word "partnership", and the actions taken, contracts – in contrast to cooperation – are often exclusive in nature.

5 I.e.: "coopetition", "co-opetition", "coopetitive", "co-opetitive".

6 I.e. "collaboration" or "cooperation" ("collaborative"/ "cooperative") and "competition" ("competitive").

coopetition in market organizations dominate (156 articles) at the meso level (56). A small number (10) of articles dealing with the discussed issue in non-profit organizations (sports, services focused on children's care and health) and a monograph showing coopetition in civic entities operating in the field of fine arts have been identified (Kirchner, Ford, & Markowski, 2015). There is no established comparative publication – comparing the nature of coopetition in organizations of the types discussed.

3. Research approach and methods

The aim of the research was to compare the conditions and nature of coopetition in market and non-profit organizations. The research was of an exploratory nature, serving the purpose of understanding the issue, determining the possibility of undertaking further research (see more in Babbie, 2004, pp. 110-111).

In order to explain the research problem, a conceptual framework was used, created on the basis of the theoretical analyses.

Taking into account the adopted research objective, it was decided to use techniques generating qualitative data. In the conducted research, a partially categorized interview was used. This type of interview has an exploratory and heuristic character (see more in Frankfort-Nachmias & Nachmias, 2001, p. 251). In the course of interviews, direct interaction with the respondents made it possible to explain and deepen some ad hoc threads, and thus better understand them. On average, the interview lasted for 2 – 2.5 hours and was recorded using a voice recorder. Interviews were conducted in January and February 2017. Respondents were people who are known to have experience relevant to the goals of research – managers of the organizations. Interviews were held according to the prepared plan. Questions were asked according to the following thematic order: organization (goals, functioning), suppliers and recipients (characteristics, bargaining power, types, etc.) and relations with the environment (cooperation, competition).

The variables such as the type of entity and its size were used to select the surveyed organizations. Three companies were surveyed: one large enterprise in the high-tech industry (A), one large from the commercial sector (B) and one small in retail and service (C) and three civic organizations: one large aid organization (X), one small self-help organization (Y) and one territorial division of a large aid organization (Z).

The authors are aware that the presented research results, due to the limited and deliberately chosen sample, are not representative. However, the obtained data can be the basis for the initial exploration of the problem, its description and provides a basis for formulating hypotheses that will be subject to verification in the future.

Initial data analysis had already taken place during their collection. After having been rewritten and printed, every interview was read. This made it possible to draw up initial applications. The proper analysis began after collecting all the research material. It was subjected to coding, and creating a list of codes based on dispositions for interviews. In the course of the analysis, the list of codes was subject to further specification. The inference was based on verbal and not numerical data. The basis was variable-oriented analysis, but case-oriented analysis was also helpfully used (Miles & Huberman, 2000).

4. Results and discussion

The research results suggest that the developed partnership network increases the possibility of achieving the goal by civic organizations. In their case, the goal is external and lies outside the organizations themselves[7]. These entities operate in the social sphere; they activate themselves to solve community problems. Therefore the exchange and pooling of resources with other representatives of the sector increase their effectiveness. Even if there is no intra-sector cooperation, the same co-occurrence of other entities can be perceived by the participants of the third sector as something positive. It objectively increases competition for limited resources but also gives greater opportunities for social impact. Civic organizations operating in the same niche can be perceived as competitive, but the view prevails that, in essence, their existence increases the chance of liquidation of social problems. A representative of a large aid organization (X) stated: *"when someone asks us for cooperation, we also join, (...) who is the person does not play a role, it is important that there is this help, (...) if there are people at different stages who need help, let there be as many of those organizations that help as possible"*.

Differences between enterprises and non-profit entities are expressed, as already mentioned, in the placement of the goal. It is even possible to state that the former is self-oriented, the second – oriented to the surroundings. An informant from a non-governmental organization X stated that it would be ideal if it did not have to exist: *"we will be unnecessary when there is no more poverty."* The target point of the activity would be to achieve such a state of social reality, which would be tantamount to the lack of the need for further activity. Founders, owners and managers of enterprises do not make this type of calculation. By focusing on the organization, not on the environment, it means that in the bundle of its goals, its duration and development occupy an important place.

The implementation of social goals by civic organizations often takes the form of a stock or results from random events and requires ad hoc measures. As

7 In enterprises, the target is not located externally but is located within the organization. It is possible to call it self-orientation vs. orientation to the surroundings.

a consequence, it is necessary to create various types of covenants, coalitions and ad hoc associations.

Competition is usually associated with the functioning of enterprises. In the third sector, it also occurs. It refers to applying for financial resources (e.g., 1% of personal income tax), social workers, beneficiaries, participation of well-known and popular people in social councils, or public attention, necessary to legitimize the activity. Competition often takes place within the institutional framework resulting from the so-called contract culture. Applying for subsidies is associated with the competition mode, but on the other hand, it also requires establishing partnerships and promotes the creation of cooperation. Therefore, situations of competing for public subsidies are encountered, but also - immediate, instrumental cooperation increasing the chances of obtaining financial support.

Combining cooperation and competition in the third sector is also used to build networks and coalitions of organizations. Paradoxically, it can contribute not only to creating a framework for cooperation and intra-sector collaboration but also to build the position of own organization. In this context, competition can be of a "non-market" and symbolic nature. The leadership ambitions of the leaders of individual entities are not without significance. For example, one of the respondents decided to join an umbrella organization taking into account specific personal and environmental conditions.

A specific feature of the non-profit sector is that competition can take place in the axiological domain. The sphere of value is less often subject to the impact of enterprises. An example of one of the surveyed organizations shows that civic organizations can have a clearly defined ideological profile, and their mission involves the promotion of specific values. Acquiring members, but also beneficiaries can be instrumental and serve to promote this mission. Getting an ontological advantage can increase the chances of winning in the axiological dimension. It is also possible to indicate examples of organizations that cooperate with each other in the first indicated dimension and compete – in the second. In this context, the question about the influence of the so-called audience on civic organizations and pressure from them to create a phenomenon of competition or cooperation (in the form of self-fulfilling prophecy) seems to be essential.

It was also found that some civic organizations not only provide services, in which they remain as companies but also represent their members and lobby for favorable social changes. Competing may be about who is more effective in representing and expressing the aspirations of a specific group of citizens. A self-help association (Y), in which a split occurred at some stage of the development (as a result, two organizations were formed), tried to prove to

its members that it was a more effective exponent of their views and interests than an alternative organization.

For enterprises, competition turned out to be something natural. Also, non-profit organizations experience it, although they do not notice its impact. The value of cooperation is also higher. For enterprises, success in competition is a condition sine qua non existence. In the case of civic organizations, the competition pressure is lower because they have greater survival capabilities. They use social work; they are more labor-intensive than capital-intensive ones, that is why they can enter into hibernation and activate themselves on an ad hoc basis.

Cooperation is for companies to pursue their own interests. Among non-profit organizations, there is a phenomenon that can be described as ethos cooperation resulting from the third-sector identity and solidarity. For example, one of the surveyed associations (Z), which was very dynamically competing with other non-profit entities in applying for public funds, was at the same time able to support smaller and weaker organizations by providing them with computer equipment.

It seems that in both types of organization the recipient is the goal of functioning. However, in the case of civic organizations, as one of the respondents recalls, action occurs when there is a demand from the recipient. It also means that it becomes a very particular person. His needs are known. The same applies to other NGOs surveyed, although their functioning is more targeted. With the knowledge of the recipient, it enables a certain structuring of activities. On the other hand, the recipient of enterprises is first and foremost called a customer. It seems that, due to the fact that it is the source of the enterprise's income, getting to know his/her needs also becomes important. However, the relationship established has a different character. The recipient is not "their" man and the client whose needs should be satisfied. Interestingly, the relation mentioned also differs in the three organizations surveyed. This can be related to the specificity of the business and the area of operation. In the case of the first one (B) it is possible to talk about a dispersed, anonymous client who is being sought through promotional campaigns. In the case of the second (C), as described by the respondent, it is possible to identify a regular customer who draws attention to the way he/she is handled. In the case of the third (A), due to the specificity of the product, the client is individualized, he/she becomes a decision-maker, not only in terms of the product prepared for him/her but also the supplier. For this reason, it can be concluded that this organization may have limited choice of supplier. The situation is different for the other two. Relations depend on both the offer and the course of cooperation. Although, as the respondents note, some of the suppliers are solid, cooperation with them may depend on the needs of customers. However, it is possible to change them, redefine the terms of cooperation, which may cause

competition between suppliers. On the other hand, in social organizations, it seems that donor suppliers can be divided into two groups. The first, the main one are people who provide financial resources (bank accounts) or are also material, often "responding" to organized activities. The other, smaller, are companies which - due to the frequency of support - are considered as friendly (permanent) suppliers.

5. Conclusion

The presented research results show differences in the functioning of for-profit and non-profit organizations in three main areas: target, suppliers and recipients (Table 2). In the case of non-profit organizations, the goal "comes" from their environment and is associated with existing social problems. For this reason, they recognize the lack of problems as a desirable state, which would also mean that they do not need to exist. As a consequence, the recipient of this type of organization is a particular, familiar person.

Table 2. Conditions and nature of coopetition in for-profit and non-profit organizations

Reference	Characteristic	For-profit organizations	Non-profit organizations
Goal	focus	on organization (inside)	on the environment and social problem (outside)
	desired condition	existence/development	no need for existence
Recipients/ clients	characteristic	distracted, anonymous	specific, personalized
	bargaining power	high	low
	striving for possession	acquiring new, broadening the group	depletion
Suppliers	characteristic	specific	distracted
	type	market	social (donators) and market
	bargaining power	low	high
	relations between suppliers	compete	(social) suppliers do not compete
Cooperation	character	instrumental	instrumental and ethos
	range	more intra-sector (market)	more cross-sectoral (public, social, market)
Competition	significance	greater / determines survival	smaller
		it requires less cooperation to a lesser extent	to a greater extent requires cooperation
Coopetition	spheres	ontological	ontological and axiological
	type	dominated by competition	dominated by cooperation

In the case of for-profit organizations, however, their functioning is related to the goal they set. Its implementation contributes to the existence and survival of the organization in the market and its development. On the other hand, it requires soliciting the recipient, searching for new clients, and expanding the existing group of clients. Therefore, it is possible to speak about the strong influence of the recipients. In contrast to social organizations, they are rather anonymous and dispersed. The reverse is true for suppliers. It is worth adding that market organizations can arouse competition among suppliers.

The described conditions of the organization's functioning mean that competition is more important in the case of for-profit organizations than non-profit organizations. The last ones require more cooperation. It has both an instrumental and a social character. It also runs more cross-sectoral than – as it is in market organizations – within the sector. It can, therefore, be concluded that coopetition in non-profit organizations concerns the ontological sphere and is dominated by cooperation, and in the market, including the ontological and axiological spheres, is dominated by competition.

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PUBLIC UNIVERSITY MERGERS - A POLISH EXAMPLE

Łukasz Sułkowski[1], Robert Seliga[2]

Abstract

Consolidations in Polish higher education have been developing since the 1990s, although in the first two decades they were rather incidental. Intensification of mergers of private higher education institutions has occurred in recent years under the influence of increased competition. In Poland, the consolidation processes of universities in the last 25 years have been spontaneous and of a bottom-up nature. They did not take the form of a merger wave and were not implemented systemically. Among several public-sector mergers, two were strategic in nature. In recent years the largest scale of consolidations has been among private universities, forced by a falling demand for education. The aim of the article is to describe the process of merging public universities in Poland. The research methodology in the article was based on the analysis of the merger of two Polish public universities. The article has a review nature and uses exemplification in the form of a case study and constitutes a starting point for further in-depth research in the field of university mergers in Poland. The article describes the importance of mergers between universities in an era of legal changes taking place in the Polish higher education system. The case study includes the merger of the Medical Academy in Cracow into the structure of the Jagiellonian University and as described in the article can be an exemplification of the federal merger process.

Keywords: *university mergers, public university, university management, higher education sector in Poland, Polish university.*

1. Introduction

Political transformation in Poland in 1989 caused many changes, which included the higher education sector as well. Over the last two decades, the

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Polish university sector has become a kind of laboratory for the development of concepts of university management.

Progressing consolidation of the university sector in the world is associated with a profound transformation of universities themselves and their relationship with the environment (Sulkowski, 2016). Formation of the entrepreneurial university is beginning to supersede more and more clearly the traditional university based on the Humboldtian model (Clark, 1998; Giroux, 2015). This means focusing on commercialization of research results, competition, and at the same time intensive cooperation between universities and the socio-economic environment. A manifestation of the creation of extensive coopetition networks can be the progressive internationalization or even globalization of the activities of universities that compete for students and researchers around the world, also through the development of international cooperation (Sulkowski, Seliga, & Wozniak, 2017). Dynamic changes in the higher education sector occurring in Poland also require the application of many management concepts and methods, such as accountability, outsourcing, mergers and acquisitions (Sulkowski, 2016)

Consolidations in Polish higher education have been developing since the 1990s, although in the first two decades they were rather incidental. Intensification of mergers of private higher education institutions took place in recent years under the influence of increased competition. In the case of public HEIs, the connections were not intensive and took the form of positional connections, rarely strategic, and they were very sporadically of rescue character. Poland is probably on the verge of intensifying consolidation processes in the sector of science and higher education (Kwiek, 2017). The increase in consolidation in the group of private universities will probably result from market reasons; while in the group of public universities the impact of public policies will be significant. It is not only the competitiveness of Polish universities but also the quality of research and education that depends on the effectiveness of the processes of university mergers.

The article contains a description of the process of public university mergers in Poland. The research methodology in the article was based on a case study of two Polish public universities. The article is of an illustrative nature and constitutes a starting point for further in-depth research in the field of university mergers in Poland.

Mergers between universities are complex phenomena that should be investigated using many complementary methods. At the same time, knowledge about mergers is extremely valuable from a practical point of view, since not only the effectiveness of higher education but also the progress of education and the level of higher education in the country and the world depend on the effectiveness of planning and implementation of university consolidation

(Aagaard, Hansen, & Rasmussen, 2016; Benner & Geschwind, 2016; Boling, Taylor Mayo, & Helms, 2017; Cai, 2016; Curaj et al., 2015).

2. Specific nature of university mergers

In the literature on the subject describing the processes of joining organizations, the following terms are used: mergers and acquisitions, consolidation processes, buyouts (Kaczyński, 2013). Usually, the terms mergers, acquisitions and buyouts refer to the organizational level, whereas consolidation may refer to both the organization and the larger system, e.g., higher education. The concept of mergers and acquisitions (M&A) is most common in English language bibliography.

While attempting to define the term merger in relation to the higher education sector, it can be presented as a combination of two or more organizations – in this case: universities. All management control passes into one managerial body, one manager, and all assets and liabilities are transferred to one of the organizations or to the one created as a result of the merger (Harman & Meek, 1988; Goedegebuure, 1992). Delgado and Gonzalo (2015) propose an even simpler definition, based on the criterion of identity, according to them the merger of the universities means: "two or more partners merging to form one institution that can preserve the name and status of one or become a completely new legal entity".

According to the researchers, acquisitions perform two important functions in the economy. They allow organizations to reap the benefits of a large scale of operations. The other function is the transfer of control from the less well-managed organization to more effectively managed institution. These functions are often referred to as the "control market for organizations" (Jenkinson & Mayer, 1998). In the case of universities, the function of economies of scale dominates, while the "control market" is marginal, due to the nature of academic order, in public universities in particular. With regard to private higher education institutions, the control function plays a rather important role, as less effectively managed universities are taken over by more efficient higher education institutions. A good example is the Polish market of private higher education in the first two decades of the 21st century when many acquisitions and liquidations of smaller and weaker universities have taken place.

Observations taken from business indicate that mergers take place in waves both in sectors and in whole national economies, and the main motives of participants are competitive and financial (Harford, 2005; Moeller, Schlingemann, & Stulz, 2005). Among the business motives that are also applied in the university sector, and in particular among private universities,

one can point out primarily market and cost reasons. The most important market motives include:

- expansion of activity to new markets and market segments;
- bypassing entry barriers to a given market;
- adapting to existing and new competition;
- strengthening the position on domestic markets;
- creation of bridgeheads for entering new markets, especially foreign ones.

Among the most important cost incentives of mergers, applicable to higher education, the following can be mentioned (Szczepankowski, 2000):

- lower costs resulting from economies of scale;
- lower costs of human and intellectual resources;
- willingness to achieve higher efficiency and surpluses;
- access to lower costs;
- financial and tax benefits;
- infrastructure and logistics savings.

3. Higher education sector consolidations in Poland

Higher education in Poland began in the 14th century. It was then that the first Polish university, the Jagiellonian University, was established. For several centuries, only state-run universities functioned in Poland. A breakthrough in higher education came about in the 1990s. In less than 20 years, the market for higher education in Poland has undergone revolutionary changes (Seliga, 2017), both from the macro point of view - the entire university system, and from the micro point of view of – the educational offer that can be accessed by a student.

General changes in Polish higher education occurred in 1990. This year became a breakthrough in the history of universities in Poland. Since 1990, a significant development of academic centers has been observed in Poland, which is manifested by:

- increase in the number of universities;
- increase in the gross and net scholarization ratio;
- increase in the number of university students;
- increase in the number of majors and specializations at universities.

In Poland, at the beginning of the 21st century, the university sector functions with a high degree of dispersion. Consolidation processes in both the public and private higher education sector are, as before, not very intensive. However, it can be argued that the number and intensity of mergers between universities will increase in the coming years. The reasons for the increase in the importance of consolidations can be seen in excessive institutional dispersion of higher education system and the progressing deprivatization of higher education in Poland. Undoubtedly, the consolidation of both public and private universities

will be supported by a very large dispersion in the higher education sector. In 1990, there were 112 public universities, and in 2017 as many as 132. A manifestation of dissipation in the public sector is also a relatively large number of specialized universities in the higher education system (Table 1).

Table1. Number of universities in Poland by their type in 2015/2016 academic year

University type	Number
Total	**415**
Universities	19
Higher technical schools	23
Higher agricultural schools	7
Higher schools of economy	67
Higher pedagogical schools	14
Medical universities / academies	9
Maritime academies	2
Physical education academies	6
Higher schools of fine arts	22
Higher theological schools	15
Schools of the ministry of defense and ministry of internal affairs and administration	7
Other schools	224

Source: Central Statistical Office (2016).

Demographic trends and striving to improve the position of Polish science in the world should support the development of consolidation processes in the coming years.

Many researchers believe that the Polish public higher education sector has matured to implement the wave of consolidation processes. The causes, diagnosed in part in the previous sub-chapter, are related, among others, to:

- the fragmentation of the sector and vegetation of a large number of small universities;
- the effects of the decrease in demand for higher education, which results from the deepening of the demographic decline;
- degradation of education and research quality at universities looking for savings;
- problems with student enrolment in many schools;
- financial, organizational and staff destabilization of many private and some public schools;

- an unreasonable education network, which is characterized, for example, by the duplication of educational courses in the region, education that is incompatible with the specialization of specific institutions and the needs of the labor market, etc.;
- declining position of the best Polish universities in international rankings;
- non optimal use of a didactic base and other university resources;
- lack of an effective university management system;
- a decline in the prestige of the academic profession and the attractiveness of a university as a place of employment.

The wave of consolidation of universities in Poland should be a period of "creative destruction" that will result in a deep, pro-quality transformation of the science and higher education sector in Poland. As demonstrated by international experience, the changes can bring significant results from a strategic perspective, covering a minimum of 3 or rather 5 to 10 years. The effects of consolidation in the higher education sector in Poland should include a fundamental change in the academic order, the structure of the science and higher education system, and the effects of the activities of Polish universities. The most important transformations that are designed are as follows (Sulkowski, 2018):

- change of the scattered, ineffective structure of the Polish higher education system into a more concentrated one;
- improving the quality, attractiveness and usefulness of education from the point of view of the labor market, students and graduates;
- liquidation of institutions offering poor quality of education and poor quality of research (in the case of universities with a research mission);
- obtaining a "critical mass" by the strategic, strongest universities, which allows an increase in the quality, scale and scope of scientific research;
- breaking with the degradation of the quality of education and strengthening pro-quality orientation in didactics, which can be reached by achieving economies of scale and rationalizing higher education networks;
- strengthening the relationship with the environment through the development of effective forms of cooperation with enterprises, innovation and implementation;
- obtaining by the majority of universities the effect of scale in organizational, didactic, scientific and implementation activities, allowing the stable operation of the university in strategic periods;
- increasing the recognition of Polish universities and Poland in the world, among others, through the promotion to higher positions in the rankings of international universities;

- increasing the efficiency of Polish universities by adapting to the new academic order (Act 2.0), but also restructuring and launching organizational learning mechanisms;
- saving the achievements of weaker public universities, unable to cope with the effects of lowering demand for education (e.g., a part of state-run higher vocational schools);
- development of education networks of private and public universities in Poland, which have appropriate resources and standards for the implementation of the mission;
- limiting the decision-making inertia of many public universities, resulting from collective decision mechanisms.

4. Research methodology

The study presented in the article is of a pilot nature and serves as a preliminary answer to the key question for this article about the value and effective ways of implementing the consolidation of universities. The research methodology is qualitative and is based on a case study of a merger between two public universities in Poland. The sample of two cases of university consolidation was selected on purpose and the choice was based on the criteria of data availability, literature on the subject and the experience of the authors. Conducting comparative studies based on a comparative analysis of case studies, serves a better understanding of the dynamics of merger processes between the universities and is a starting point for further research of an explanatory nature.

The study being the basis for the case study was carried out in 2017 and used such techniques of data collection as free interviews with a structured list of required information, participant observation and documentary analysis.

5. Case study

5.1. Characteristics of subject 1 – Jagiellonian University

Currently, the campus of the 600th anniversary of the Renewal of the Jagiellonian University is in the final stage of construction and furnishing. About 50,000 students study at the university each year and it is worth noting that 65% of them are women. The national cross-section has also changed. The students are young people from the European Union, but also from Africa and Asia, as well as from Ukraine or Belarus. The didactic staff consists of 540 professors, a Ph.D. faculty of 730 and 2600 other academic teachers. Also, the university employs over 3,500 administrative staff. The infrastructure is also undergoing modifications, along with the development of the staff.

5.2. Strategy

The strategy of the Jagiellonian University has been reconstructed in recent years and covers the horizon from 2014 to 2020. A team made up of employees from various faculties of the university carried out a strategic analysis and prepared a development strategy consisting of the vision, mission and strategic goals. The vision assumes the development of a university that should:

- be strong with universal values and the identity and aspirations of its students, Ph.D. students, graduates and employees;
- use the potential contained in the diversity of activities carried out in the area of natural sciences, science, humanities, social and medical sciences;
- achieve a permanent position in the world's leading academic centers in research, teaching and knowledge transfer;
- be an attractive place to study, to release creativity and to pursue aspirations;
- influence the development of modern society and the economy."[3]

The mission assumes that "the Jagiellonian University, drawing on the richness of centuries-old tradition, preserving the legacy of generations, sets new directions for the development of thought through the highest quality research and teaching and the use of modern medical knowledge and practice in saving and sustaining values of life and health; in an atmosphere of tolerance and freedom, builds a lasting relationship with society and shapes openness to the unknown, humanistic sensitivity and responsibility for action". At the strategic level, medical sciences are completely integrated into the activities of the entire university, the division is revealed only on the structural level and organizational culture level.

5.3. Characteristics of subject 2 – Medical Academy in Cracow

The establishment of the Medical Academy in Cracow was the result of a political decision by the authorities of the Polish People's Republic, seeking to select groups of specialist universities that would limit the possibility of the activities of political opposition. It was also supposed to weaken the autonomy of traditional universities. The Faculty of Medicine was separated from the Jagiellonian University in 1950, and two years later an agricultural department was also separated from the University.

3 Retrieved 14 August, 2017, from www.uj.edu.pl/documents/10172/84593596/Strategia-Rozwoju-UJ-2014-2020.pdf

5.4. The course of the merger

In the description of the merger, it is emphasized that the integration of the Jagiellonian University with the Medical Academy had been planned from the beginning in such a way that it does not generate too large an organizational change in both universities. The Rector of the Jagiellonian University, Aleksander Koj, who had the authority and extensive contacts in the entire Cracow scientific community, played a primary role in the consolidation. The role of the last Rector of the Medical University and the first Vice-Rector for Collegium Medicum, Andrzej Szczeklik, was also very important.

In 1990, when Andrzej Pelczar was elected the Rector of the Jagiellonian University, and Andrzej Szczeklik - the Rector of the Medical Academy, the activities for the return of medicine to the University took on a concrete dimension. Both Rectors agreed on the basic principles of the merger, and the details were prepared by the Special Unification Commission. It developed the principles of the combined university, which were reflected in the resolutions of the senates of both universities. The Dean of the Law Faculty Sylwester Wójcik and Zbigniew Ćwiąkalski played the most important role in the legal aspects of the merger. The discussion on the decentralization of the Jagiellonian University at that time was to lead to the strengthening of university autonomy by creating several colleges grouping faculties. The following colleges were to be created: natural sciences, science, law and humanities. This trend of change was marked by the return of medicine to the Jagiellonian University because the entire structure of the former Medical Academy could be included as Collegium Medicum. In this way, a federal structure was created covering all faculties and Collegium Medicum. The creation of three other faculty colleges has not been implemented because a deeper analysis showed that it would be an artificial and inefficient undertaking from the management side. The report prepared by the Commission, headed by Stanisław Biernat in 1996, critically assessed the idea of creating new colleges. Creating another structure over departments and appointing new managers would be an unnecessary bureaucratization of the university, which would be in conflict with the principles of effective management. Decentralization of the Jagiellonian University was realized in the following years by strengthening the autonomy of the faculties. In the case of Collegium Medicum, the collegial solution provided a quick opportunity to include a Medical Academy in the structure of the Jagiellonian University on a federal basis; it has come into effect and remains without major changes to the present, i.e., almost a quarter of a century later. The Rector of the Academy, Andrzej Szczeklik, agreed to become the Vice-Rector of the Jagiellonian University. However, as A. Koj wrote, the unification of the universities is not integration yet. “The legal status of the

newly established Collegium Medicum was unclear, and at the same time, it was necessary to maintain a completely separate budget for medical units (financed by the Ministry of Health) and university units (financed by the Ministry of National Education, then Ministry of Higher Education and Science). The temporary statute of the unified university, developed by prof. Wójcik and dr. Ćwiąkalski, extended the existence of the Senate of Collegium Medicum (the so-called small senate), however, limited in competence to give opinions. In general, to avoid controversy the lawyers tried to minimize the structural changes of both universities, introducing the term "deputy" for the positions of the administration of Collegium Medicum (so the bursar of Collegium Medicum had the title "deputy Bursar of the Jagiellonian University"), which was a convenient legal cipher but did not solve the integration problem. If we add to this an extremely strong degree of hierarchization of the whole structure of Collegium Medicum, then an attempt to actually include medicine into the university structures was a really herculean task.

The former Rector, A. Koj, like all respondents, considered the return of medicine to the Jagiellonian University to be a very positive fact. The synergy effect allowed for the development of research and education and an increase in their interdisciplinary character. Like most of the 9 respondents, he noticed the need to increase integration within the Jagiellonian University, which could take the form of:

- preparation of a detailed statute of the unification of the universities;
- subordination to only one ministry (Ministry of Science and Higher Education);
- preparation of one budget (except for the separate budget of university hospitals);
- creating a unified management and administration, as well as reorganizing the technical facilities;
- involving the entire academic community in the integration process.

5.5. Merger barriers

The merger of the Jagiellonian University with the Medical Academy was a pioneer undertaking in Poland, but at the same time, it was founded on very strong academic and cultural foundations. Medicine was a part of the Jagiellonian University from the 14th century and the separation of Medical Academy from the Jagiellonian University was due only to a political decision by the communist period using the Soviet model. The return of the Medical Academy to the bosom of its Alma Mater was postulated by professors of both universities during the political thaw but was not recognized by the authorities of the Polish People's Republic. With time, of course, the universities have

developed independent strategic and structural solutions. In no way were they forced or stimulated into the merger by administrative methods or financial factors. Therefore, the merger matured for historical and ethical reasons, which means that it was completely voluntary, bottom-up and even desired by both universities. Such a consolidation model drastically reduces barriers and constraints of consolidation. The barrier, in this case, was primarily the fear of the loss of influence by the representatives of the authorities at the Medical University of Cracow, and at the same time against the blurring of medical faculties in the extensive academic bureaucracy of the Jagiellonian University. Concerns were dispelled because a loose organizational structure was adopted, which allowed the identity of the Jagiellonian University to strengthen while maintaining the significant autonomy of the former Medical Academy in the federal formula of Collegium Medicum. Of course, working out this formula of the merger gave rise to integration barriers, because Collegium Medicum is characterized by a high degree of autonomy and poorly integrates with other organizational units of the Jagiellonian University.

5.6. Merger effects

The Jagiellonian University currently consists of 16 faculties, including three medical units, which returned to the Jagiellonian University in 1993 and form a structure connected with Collegium Medicum. It is a relatively autonomous unit within a university that operates in a structure similar to a federalized university. It has its own vice-rector, chancellor and rector's representatives who reflect the structure of the Jagiellonian University at the CM level. The effect of the merger is, therefore, a unified university under one name but internally diversified in structural and managerial terms. Such a looser structure brings a lot of management and image benefits. First of all, it was easier to carry out a "soft" version of the merger in the form of the unification leaving far-reaching autonomy than the "hard" version of the merger in the form of pure, strategic, structural and cultural incorporation. The organizational advantage is a slow, gradual and evolutionary integration process that does not require the destruction of effective operating systems. There are also instrumental benefits in the form of the separate assessment of the entire Collegium Medicum unit in selected rankings (e.g., "Perspektywy"), and, on the other hand, a joint assessment in international rankings (e.g., Shanghai ranking). A. Koj indicates that the integration of Collegium Medicum with other departments is extremely weak, and the vice-rectors for Collegium Medicum and deans of medical faculties were generally opposed to stronger integration. A significant challenge is also a separate budget, which is subject to two different departments, and in the case of medical activities also includes

clinical hospitals. The fact of separation of CM from other departments of the Jagiellonian University is confirmed by many respondents, but their opinions vary. The majority of respondents believe that such a careful, conservative merger has led to a good federal model of cooperation that generally works. Not only medics speak this way. A large proportion of respondents believe that the degree of integration between CM and the rest of the Jagiellonian University is too small, and has become dysfunctional and not entirely effective. It is worth emphasizing, however, that in retrospect all respondents consider the consolidation as a success.

The Jagiellonian University is faced with the choice of whether to stay with the current federal solutions or to seek greater unification. The choice is difficult because CM is an exceptional unit that creates a significant part of the academic achievements of the entire university. In addition, it is a peculiar example of a soft, compromise merger that appealed to values and tradition but also brought benefits to both parties of consolidation. Therefore, it is a consolidation which is undoubtedly a success, but the question arises about the future of the integration. The rational solution seems to be the deepening of the administrative integration, which will allow for the liquidation of structural redundancies: bureaus, IT departments, human resources and scientific departments. At the same time, it seems that preserving the organizational identity and the dual brand of Collegium Medicum can be beneficial for the entire Jagiellonian University. Unification should not be a dogma. CM operating in the Jagiellonian University structures will mobilize other scientific units to operate and serve as a source of comparisons. As a smaller and centralized unit in the Jagiellonian University, it will also be a source of experiments that constitute a creative force for other units. The development of the dual brand strategy in the case of universities with a good image and high brand awareness, that the Jagiellonian University undoubtedly belongs to, can be an effective solution from the point of view of communication and marketing management.

6. Conclusion

In Poland, the consolidation processes of universities in the last quarter of a century have been bottom-up and spontaneous. They did not take the form of a merger wave and were not implemented systemically. Among several public-sector mergers, two were strategic in nature. So far the central and local authorities have not used the possibility of consolidation as a method of implementing public policies to improve and rationalize universities. The Higher Education Act of 2012 created opportunities for consolidation of universities and university unions and provided funding opportunities by increasing subsidies

for primary operations for 3 years after the merger. However, there was a lack of more advanced programs and support instruments that would encourage universities to merge. In particular, this applies to strategic mergers. The lack of implementation of scientific excellence programs and the decline of Polish universities in international rankings prompted a discussion and analyses in 2016, which are still taking place. In the analyzed projects of the Act 2.0 and the documents of the Conference of Rectors of Academic Schools in Poland and the General Council of Higher Education, there is a growing interest in consolidation processes, understood both as an instrument of public policies and a management method. It is probable that mergers will gradually develop in several regions of Poland by creating university unions, which may then take the form of a federal merger and over time lead to unification solutions.

The Act 2.0 should broaden the possibilities of implementing university mergers. However, as the experience of recent years has shown, despite the legal possibilities existing in previous regulations, strategic consolidations in Poland have not developed. The current condition for the development of mergers will also be the implementation of central programs to support consolidation and greater awareness and determination of the academic community in the reform process although the low level of social capital and the large distance of power as the dominant cultural value do not create a favorable cultural context for consolidation processes.

To consolidate successfully, universities need solid knowledge about these processes, which they can draw from international experience. The possibilities of comparison with other countries, the knowledge of the methods of restructuring and exchange of experience with managers of merger processes should contribute to the growth of interest in consolidations in the process of reforming universities.

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PROCESSIVE CHARACTER FOR THE DEVELOPMENT OF CREATIVE CAPITAL IN AN ENTERPRISE

***Katarzyna Szara*[1]**

Abstract

The aim of the paper is to identify activities undertaken in a company that point to the processional nature of building creative capital. The detailed objective was to assess the process character of building creative capital in enterprises representing particular sections of Classification of Business Activities in Poland and to compare the results obtained for individual sections with the results obtained in the creative sector. It results from the cognitive gap recognized in the literature in terms of the role of creative capital in an enterprise, hence the research goal was to investigate the process nature of building creative capital.

The deductive method, synthesis and analysis were used to achieve the goal. Survey research using an original questionnaire was conducted among a randomly selected 430 companies located in the Podkarpackie Province in 2016. For the purpose of verification and comparison in the targeted selection, questionnaire surveys were carried out among 100 entities included in the creative sector, designated by departments creating it.

Creative resource has been adapted to the right people who work together moreover, they function in all these new conditions using their creativity. The starting point for the measurement of creative capital was the pedagogical paradigm of creativity exploring creativity by model 4P based on dimensions: people, process, press, product. This model has been modified in relation to its own definition of creative capital, adopting an additional dimension of cooperation. The dimensions were assessed by characteristics selected in the questionnaires based on the literature on the subject.

The article was analyzed in the "process dimension". In the surveyed entities by sections no major differences were observed in relation to the group of enterprises included in the creative sector.

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A comparison of the "process dimension" of the creative sector and other sections resulted from the recommendation of the European Commission, which draws attention to the fact that creative industries have great potential for cross-sector cooperation and may stimulate other sectors of the economy by stimulating it. It should be noted that the creative sector, similarly to the companies of other sections, operates in the context of a rapidly changing environment.
Keywords: *enterprises, creative sector, industries, creativity, process, model 4 P.*

1. Introduction

Modern enterprise is facing new challenges in a changing market and to meet them it needs to look for tools that will be effective in such circumstances. Hence, such high expectations are combined with the creativity which is trying to plan, stimulate and benefit from it. In order to apply creativity to an area of the company's activity, the formula 4P defined as a four-faceted creative paradigm was created:

- people - employees (unit, team);
- process - the process of creativity which consists of recognizing a problem situation, obtaining information, searching for ideas, using creative techniques and evaluating the solutions received;
- press - understood as the environment and external conditions of the creation process;
- product - perceived as the effect of creativity.

The mentioned elements are only some areas of creativity issues which should be diagnosed in terms of their effective use. They can be treated as tools or conditions of creativity in an enterprise that, when properly applied, will favorably affect the effectiveness of the creation process (Jerzyk, 2006). Enterprises operate in an environment such as: a country, a region, a commune, a local community with different conditions for their functioning. This also applies to creative capital which is a derivative of human capital based on creativity. Defining creative capital is associated with individual and team creativity and organizational skills. It is a psychological attribute of a man (see more in Niedzielski & Rychlik, 2006, p. 151). Capital is an economic category that can be used to make profit in order to gain benefits. It is a term referring to goods that serve to start or continue a business. It is one of the means of production, in addition to: labor, entrepreneurship and land which are needed to start production. Wider definitions explaining the essence of capital also emphasize the importance of intangible factors. Capital is presented as the tangible and intangible assets used in the development of

production as well as the monetary resources necessary to conduct economic processes. Capital is also acquired education, achievement of specific skills, as well as having innate talents (Słownik, 1994, p. 91). An equally extensive definition is given by the K. Building, according to whom "capital includes the population, intangible elements such as habits, abilities and education; all finished and unfinished production stocks, both at the disposal of companies and households" (Szemiatienkow, 1981, p. 74). Creative capital is derived from the concept of a creative class that originated in the American economy as a result of promoting the importance of creativity in development.

In the quoted concept, "class" was understood as designated persons from a professional perspective using creativity[2]. Its development is encouraged in the "3T" model - talent, technology and tolerance. The creative class is a narrowly defined definition of creative capital treated at work as deepening the concept of the human factor. The narrow creative class was considered as the primary creative capital. A wider definition of creative capital was proposed - it is assumed that it is a resource appropriate for people who cooperate and function in every condition, including new conditions, using their creativity. In the own definition, a distinction is made between the concepts of capital and stock. The perception of people as a resource is different from the perception of people as capital. Resources are accumulated good (static category) that can be used in the production process, and (potential) effects of their use depend on their quantity and quality. Since an approach to people as a resource is a holistic approach (which is expressed, for example, by the collective competence profile of an employee), the company invests in their staff (mainly through considerable training), with the hope that a higher quality/value of staff will translate into results. Capital, on the other hand, is a financial and dynamic category: it is a value that brings additional value so the essence of capital is decided by the movement/turnover/ exploitation - in the rest state capital becomes a resource. As a consequence of this approach, employees are assessed through the prism of achieved actual results, which forces the development of tools to measure these effects. Therefore, the employee's value is not adjusted to the requirements (positions/tasks), but the "talent"/potential that he creates.

The proposed definition of creative capital includes the creative class and all people who use creativity to any extent in their life and work. Employees who use creativity become representatives of creative capital. Another issue will, of course, be the size and frequency of the creativity used. In this definition, as in the others, the creativity trait was exposed and linked to

2 The division of the creative class by professions Florida (2010). The literature also meets the division into three groups - among the proposed division by Florida stands out as the third bohemia. See Boschma and Fritsch (2007).

human capital. A common feature with other definitions are the terms, in the case of the original definition, defined as new.

Creative capital is related to the employees' perception of their workplace, the conditions for functioning in a given system: relations with colleagues and superiors, mutual trust and openness, as well as conflicts and solutions (Karwowski 2009). In the context of the above-mentioned elements of the 4P model, as well as the new conditions listed in the own definition, one can adopt the process of creativity as one of them. Therefore, the research problem arises whether in enterprises implementing various economic activities it has a diverse character. In the literature on the subject, the thesis is preferred that enterprises with creative representatives be characterized by higher creativity. In this sense, one will meet with more creativity among creative sector enterprises. This may result in the fact that in these enterprises the creative process is more extensive or "more often used."

The aim of the work is to identify activities undertaken in the company that point to the processional nature of building creative capital. The detailed objectives include an assessment of the process character of building creative capital in enterprises representing particular sections of CBA (Classification of Business Activities in Poland) and the comparison of results obtained for individual sections with the results obtained in the creative sector. They result from the cognitive gap recognized in the literature in terms of the role of creative capital in an enterprise. Hence the research goal was to investigate the process nature of building creative capital.

The deductive method, synthesis and analysis were used to achieve the goal. The "process dimension" highlighted in the creative model outlined below was adopted as one element developing creative capital in the conditions prevailing in an enterprise. The term "process" goes beyond the traditional reference only to the production process and is understood as a sequence of actions implemented in order to maintain a specific final effect (Muller, 2000, p. 21). Such an understanding of this concept was adopted due to the various entities examined, divided into sections; it was referred to the realities of related activities with the creation of the final result, i.e., a product or service, not a psychological creation process.

2. Theoretical approach to creativity

The term creativity comes from the Latin *creare* which means "to do," "to produce" or "to grow" (Kozioł & Zaborek, 2012, p. 8). In the dictionary of synonyms, one can find many related terms - ingenuity, inventiveness, invention, originality, freshness, boldness, unconventionality, avant-garde, innovation, pioneering, experimentation (see Synonimy.pl).

Creativity is perceived as the most important feature of human capital, the basis of the innovative process. It can be defined as creating useful and valuable products, services, ideas, and procedures by cooperating units (see more in Woodman, Sawyer, & Griffin, 1993, pp. 293 - 321). At this point, it is worth pointing to a definition which in the economic sphere defines creativity as the crossing of sectors, elements of the artistic form of expression, both economic and technological innovations. Creativity is thus considered as a process of interaction between innovative processes (see more in Economy..., 2016, p. 14).

Creativity is an ambiguous concept, but it should be mentioned about its relationship with creativity. It is recognized most often as a synonym of creativity, while the author treats creativity as the lowest form of creativity, appropriate to every person according to the theory of egalitarianism. Creativity is also the potential of people or, as defined by the American psychologist Rollo May, is the process of introducing something new to life, to which passion and commitment are required (May, 1994). The theories of creativity presented in the literature on the subject in the field of creative pedagogy allow one to better understand the phenomenon of creativity, becoming the basis for new questions and discoveries (Szmidt, 2013). In processual theories, the authors focus on the creative process, asking how the idea arises. In the work of Schulz (Schultz, 1990, p. 6), the creative process is analyzed by the category of the individual's creative behavior as:

- in autonomous culture-forming activity, the innovative process (discovery, invention);
- in the category of modern human work as an innovative process (planning and implementation of a "new product,";
- as an innovative social behavior, it is an adaptive process (change, development of new behavior patterns);
- self-creation - a process of self-development (directed and long-term process of shaping one's own "I").

A specific feature of modern developed societies is also the fact that they create conditions that are more conducive to the dissemination of creative attitudes and behaviors. In the model approach to creativity, Schulz distinguishes the areas and dimensions of creativity. Fields are four basic categories of creative activity of the population. The first of these is the various forms of culture-forming activity of man, especially those that have become autonomous and have transformed into a separate category of "creative activities" also called "creative work." The products of this form of creativity are innovations as components of culture, that is discoveries, inventions, works of art and others.

The second area of creativity is modern human work, that is, one that develops and disseminates in a modern society based on the advanced

achievements of symbolic culture and consists of performing tasks of an unspecified, complex and changeable character. Modern human work, similarly to culture-forming activity, is internally diverse, as it involves increasingly complex teams of activities and various professions (see more in Schultz, 2013, p. 210). An important element is commitment that favors determinants in overcoming difficulties, curiosity, and development (see more in Mazurkiewicz, 2016, p. 222).

The third area of creative activity is innovative social behavior. Schulz argues that culture-creating activity and creative work are not currently exhausting human potential, gradually creativity enters the area of less specialized forms of behavior that are expressed in many social roles. Creativity thus covers various forms of innovative social behaviors "related to fulfilling" by an individual more and more complex, variable and undefined - as to the requirements - social roles: student, citizen, parent, consumer of culture, etc.

The fourth area of creative activity of man is the whole of the aspirations called self-creation or self-development. Man - as Schulz claims - can be creative not only as a representative of specific social roles or a professional artist but also as a person as "I" (Schultz, 2013, p. 210). The presented activities can be attributed to representatives of creative capital; they can also be attributed to representatives of other enterprises in which creative capital is identified. It is not always possible to distinguish it directly, due to the type, size, stage of development of the subject, which in our case is the enterprise.

The model 4P[3], accepted as a starting point for the analysis, allows the assessment of creativity in the following dimensions (see more in Szmidt, 2013, pp. 96-97):

- the attribute aspect relating to the characteristics described by the novelty and the usefulness or value of the work. These are important features also in economic terms. The assessment is based on the user's opinion, the researcher deciding which product has more value for them.For the recipient, not only the price but also the usability is important. In the case of intangible products, and especially of cultural products, the values which the product provides are important. Music and film works after their creation bring the value of the recipient;
- the personnel aspect based on the characteristics of the creator's personality traits. For educators, learning about these features is important in the process of shaping them in the minds of their pupils.

With regard to an employee, the characteristics based on features are needed not only at the recruitment and selection stage, but in the development process.

- a processual aspect associated with the fact of how a human creates what constitutes a component of his behavior. Psychological research confirms the "ordinariness" of intellectual processes responsible for

3 The concept of "4P" by Mel Rhodes (1961) was quoted according to the JSTOR database 1678 times.

the effectiveness of creative thinking. Thus, depreciating various concepts of enlightenment, lateral thinking and other "extraordinary" creative acts to which only geniuses are capable (Szmidt, 2013, p. 101). The essence of the process aspect is also problem-solving. In the process of creativity, the situation is recognized, information is obtained, ideas are searched, and the problem is assessed and solved;

- the last dimension of factors influencing the creative process is equally important. The conditions of creativity are all factors affecting the taking, content, intensity, course and results of creative activities (see more in Szmidt, 2013, p. 105), which are an environment for its innovator (work). Each creative environment of work, school or family is a determinant depending on the accepted research context (e.g., organization). The essence of the environment boils down to creating conditions and acceptance for creative behavior (see more in Bujacz, formerly p. 3).

3. Research approach and methods

The issue of creativity research is one of the most controversial areas of contemporary studies on creativity. This is due to the fact that, as such, it is the most key competence in today's economic reality. Its value is so significant that it covers an extremely large area of human activity; from, art, science or inventiveness, to the broadly understood activity in everyday life (Identification, 2009).

The concept of creative capital assessment in an enterprise is an attempt to fill the gap identified in knowledge regarding the functioning of creative capital in the company and knowledge gap regarding its measurement. Previous methods of measuring creative capital have mainly used the professional structure of employees in the sphere of R&D (Wojnar, 2016). This method of measurement is one-sided, and an obstacle in its use are the shortcomings of statistical data concerning the discussed issue. In the literature, we will also try to measure creative capital indirectly (Bratnicka, 2015; Ekonomia, 2012; Bujacz, 2011; Sokół, 2015; Tomczyk-Horyń & Knosala, 2014; 2016a, b; Wojtczuk-Turek, 2010). The assumption was made in the work that creative capital can be measured differently than just the key of "professions." This assumption is important because creative capital does not only exist in the so-called the creative sphere but in all other spheres of socio-economic activity.

Creativity is related to human behavior, which is why the study adopted a behavioral approach that allows a broader view of the problem being *exathan* is accepted in traditional economics. Behavioral economics allows to benefit from the achievements of other sciences. This approach also makes it possible to compare the obtained results.

Creativity was adopted as the basic feature that distinguishes creative capital. It was recognized that it is a resource proper to people who cooperate and function in all conditions. Based on the literature, it was assumed that the presence of creative capital would be measured through 5 dimensions characterizing people and referring to selected areas of the enterprise. These dimensions are the human factor, as the main element without which the existence of creative capital is not possible and which is the right trait of creativity. It is a process, the effect of this process (product or service), cooperation related to the relationship between people and the enterprise environment. Each of the dimensions contained 10 questions rated on a scale from 0 (meaning no phenomenon/feature) to 5 (very high impact of the phenomenon). Up to 50 points can be obtained from each area, which can give potentially 250 points with 5 levels of analysis. Evaluations can be made separately for each dimension by comparing with the scale: 40 - 50 very good development of the element, 30 - 39 good, 20 - 29 medium, 10 - 19 low, 0 - 9 very low score.

The proposed creative capital ratio being the sum of the analyzed dimensions is a measure for the assessment of the occurrence and intensity of creative capital. The author is aware that the proposed number of independent variables (dimensions) - just like the content of the questions formulated - can be debatable. However, the reduction of the number of variables was a prerequisite for the undertaken research. Implementing the adopted goal, the author's questionnaire for assessing the possibilities of developing creative capital was used. The questionnaire was slightly different in terms of the characteristics of working time in the case of enterprises in the creative sector. The selection of a subgroup of representative enterprises proceeded according to the sampling procedure, which was set at 380. In the course of conducting surveys, they were conducted among randomly selected entities located in the Podkarpackie Province in 2016. The complete research material was collected among 430 enterprises (which accounted for 0.25% of enterprises in the Podkarpackie Province). While in the company, the questionnaire was filled in by an employee chosen from a random selection.

In the analysis of the research material, the enterprises were classified by section. For the purposes of verification and comparison in the targeted selection, surveys were carried out among entities included in the creative sector, designated by departments from the area of the Podkarpackie Province (Szara & Wojtowicz, 2016; Stryjakiewicz & Stachowiak, 2010), in which, it is assumed, there is creative capital. The creative sector is developed by those industries that are based on individual creativity and unique skills, as well as having the potential to contribute to the growth of the wealth of society and the creation of new jobs by the generation and exploitation of intellectual

property (Rollnik-Sadowska & Szlis, 2013). These enterprises were designated for analysis with the assumptions of sampling. However, due to the targeted selection, we managed to obtain a return of about 1/3of the questionnaires, i.e. 105 questionnaires, of which 5 were rejected due to shortcomings in the replies.

In a descriptive analysis of the results, these enterprises were not included in the group of other enterprises, i.e., 430.

4. Research results and discussion

The "process dimension" has been characterized in the own concept using questions describing the creation of a product, service or problem solving indirectly. In the case of an enterprise, these considerations require not only taking into account activities related to their planning but also assessment. The questions describing this dimension did not refer directly to the creative process and the use of creativity tools as in the pedagogy of creativity, due to the comparison of companies in various sections in the research procedure. Although the respondents rated the problem-solving in the company in another question, these results have not been included in this study. Accepted questions describing the "process dimension" are indirect in relation to creativity, but they indicate ways of seeking information, acquiring knowledge, solving problems, or actions characterizing creative capital.

Due to the small number of entities, units from sections B, D, E and I, J, as well as K, L were combined. The results (Table 1) were in the range from 23.77 to 32.05 points, which meant the average and good assessment of the "process dimension" was conducive to building creative capital in enterprises. The scores for sections and companies in the creative sector are not much different. However, the differences between the smallest and the largest results in sections are 8.28 points. The best conditions relating to the process dimension were recorded in the case of financial intermediation and real estate services enterprises. Similar results were obtained for transport, commercial, industrial processing and agriculture and education. The lowest was for enterprises operating in the mining industry and water supply.

Table 2 presents the results for all enterprises, both analyzed by sections and included in the creative sector. The average response values were found in the range of low and medium impact on building creative capital. This is evident in the question regarding the modification of the offer to the needs of clients, the diversification of this offer or the inclusion of standards, the standards applicable in a given local community.This indicates thinking towards innovation, looking for various opportunities to enhance the offer, which is the result of a creative idea or a reaction to the need of the market.

Table 1. List of enterprises by sections/departments and the number of analyzed entities

Symbol and name of a section	No. of surveyed enterprises	The result for the "process" dimension average points
A – Agriculture, forestry, hunting and fishing	20	31.25
B – Mining and quarrying	13	23.77
D –Production and supply of electricity, gas, steam, hot water and air for air conditioning systems		
E –Water supply; sewerage and waste management and activities related to reclamation		
C – Industrial processing	62	31.60
F – Construction	56	29.09
G –Wholesale and retail trade; repair of motor vehicles, including motorcycles	64	28.25
H – Transport and storage	28	31.89
I –Accommodation and food service activities	34	30.97
J – Information and communication		
K –Financial and insurance activities	19	32.05
L –Activity related to servicing the real estate market		
M –Professional, scientific and technical activities	10	29.60
N –Administrative and support services activities	20	27.50
O –Public administration and national defense; obligatory social security	22	29.00
P –Education	22	31.23
Q – Health care and social assistance	22	29.50
R –Activities related to culture, entertainment and recreation	14	28.00
S – Other service activities	24	27.88
T –Households employing employees; households producing goods and providing services for their own needs		
U –Extra-territorial organizations and teams	0	
Total sections	430	29.69
Enterprises of creative industries	100	30.08

The proposed assessment of the "process dimension" is indirect in relation to the original assumptions of the 4P model describing the psychological aspects of creativity. A common feature that can be attributed to the process towards development of creative capital and works from the aforementioned theories is the indication of more and more effective and successful operation in the market.

Table 2. Average answers to questions characterizing the process dimension

Dimension process	Creative sector	Sections
Innovations are part of work in the enterprise	3.02	2.83
2. The employment of experts favors the creation of new products/ services	2.91	2.79
3. A team of employees is involved in the creation of the product/ service	2.81	3.26
4. In the enterprise, funds are spent on researching products, services and technologies	2.99	2.71
5. There is a frequent (e.g., every 3 months) update of the IT system	2.09	2.60
6. The latest technology for creating a product/service is used	2.97	2.86
7. The offer is influenced by standards, standards applicable in a given local community	2.94	3.06
8. Often (every half a year) the offer is modified to the needs of clients	3.86	3.41
9. The company's offer is very diverse	3.42	3.28
10. The ingenuity of employees in solving problems is used	3.11	2.88

Employees and managers are required to be creative and cope with problem situations. They are indispensable not only in the creative process, but also in the effective application of the widely understood process approach in management.

The processes reflect the way in which the company merges and arranges the course of activities, which illustrates the actual process of transformation of input resources, i.e., raw materials, intermediates, information, etc. into products transferred to subsequent processes or final customers. Often the output of one process creates the input of the next process. The processes are closely interrelated and interact with each other. The suggestion resulting from own research in the area of management will be designation and inclusion in the practice of the creative process in enterprise processes. On the other hand, the input elements are important, i.e., information, technology or outputs, e.g., an offer, an innovation.

Process solutions are more innovative and flexible compared to traditional ones, which also means that the process approach to creativity should be used in them (see more in Hammer & Champy, 1996, p. 49). In process management, as Bitkowska points out, "one sees a possibility of improving the company's operations, increasing its efficiency, and thus increasing the chance of survival in an increasingly competitive environment" (Bitkowska, 2009).

These definitions coincide with the assumptions adopted for creative capital because employees needs to look not only for new solutions, but also valuable ones - giving benefits. The creation of new or improved products is also a common element. The paths to achieve this effect are different, including taking into account customers' needs, available technology and financial outlay.

The proposed description of the process as an element of creative capital is of a general nature (due to the limited size of the study). It can be a useful tool for analyzing situations related to the process also understood as creative. It is also characterized by the complexity of the approach - it explains both the nature of creation by pointing to innovations and changes in the product (product, service), as well as their specific conditions (context).

At the same time, the concept of measuring creative capital needs to be more specific, mainly in the case of highly specialized enterprises and the selection of relevant detailed questions in the case of enterprises analyzed by section. The presented empirical verification of the proposed approach, in comparative research, concerning various types of enterprises is difficult to generalize, due to the specificity of the conducted activity.

The "process dimension" focuses on the assumption that a creative process always leads to the creation of a creative product. Researchers check what mental, intellectual or characterological processes, but also emotional and motivational processes, are behind the creation of something creative. The studies carried out still do not give a definite answer as to how a human creates. For this reason, it is assumed that there is no one optimal type of creative process that will lead to the creation of a creative product regardless of the field.

The literature shows that the mental operations used in the creative process are the same as those used in other processes. In the light of this assumption everyone can be creative, everyone is capable of carrying out the same mental processes (Person, process, product, place. How to bite the subject of creativity, http://kreatywnosc.zobaczyc.org/person-process-product-place/). The above formulation was an indication for the author to modify the dimensions of the 4P model. It was modeled on the work of other authors (see more in Parys, 2013, p. 18; Simonton, 1990; Kaufman, 2011), which concerned, however, the area of pedagogy of creativity.

The results of own research should also be referred to as the behavioral approach. Behaviorists focus only on objectively perceptible behaviors. Hence Nowosielski indicates that by analyzing the creative process one can refer to a process approach that focuses on the sequences of actions taken in the enterprise and beyond and the relationships between them to achieve the intended results. This approach assumes that each entity is a set of mutually intertwined processes whose identification allows for a better understanding of value creation, and improvement and continuous improvement increase the efficiency of the company operation and the degree of customer satisfaction (Nowosielski, 2008).

These processes are often cognitive in nature, for example, included in the study is own information on product modification by the client. From the

behavioral side, people are looking for a way to adapt their business to the conditions where it is implemented.

Such action in the process is also to fill the cognitive gap. It results from the need that the use of creativity is in the case of the study undertaken. The needs are shaped by the enterprise itself, customers or employees. It should be mentioned that in the creative sector, accepted as the determinant of comparison, people are primarily "incurable experimenters" and "problem solvers", whose satisfaction in solving them provides strong incentives to work, stronger than financial incentives or prestige. For development or institutions, the most important are creative employees, not the creative R&D department or management. This confirms the adopted research problem.

Finally, reference should be made to the recital on the comparison of the 'process dimension' of these creative and other industries. This operation resulted in the recommendation of the European Commission, which draws attention to the fact that creative industries have great potential for cross-sector cooperation and by stimulating it, it can contribute to the development of other branches of the economy. It should be noted that the creative sector, similarly to enterprises from other industries, operates in the context of a rapidly changing environment.

5. Conclusion

Theories of creativity are a system of views covering selected aspects of creativity. One of them is the 4P creative model which has been authored with a cooperation dimension and assessed with questions selected on the basis of the subject literature describing the dimensions. This action was a response to the measurement of creative capital in a different way than known from the literature, a method based on the key of the competition. An attempt to assess creative capital using a single element of the 4P model is an indication of the direction to build creative capital based on the nature of the process. A full, more precise picture of creative capital analysis can be obtained from a summary of all dimensions.

In the case of the "process dimension." the respondents' assessments show that enterprises grouped by CBA sections do not differ significantly from enterprises in the creative sector. This will be confirmed by the assumption known from the theory of creativity pedagogy about the egalitarian nature of creativity. The problems raised are extremely difficult due to its interdisciplinary character. On the one hand, it gives a wider opportunity to compare knowledge from different fields, on the other hand it creates a plea of fussiness. The optimal solution is still sought after.

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II.
MODERN TOOLS FOR BUSINESS AND NON-PROFIT ORGANIZATIONS MANAGEMENT

CORE THEMES OF DESIGN THINKING IN MONO- AND MULTILINGUAL TEAMS. RESEARCH BASED ON THE SYSTEM OF ORGANIZATIONAL TERMS

Olaf Flak[1]

Abstract

The concept of Design Thinking has emerged as a consequence of a human-centred approach to innovation. It can be used not only to create new products and services but also to solve organizational and business problems focused on man and his problems. It is said that Design Thinking is becoming more a culture attribute than a specialized expertise. Its elements – user focus, problem framing, problem visualization, experimentation and diversity – strongly depend on a culture and a language that dominates in a team. The first aim of this paper is to verify two hypotheses. Firstly, multilingual teams use more elements of Design Thinking to solve the problem than monolingual teams. Secondly, multilingual teams are more diversified in using elements of Design Thinking than monolingual teams. The second aim of this paper is to present the high potential and ability of the system of organizational terms as a methodological concept in the research of teamwork in an organization. The methodology used in the study was a non-participating, long-term observation of 3 monolingual and 4 multilingual teams. Their work was recorded by 10 online management tools called TransistorsHead built on the foundation of the system of organizational terms.

Keywords: *Design Thinking, system of organizational terms, management tools, culture.*

1. Introduction

The concept of Design Thinking has emerged as a consequence of a human-centred approach to innovation. It was based on the assumption that the effects of work derive from the ways that people think and work (Brown, 2008).

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Design Thinking is a process focused on a man and his problems. It can be used not only to create new products and services but also to solve organizational and business problems (Lockwood, 2009). This approach includes a deep belief that it is more efficient to give design tools to people who have never been engaged in the design process than to keep to the traditional division of labor. These tools also help practical problems in many areas of running a company (Brown, 2009, p. 4).

It is said that Design Thinking is becoming more a culture attribute than a specialized expertise (Ben Mahmoud-Jouini, Midler & Silberzahn, 2016, p. 150). Recent developments in Design Thinking claim that it needs to move to the attributes of the culture which dominate in a company and where strategic decisions are made (Brown, 2009). In the area of culture, most kinds of tacit knowledge are created in a language and it is not typically associated with intentionality and deliberation. Explicit, procedural knowledge develops incrementally over time and it comes from a group or an organization's norms, origin and routines also expressed in a language which dominate in such a group (Erden, Krogh, & Nonaka, 2008).

The way of using Design Thinking as a work methodology depends on the cultural diversity of the team, with one of the elements being the native language of members. It is even more important than the number of members or team member competences, and it can influence the complexity of collaboration positively or negatively (Zhang, Lowry, Zhou, & Fu, 2008). What is more, in relation to Design Thinking, past research shows that multiculturalism in teams has distinct, positive effects on this process (Martins & Shalley, 2011). Therefore, the following research problem can be stated in a general research question: does the native language of a team influence the level of Design Thinking elements used to solve problems?

According to this research problem, there are two hypotheses posed by the author:

H1. Multilingual teams use more elements of Design Thinking to solve the problem than monolingual teams.

H2. Multilingual teams are more diversified in using elements of Design Thinking than monolingual teams.

The first aim of this paper is to verify the hypotheses based on the observation of 35 team members coming from different countries and different cultures. The second aim of this paper is to present the high potential and ability of the system of organizational terms as a methodological concept in the research of teamwork in an organization. The methodology used in the research was a non-

participating, long-term observation of 3 monolingual and 4 multilingual teams which were given the task of preparing a training program for teachers and administrative staff at Haaga-Helia University of Applied Science in Helsinki. Their work was recorded by 10 online management tools called TransistorsHead built on the foundation of the system of organizational terms.

2. Literature background

2.1. Design thinking

Design Thinking is defined as a method of work, which uses common sense and designers' techniques in order to meet peoples' needs, by technological abilities supported by a reasonable business strategy. The effect of Design Thinking has to be a real value for consumers (Brown, 2008, p. 86). It is also called "integrative thinking" which is a way of thinking that combines the generation of new ideas (abductive logic) with their analysis and evaluation of how they are applied (deductive, inductive logic) (Dunne & Martin, 2006, p. 518). The interest for the idea of Design Thinking comes from the fact that it improves the process of creating and implementing solutions as a multidisciplinary, human-centred innovation approach inspired by designers (see more in Johansson-Sköldberg, Woodilla, & Ceinkaya, 2013, p. 40).

Design Thinking can be described as a team based, user-centred process, powered by a thorough understanding of what users want and need. It is not only used for projecting technical or product innovations, but also for finding solutions to undefined organizational or social problems (Dijksterhuis & Silvius, 2017). The core of design practice lies in the ability of designers to frame and reframe a given problem, thereby creating a novel standpoint from which a problematic situation can be tackled. Design Thinking is also treated as a concept used in managing projects that combines the needs and desires of people with technological abilities implemented in a business strategy (Gawroński & Seredocha, 2012).

Design Thinking is strongly connected to exploration and learning (Beckman & Barry, 2007). This is a process which can be described as a set of activities mixed with one another and done one after another with many loops and repetitions (Cooper, Junginger, & Lockwood, 2009). This implies that the work includes ambiguity, unknown parameters, and a long route to the expected results (see more in Rauth, Carlgren, & Elmquist, 2014, p. 48).

It emphasizes an observation to understand people, leading to empathy, insights and analysis. This observation involves a wide search for information, visualization, perspectives and insights into a problem by experiment. It

engages empathy and intuition to discover new patterns and themes (Glen, Suciu, Baughn, & Anson, 2015).

There are 5 core themes which describe Design Thinking in practice (Carlgren, Rauth, & Elmquist, 2016):

- collaboration - users try to understand needs through research and a qualitative approach, they are influencing each other, and they are focused on collaboration more than following the instructions of a manager;
- problem framing - team members are expanding problems and a space of solutions, they create new ideas during brainstorms and specify ideas in details;
- problem visualization - team members visualize ideas and make them tangible, they practice "thinking by doing," they try to describe problems and create choices;
- experimentation - they quickly prototype and test solutions creating different options of solving problems, they perceive failures positively with playfulness and humor;
- diversity – a team is diverse inside which is treated as a strength of the team, members do many different activities on the way to solutions, these activities are mixed and they are taken one after another in many different combinations.

As was listed above, the first theme is collaboration. Collaboration means an emphasis on co-operation and communication with colleagues, partners and customers. It needs interaction between team members and an open attitude of a manager in delegating tasks and giving members of a team as much freedom as they can have (Brown & Martin, 2015). The second theme is problem framing. It emphasizes observation for the purpose of understanding people, leading to empathy, insights and analysis. Using many managerial techniques, such as brainstorms, 5 why and other creative techniques, the problem has to be translated into understandable frames and terms (Glen et al., 2015). The third theme is problem visualization. On the one hand, physical objects can be used, which increase the level of understanding intangible issues, such as customers' experiences and service. A team tends to use physical models, diagrams and sketches that give additional dimensions to the exploration of problems (Kolko, 2015).

The fourth theme is experimentation, which is an iterative prototyping. It allows early engagement with customers or users of the solutions, along with very low-resolution prototyping cycles of iterations and getting feedback from the users (Brown & Martin 2015). The fifth theme is diversity, which refers to collaboration in diverse teams, and the integration of different activities within the process (see more in Carlgren et al., 2014, p. 48).

The differences in a rational analytic approach used in solving problems compared to Design Thinking are shown in Table 1.

Table 1. Comparison between rational analytic and design thinking

Criteria	Rational analytic	Design thinking
Problem formulation	Well-defined goal and constraints.	Goals and constraints uncovered during the design-thinking process.
Criteria	Objectives definition	Both objective and subjective criteria used to define objectives, since the end user is the ultimate judge of efficacy.
Method	Planning and analysis. Sequential process.	Iterative exploration of the design "space," where thinking is repetitive.
Information-processing emphasis	Preference for objective formulations, especially verbal and quantitative.	Preferences for visual and spatial representations, which evoke both objective and subjective insights.
Solution process	Ideally based on conscious, rational-logical reasoning process, which, over time, becomes formalized into a set of rules.	Solutions evolve as the result of interaction with users and ongoing creation and refinement of possible solutions. Incorporates experience-based insights, judgment and intuition.
Rationale	"Get it right." Reduce chances of failure though careful prior analysis.	Use rapid experimentation and prototyping to learn from early, inexpensive "failures."
Outcome	Solution optimizes predefined criteria to arrive at "best" answer.	Obtain "better" answer. Process may expose additional problems and solutions.

Source: Glem, Suciu & Baughn (2014, p. 662).

2.2. Cultural foundations of design thinking

A culture is a complex of knowledge, beliefs, art, morals and laws, customs and other habits shared by man as a member of a certain society (see more in Murphy, 1986, p. 14). This meaning, which is widely used in the humanities, is designed for describing a system of subjects, behaviors and processes and those activities and symbols that were made because of human acts (see more in Cameron & Quinn, 2006, pp. 16-17). Another version of a culture's definition introduced a division of culture which consists of three groups of items (Shein, 2004):

- visible aspects that need to be interpreted (a system of symbols, languages, rituals, relationships among the first group);
- partly visible elements and non-visible (norms and standards, ideologies, acceptable behaviours and manners);
- unconscious elements (relationship between man and environment, perception of the truth, human nature, basic human activities, needs and interpersonal relations).

It is said that the core themes of Design Thinking – user focus, problem framing, problem visualization, experimentation and diversity – strongly depends on a culture which dominates in a team (see more in Kolko, 2015, p. 68). That is why the core of any culture is constructed on a value system which contributes substantially to its normative traits. Additionally, value orientation, along with cultural cognition, is one of the most important components that can underpin a theory of design (see more in Fitzgerald, 2003, p. 52). A culture generalizes perception or assumptions expressed in a language. The language forms the actions are taken in Design Thinking. These actions are appropriate within some socially constructed system of norms, values, beliefs, and definitions (see more in Suchman, 1995, p. 574). Cultural elements of Design Thinking, such as the focus on experimentation and iterations, are based on a different logic which depends on team culture (Lester Piore, 2004). It is also seen at the operational level of Design Thinking. The dominating language of the culture also influences the techniques and tools used by a leader and his team to solve problems or create ideas (see more in Gasparini & Chasanidou, 2016, p. 7).

The differences in elements of a culture, such as a mutual and native language, strongly address communication differences in teamwork. Many projects, in which Design Thinking is used, are characterized by the great difficulty of quantifying uncertainty, management flexibility and tolerance of vagueness (Atkinson, Crawford, & Ward, 2006). Therefore, it is said that a cultural approach enriches a design theory and underpins cultural aspects of design practice (see more in Fitzgerald, 2003, p. 50).

In the literature, it is claimed that the ambiguous nature of Design Thinking is often in conflict with dominant approaches to organizational cultures. It also implies the view that any concept should be interpreted as the effect of culture and not as an independent way of thinking (see more in Carlgren, Rauth, & Elmquist, 2016, p. 346). The cognition of the world and the way of thinking are inevitably dependent on a language which may become dominant in a certain period of time (see more in Fitzgerald, 2003, p. 53).

Therefore, there is a need to explore the regularities in cultural influence that use elements of Design Thinking in managing projects and solving problems. In this paper, there is an attempt at verifying two hypotheses concerning the influence a type of a culture (represented by mono- versus

multilingual teams) has on a way elements of Design Thinking methodology are used in teamwork. It needs to be emphasized that the conclusions of the research concern only the group of participants and they cannot be interpreted as valid for any other teams or organizations.

3. Research approach and methods

Participants of the study were BA business students from Haaga Helia University of Applied Sciences in Helsinki. It was carried out from 26th of September to 20th of December 2017 in Finland. Participants were divided into 7 teams, each of which consisted of five members and were created purposefully. Three teams were homogenous in terms of a culture and a language (Finnish, American and French teams). For the validity of the research, the participants' place of birth was also checked and 86% of them (13 out of 15 participants belonging to these teams) were found to be born in the countries which were used as teams' nationalities in the observation. Four other teams were heterogeneous both culturally and linguistically and their common working language was English.

The teams were given the task of preparing a training program for teachers and administrative staff at Haaga-Helia University of Applied Science in Helsinki within the GloBBA degree programme, during both planning and implementing semester modules. The expected result of the participants' work was a report, which had to contain two parts: training programme details (participants, number of participants, venue, duration, name of the training programme, goals of the training programme, benefits for the participants, training methods, detailed parts of the training programme) and teamwork process (individual reflections on the work process, possible difficulties, the positive aspects, etc.).

In order to perform the task, participants were given online managerial tools, available from Transistorshead.com. There are 10 online managerial tools for setting goals, describing tasks, generating ideas, specifying ideas, creating options, choosing options, checking motivation, solving conflicts, preparing meetings, and explaining problems. The online management tools were designed and implemented on the basis of a methodological concept called the system of organization terms. They were also used as research tools and they recorded the activities and the qualitative and quantitative aspects of teamwork during the study. The participants were trained to use the online management tools and they were trained on the rules of Design Thinking in order to have some theoretical and practical background to perform the task.

The theoretical background for this research approach is the system of organizational terms that is an original methodological concept of organizational

research (Flak, 2013). The philosophical foundation of the system of organizational terms is based on Wittgenstein's theory of facts (the only beings in the world) and "states of facts" (Brink & Rewitzky, 2002). This theory was developed by the author in two types of beings in the world: events and things. They are combined with one another in the way that is shown in Figure 1.

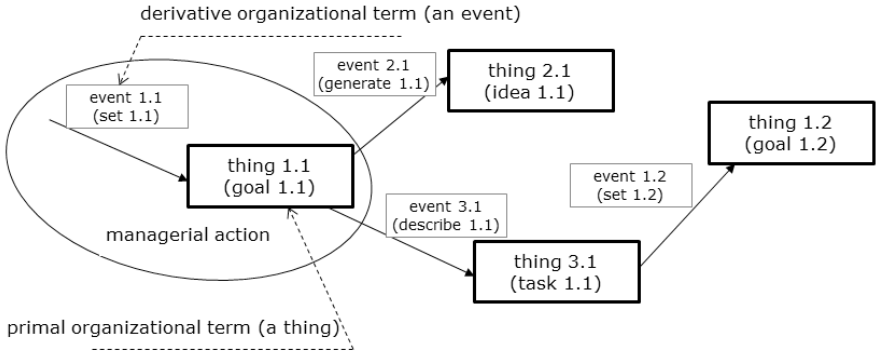

Figure 1. Fundamental structure of the organizational reality

As is shown in Figure 1, when a manager sets a goal, he creates *an event 1.1* (*set 1.1*) which results in *a thing 1.1* (*goal 1.1*). In the system of organizational terms, they are called derivative organizational term and primal organizational term, respectively. This pair creates a unit called a managerial action (Yang, Flak, & Grzegorzek, 2018).

Specifically, as shown in Figure 1, events and things have the label *n.m*, in which *n* and *m* represent a number and a version of a thing, respectively. If later (after the next managerial action – *describe 1.1* and *task 1.1*) this manager does the next setting of the same goal (*set 1.2*), he launches the next managerial action and *goal 1.1* changes into *goal 1.2*. *Goal 1.2* represents the second version of this managerial action (described by the pair of the event and the thing: *set 1.2* and *goal 1.2*). The differences between the features of *goal 1.2* and *goal 1.1* determine the reasoning for the event *set 1.2* which happened after a certain period of time. After recording managerial actions in such a way it is possible to build a model of what this manager really did. It is necessary to say that team members also act the same way and their activities can be modeled this way.

As was mentioned above, the research tools were the online management tools recording managerial actions done by team managers and team members. From a theoretical point of view, online management tools have two features. Firstly, every online management tool tracks and records one

specific managerial action according to the idea of a "unit of behavior" (Curtis et al., 1992). Secondly, using any online management tool is equal to an event which results in a thing – see Figure 1 (Flak, 2013).

The online management tools used in the study are available at TransistorsHead.com whose dashboard is shown in Figure 2. Gathered data is divided into two parts: (1) a time domain and (2) a content domain. In the time domain (1) all button clicks are recorded in the function of time. Therefore, it is possible to conclude what a manager did with a second time rate (alike in making a movie). In the content domain (2) all data is saved and it is never deleted. That is why it is possible to analyze the way of cognitive processes during managerial actions (Alnajjar & Flak, 2016).

From the data analysis point of view, it is important to point out 3 universal actions of every online management tool. Firstly, there is a function called ADD which lets a manager create an item in every tool (e.g., a goal in a tool called *set goals*). The ADD action is only available to managers and not to team members. Secondly, both managers and team members can EDIT the item (e.g., a goal) which was created before. The confirmation of this action is a SAVE button. Thirdly, both managers and team members can use VIEW action to see the previous results of work.

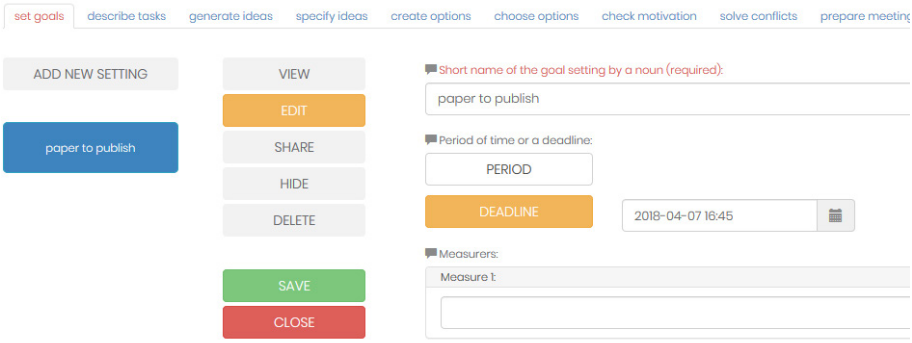

Figure 2. Dashboard of TransistorsHead with online management tools

4. Discussion and results

In order to verify the hypotheses shown in Section 1, the complex index of Design Thinking was designed. For the purpose of this paper, it was called *DT index*. The assumption was that we could measure the scale of work which was done according to Design Thinking methodology.

The scale of the *DT index* is from 0 (no work in Design Thinking methodology) to 100 (all work is done according to Design Thinking rules). The *DT index* consists of 5 elements which correspond to the 5 core themes which describe Design Thinking in practice: collaboration, problem framing, problem visualization, experimentation, and diversity. Every core theme also has its own measure on the same scale as *DT index*: from 0 (no work in Design Thinking methodology) to 100 (all work done according to Design Thinking rules). Therefore, the *DT index* can be calculated as an average of all the element measures.

Table 2. Description of team collaboration

		No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
		Group name	Les Baguettes	Mean Girls	The Sailors	De Badeendjes	All Gucci	Vindicators	East meets West
		Group type	monolingual	monolingual	monolingual	multilingual	multilingual	multilingual	multilingual
		Nationality	French	American	Finnish	International	International	International	International
Type of users	**Type of actions**	**Symbol**							
leader actions	ADD	A1	66	64	52	71	19	30	49
	EDIT	E1	69	57	58	121	19	48	48
	SAVE	S1	182	119	175	197	45	83	106
	SAVE-ADD	S1-A1	116	55	123	126	26	53	57
members action	VIEW	V1	18	51	16	68	5	28	11
	EDIT	E2	191	136	101	272	49	47	102
	SAVE	S2	142	93	57	241	32	18	107
	VIEW	V2	84	208	144	205	39	46	128
		Function							
parameter	S	S2/(S1--A1+S2)	55,04	62,84	31,67	65,67	55,17	25,35	65,24
	V	V2/(V1+V2)	82,35	80,31	90,00	75,09	88,64	62,16	92,09
	A ratio	S/(S+V)	40	44	26	47	38	29	41

The first core theme of Design Thinking concerns collaboration. This parameter is represented by the *A ratio* in Table 2 and it shows relations of active (EDIT+SAVE) and passive (VIEW) interactions between a leader and team members. It can be treated as a level of participation of team members in team activities, including the leader. This parameter was calculated in 4 steps:

1) Establishing the numbers of actions in online management tools (ADD, EDIT, SAVE, SAVE-EDIT, VIEW in Table 2 given for every team in a division of a leader and members).

2) Calculating te *S* parameter which means a relation of active actions taken by team members to all active actions taken by a leader and team members (multiplied by 100).
3) Calculating the *V* parameter which means a relation of passive actions taken by team members to all passive actions taken by a leader and team members (multiplied by 100).
4) Calculating the *A ratio* as a relation of the *S* parameter to a sum of the *S* and *V* parameters.

As is shown in Table 2, the highest level of collaboration was characterized by the multilingual group 4. Nevertheless, another two highly collaborative groups were the monolingual - 1 (American) and 3 (French). What is interesting is that the lowest collaborative group was also a monolingual group 3 (Finnish).

The second core theme of Design Thinking – problem framing – is represented by a parameter called *B ratio*. It shows the level of framing problems compared to the number of defined problems. Participants were given two online management tools which were created to describe problems with some parameters. The tools are called *generate ideas* and *specify ideas*. Some problems can be tackled and drafted, but they are never fully framed. That is why there are 4 steps in order to calculate the *B ratio*. They are as follows:

1) Establishing the numbers of actions in *generate ideas* and *specify ideas* tools (ADD, EDIT, SAVE in Table 3 given for every team in a division of both tools).
2) Calculating the *B1* parameter which means a relation of framed problems (SAVE) by a leader and team members to all problems (ADD, EDIT, SAVE) tackled by a leader and team members (multiplied by 100) in the *generate ideas* tool.
3) Calculating the *B2* parameter which means a relation of framed problems (SAVE) by a leader and team members to all problems (ADD, EDIT, SAVE) tackled by a leader and team members (multiplied by 100) in the *specify ideas* tool.
4) Calculating the *B ratio* as an average of the *B1* and *B2* parameters.

As is shown in Table 3, the highest level of problem framing belongs to multilingual groups 7 and 4. However, another two multilingual groups - 5 and 6 - were at the bottom of the ranking. All monolingual teams (1, 2 and 3) had nearly equal levels of problem framing which was in the middle of the scale.

The third core theme of Design Thinking is represented by the *C ratio* and it concerns problem visualization. In TransistorsHead there are two tools which can be used in order to present a problem. However, they are not graphic applications. There are *create options* and *explain problems* tools. Similarly, as in the *B ratio,* not all problems which were started to be modeled were fully described. That is why the procedure of calculating the *C ratio* is similar to a *B ratio* procedure.

Table 3. Description of problem framing

		No.	1	2	3	4	5	6	7
		Group name	Les Baguettes	Mean Girls	The Sailors	De Badeendjes	All Gucci	Vindicators	East meets West
		Group type	monolingual	monolingual	monolingual	multilingual	multilingual	multilingual	multilingual
		Nationality	French	American	Finnish	International	International	International	International
Type of tools	**Type of actions**	**Symbol**							
generate ideas	ADD	A	3	8	4	7	1	12	4
	EDIT	E	71	112	66	224	46	49	49
	SAVE	S	37	77	42	169	27	54	54
specify ideas	ADD	A	1	1	3	7	1	2	1
	EDIT	E	3	7	19	11	0	0	2
	SAVE	S	6	10	20	31	0	0	7
		Function							
parameter	B1	S/(A+E+S)	33,33	39,09	37,50	42,25	36,49	46,96	50,47
	B2	S/(A+E+S)	60,00	55,56	47,62	63,27	0,00	0,00	70,00
	B ratio	(B1+B2)/2	47	47	43	53	18	23	60

The only change concerns the tools used to gather data about this process. There are 4 steps:

1) Establishing the numbers of actions in *create options* and *explain problems* tools (ADD, EDIT, SAVE in Table 4 given for every team in a division of both tools).
2) Calculating the *C1* parameter which means a relation of modeled problems (SAVE) by a leader and team members to all problems (ADD, EDIT, SAVE) tackled by a leader and team members (multiplied by 100) in the *create options* tool.
3) Calculating the *C2* parameter which means a relation of modeled problems (SAVE) by a leader and team members to all problems (ADD, EDIT, SAVE) tackled by a leader and team members (multiplied by 100) in the *explain problems* tool.
4) Calculating the *C ratio* as an average of the *C1* and *C2* parameters.

Table 4 shows that the highest level of problem visualization concerns a monolingual group 3 (Finnish). The second position in this ranking belongs to the second monolingual group 1 which came from France. The rest of the groups, no matter whether they were multilingual (American) or monolingual teams, had a very low level of problem visualization, and one of multilingual teams (team 5) did not model problems at all.

The fourth core theme is experimentation. In the study, it was possible to estimate the parameter of experimentation for every group, because the online management tools which the participants were given, recorded their activities during all observation periods (when they were logged to TransistorsHead). Therefore, any changes of created items were saved to the database.

Table 4. Description of problem visualisation

		No.	1	2	3	4	5	6	7
		Group name	Les Baguettes	Mean Girls	The Sailors	De Badeendjes	All Gucci	Vindicators	East meets West
		Group type	monolingual	monolingual	monolingual	multilingual	multilingual	multilingual	multilingual
		Nationality	French	American	Finnish	International	International	International	International
Type of tools	**Type of actions**	**Symbol**							
create options	ADD	A	1	6	3	2	1	0	11
	EDIT	E	0	10	0	1	0	0	48
	SAVE	S	1	16	7	4	0	0	46
explain problems	ADD	A	3	2	4	0	0	2	0
	EDIT	E	1	0	3	0	0	1	0
	SAVE	S	2	0	11	0	0	4	0
		Function							
parameter	C1	S/(A+E+S)	50	50,00	70,00	57,14	0,00	0,00	43,81
	C2	S/(A+E+S)	33,33	0,00	61,11	x	0,00	57,14	0,00
	C ratio	(C1+C2)/2	42	25	66	29	0	29	22

As was described in Section 3, all items (e.g., a goal) had their own labels in a pattern *n.m*, in which *n* and *m* represent a number and a version of a thing, respectively, created by a certain event.

10 different online management tools, which deal with 10 different activities in Design Thinking, were used to calculate the *D ratio* which represents the level of experimentation. There are 4 steps in establishing its value:

1) Establishing the highest numbers and the highest versions of created items in all 100 online management tools.
2) Calculating sum of products (the highest number multiplied by the highest version of items in every tool).
3) Calculating the *X* parameter as a relative measure of step2 related to step1.
4) Calculating the *D ratio* as the *X* parameter described above multiplied by 100 and rounded to natural figures.

In Table 5 we can see that the average level of experimentation is quite low. The highest value is 30 and it concerns a monolingual group 1 (French). Both other monolingual groups (2 and 3) achieved the level of 25. The multilingual groups are strongly diversified. These results show that all teams did not experiment too much. They created some items in tools and after that, they changed them only a little.

The last, fifth theme of Design Thinking, is diversity which means taking many different activities on the way to a solution. Having quantitative data on team member activities in TransistorsHead, it was possible to calculate how much of their work was diversified. The Gini Coefficient, a measure of statistical dispersion and originally used in economy for estimating the income or wealth distribution of a nation's residents, was used as the E ratio (Druckman & Jackson, 2008).

Table 5. Description of experimentation

	No.	1	2	3	4	5	6	7
	Group name	Les Baguettes	Mean Girls	The Sailors	De Badeendjes	All Gucci	Vindicators	East meets West
	Group type	monolingual	monolingual	monolingual	multilingual	multilingual	multilingual	multilingual
	Nationality	French	American	Finnish	International	International	International	International
Effect of work	**Tool total using**	**2027**	**2188**	**1748**	**3620**	**756**	**931**	**2038**
goal	number	13	13	7	21	4	4	8
	version	12	6	14	11	9	8	11
task	number	28	8	10	8	6	5	20
	version	10	10	9	3	2	5	11
idea	number	2	6	3	5	1	9	2
	version	32	53	29	72	25	8	49
description	number	1	1	3	5	0	0	1
	version	3	7	7	10	0	0	5
option	number	0	4	3	1	0	0	9
	version	0	7	2	4	0	0	14
decision	number	6	5	6	6	3	0	0
	version	11	6	20	10	2	0	0
motivation	number	1	1	2	6	1	1	0
	version	7	3	2	40	1	4	0
solution	number	2	0	2	1	0	0	1
	version	3	0	1	2	0	0	2
meeting	number	1	0	4	5	0	1	0
	version	16	0	1	3	0	2	0
explanation	number	1	0	5	0	0	2	0
	version	1	0	2	0	0	1	0
parameter	sums of products	599	544	442	986	80	137	539
	X	0,295510607	0,248628885	0,252860412	0,272375691	0,105820106	0,147153598	0,264474975
	D ratio	30	25	25	27	11	15	26

In Table 6 there is an *E ratio* for every team which took part in the research. The highest level of diversity was in multilingual group 6 and the lowest level was in monolingual group 3 (Finnish). However, the distance between these two extreme values is not large and it is possible to claim that all teams diversified their work at a middle level.

Table 7 shows all ratios completed together. The average of the ratios, the *DT index* presented at the beginning of this section, demonstrates how much the team used Design Thinking methodology in their work during the study. Additionally, Figure 3 also shows the dispersion of the ratios for all teams.

As is presented in Figure 3, different teams are characterized by different values of ratios. The biggest differences between teams occur in the *C ratio* (problem visualization). On the one hand, the Finnish group 3 (*the Sailors*) used tools to model problems very often, while on the other hand, the multilingual team called *All Gucci* (number 5) did not use them at all. Quite large differences

between teams are also seen in the *B ratio*. While group 7 (multilingual *East meet West*) framed problems quite often, *All Gucci* (number 5) did it very rarely. All groups, no matter whether they were mono- or multilingual, showed similar levels of collaboration and diversity.

Coming back to Table 7 it is necessary to claim that teams differed from each other in the field of ratio dispersion. The parameter called the "coefficient of variation" in Table 7 shows how much the differences are. The most homogenous group is the monolingual group 1 (French). Its coefficient of variation is 20%. At the opposite extreme, the most diversified group is the monolingual group 5. It is possible to conclude that the way of using Design Thinking methodology was different in most of teams and, although there are some similarities, there are however no dominating tendencies.

5. Conclusion

Design Thinking is the new approach to creating innovations, solving problems and finding solutions. The way managers are planning, organizing work, motivating people and controlling their projects is specific. However, Design Thinking methodology creates a framework of activity taken by a leader and team members (Carlgren, Elmquist, & Rauth, 2016).

On the basis of the research results presented in Section 4 it is possible to verify the hypotheses presented in Section 1. As was mentioned above, the verification is only valid for this group of participants.

The first hypothesis (H1) claimed that multilingual teams use more elements of Design Thinking to solve a problem than monolingual teams. In the perspective of the values of the *DT index* in Table 7, this hypothesis can be verified as false. The *DT indexes* for multilingual teams (4, 5, 6 and 7) are not significantly higher than those for monolingual team (1, 2, and 3). The differences are very little and, what is more, two multilingual teams (5 and 6) used relevantly fewer elements of Design Thinking than monolingual ones. What is interesting is that the most active group in Design Thinking methodology was the French monolingual group 1.

Opposite to this, the second hypothesis (H2), which stated that multilingual teams are more diversified in using elements of Design Thinking than monolingual teams, is true. When we take into consideration the coefficient of variations calculated for the *DT indexes* of teams, it seems that generally speaking, monolingual groups (1, 2 and 3) were less diversified than the multilingual ones. However, there are some exceptions, such as group 4 and group 7 (this group was on the brink of the highest level of monolingual group diversification).

Table 6. Description of diversity

	No.	1	2	3	4	5	6	7
	Group name	Les Bagu-ettes	Mean Girls	The Sailors	De Badeen-djes	All Gucci	Vindicators	East meets West
	Group type	monolingual	monolingual	monolingual	multilingual	multilingual	multilingual	multilingual
	Nationality	French	American	Finnish	International	International	International	International
	Tools total using	**2027**	**2188**	**1748**	**3620**	**756**	**931**	**2038**
team activities	set goals	548	532	290	815	224	188	409
	describe tasks	689	379	335	301	104	173	484
	generate ideas	355	704	492	1368	253	419	407
	describe ideas	54	119	191	234	37	36	132
	create options	27	176	64	69	29	18	405
	choose options	84	177	152	271	52	15	56
	check moti-vation	88	45	62	346	30	25	42
	solve conflicts	60	21	38	35	13	13	47
	organize meetings	104	19	61	168	8	23	30
	explain problems	18	16	63	13	6	21	26
parameter	E ratio	56	55	44	54	56	61	48

Table 7. Ratios and DT indexes for all teams

				Ratios							
No.	**Group name**	**Group type**	**Nationality**	**A**	**B**	**C**	**D**	**E**	**DT index**	**Standard deviation**	**Coefficient of variation (%)**
1	Les Baguettes	monolingual	French	40	47	42	30	56	43	9	20
2	Mean Girls	monolingual	American	44	47	25	25	55	39	12	31
3	The Sailors	monolingual	Finnish	26	43	66	25	44	41	15	36
4	De Badeendjes	multilingual	International	47	53	29	27	54	42	12	28
5	All Gucci	multilingual	International	38	18	0	11	56	25	20	82
6	Vindicators	multilingual	International	29	23	29	15	61	31	16	50
7	East meets West	multilingual	International	41	60	22	26	48	40	14	35

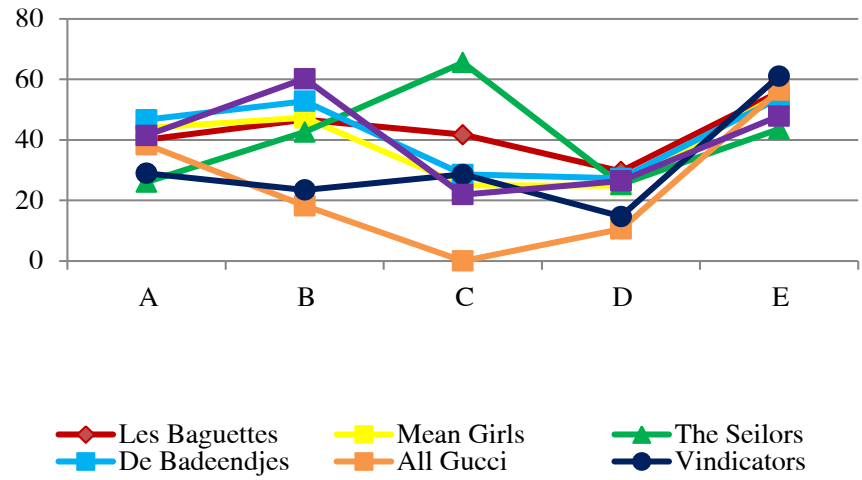

Figure 3. Ratios for all teams

As the average of the coefficient of variation for monolingual groups was 29% and for multilingual groups, it was 48.75%, we can consider monolingual teams are less diversified in using Design Thinking methodology than the multilingual ones.

As was mentioned in Section 3, the data recorded by the 10 online management tools were both qualitative and quantitative. In order to estimate the *DT index,* quantitative data was taken into consideration. The analysis of the research was done on the grounds of the system of organizational terms and its main assumptions which designed the tools available in TransistorsHead. However, compared to other techniques of Design Thinking research (Carlgren et al., 2016), the observation used in the study gave raw data about real activities of a leader and team members and not about their opinions. Its high ability of verifying hypotheses gives an opportunity to conduct quantitative research in areas of management previously engaged by qualitative research.

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Biographical note

Olaf Flak graduated in Management at the University of Economics in Katowice and Electronics at the Silesian University of Technology in Gliwice, Poland. He received his Ph.D. in Economy in 2006. He has been a Deputy Dean for International Affairs and Organization at the Radio and Television Faculty - University of Silesia (since 2016) and an Assistant Professor at the University of Silesia (since 2010). In 2002-2010 he was an Assistant Professor at University of Economics in Katowice in the Faculty of Management. He is a scientist and a specialist in business management, a trainer and a business consultant. His research area is investigating how automatic pattern recognition techniques can be applied in the management of science. He has managed several projects which concerned detection actions taken by a manager and his/her subordinates in an organization by using online management tools and recording information about actions as numeric data. The scientific and practical goal of such pattern recognition is to recognize patterns of users' actions, and finally, generating automatically some prompts and advice for users. In the future, he wants to create an artificial manager who could conduct some operations in team management.

COMPARISON OF INNOVATIONS IN MANAGEMENT IN AUSTRIAN AND POLISH UNIVERSITIES

Magdalena Gorzelany-Dziadkowiec[1], Julia Gorzelany[2], Martina Gaisch[3]

Abstract

The aim of the article was to compare innovations in management in Austrian and Polish universities, as well as an attempt to identify stimulants and barriers to these innovations. The research problem was the characteristics of innovation in university management, the identification of determinants and barriers to innovation in university management and the determination of their impact on management efficiency. The research methods that were used to solve the problem were an analysis related to the study of Polish and foreign literature as well as the analysis and evaluation of information obtained as a result of surveys. The research was of a pilot nature and the aim was to verify the research problem: that is to check whether there are innovations in management in universities in Austria and Poland. A questionnaire was used as a research tool. The main conclusions that have been drawn are that a new view of management is neither visible in Austrian nor Polish universities. The main barriers to innovation in the management of Polish and Austrian universities are the lack of open communication, leadership, and support for creativity. Among the stimulants in the examined institutions were indicated: teamwork, awareness of joint accomplishments, building an atmosphere conducive to new solutions, defining the areas of change. Innovations in university management affect the efficiency of the investigated institutions. There is a need to model the innovation in university management and to develop methods for measuring innovation in university management.

Keywords: *innovations in management, innovative management, competitiveness, public institutions, universities.*

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1. Introduction

Innovation is an issue that is in the sphere of interest of enterprises, third sector organizations, scientists and public administration. When analyzing the possibilities of innovating, one can notice the evolution of the innovation system paradigm. Increasingly, in both theoretical and practical aspects, the interest in not only technological innovations is confirmed, but also marketing, social, organizational innovations or management innovations is becoming more and more important. Nevertheless, one can find the statement that knowledge about management innovation is unsatisfactory and should be enriched (Kraśnicka, Głód, & Wronka, 2014). Also, it may seem strange, but few organizations have developed effective ways to create innovations in management, compared to technological innovations (Hamel, 2006; Wasilewska & Wasilewski, 2016). For the above-mentioned reasons, the aim of the article was to compare innovations in management in Austrian and Polish universities, as well as an attempt to identify stimulants and barriers to these innovations in the surveyed organizations. This study is part of the trend of research on broadly understood innovations, enriching the existing discussions about innovation in university management. The research problem was the characteristics of innovation in university management, the identification of determinants and barriers to innovation in university management and the determination of their impact on management efficiency. The research methods that were used to solve the problem were an analysis related to the study of Polish and foreign literature as well as the analysis and evaluation of information obtained as a result of surveys. The research was of a pilot nature and the aim was to verify the research problem, that is to check whether there are innovations in management in universities and Austria and Poland. A questionnaire was used as a research tool.

2. Innovations in university management - a literature background

In a period of rapid changes in the global economy and the ongoing globalization process, one of the most crucial elements of building a competitive advantage is broadly understood as innovations. The pioneer in innovation was Schumpeter (1960), who defined innovations as the introduction of a new commodity, a new production method, the opening of a new market, acquiring a new source of raw materials and conducting a new organization of industry. Schumpeter's considerations were followed by Drucker (1992), who defined innovation as a specific entrepreneurial tool - an activity that gives resources new opportunities to create wealth. Kotler (1994) considers innovation as a good, service or idea that is perceived by someone as new. An idea may have

existed for a long time, yet, the most important factor is that it is perceived as an innovation for a person who sees it as new.

The above considerations allow us to state that the approach to the sources of innovation has evolved considerably from the classical trend (Schumpeter, Drucker, Kotler) and ended in modern times, where great importance is attached to open innovations (Krupski, 2014; Pichlak, 2012; Rojek, 2014) and social ones (Lachiewicz, 2014; Olejniczuk-Merta, 2014). Innovative attitudes are visible in the range of offered products, services, quality, production processes or management methods (Tiwari, Buse, & Herstatt, 2007). According to Pomykalski (2004), innovation should become the main creative force in any organization, as well as it should be permanently included in its management system and culture. Innovativeness refers to the organization's ability to constantly search, implement and disseminate innovations.

The changing paradigm of innovation allows us to distinguish in both the literature and research the division of innovations (Czekaj, 2013; OECD, 2005; Sadowska, 2004; Trzepizur, 2016; Wasilewska & Wasilewski, 2016):

- Product;
- Process;
- Marketing;
- Organizational (organizational and in management).

Product innovations are defined as introducing a product or service that is new or significantly improved in terms of its features and applications (OECD, 2005; Barańska-Fischer, 2010). It concerns products and all kinds of changes regarding the improvement of a product already manufactured by the organization or expanding the assortment structure with a new product.

Process innovations are new solutions within the process, implementation of a new or significantly improved production or delivery method. This category mentions changes in technology, devices and/or software. Sadkowska (2004) defines process innovations in three area groups - including the approach process innovations were assigned to a separate area of the company's operation to which they apply. The second group is innovations defined by the goal of describing the essence of process innovations by defining the purpose of their implementation. The last group is process innovations defined by the characteristics of the implementing entity.

Marketing innovations are defined as the implementation of a new marketing method involving significant changes in the design/construction of the product or in the packaging, distribution, promotion or pricing strategy. Marketing innovations also rely on the introduction of sales in the form of e-commerce and the use of solutions for mobile shopping (Sławińska, 2015).

Organizational innovations implement a new organizational method in the principles of operation adopted by the company, in the organization of

the workplace or in relations with the environment. A very detailed approach to organizational innovations was presented by Czekaj (2013), defining its division as the subject matter of improvement of the management system from the perspective of organizers. The author distinguished two categories of innovations in resource management areas (human and information resources). The first category is static (structural) innovation in the area of human resources, for example, job profiles, recruitment system, work time organization, employee appraisal system, pay system. However, in the area of information resources, for example, are information resources, information carriers, information system. The second category is dynamic (process) innovation. In the area of human resources, these are, for example, the division and tariffing of work, professional development processes, whereas in the area of information resources, these are, for example, communication and information processes, and information and communication networks. Innovation in the area of organizational structures is also indicated by Lichtarski (2010), pointing out some elements that show changes in the direction of organic and innovative structures. The author also states that it can not be unambiguously determined whether the organizational structures of contemporary organizations are innovative and should be considered in the broad situational and historical context of each organization individually.

By analyzing new introduction possibilities and innovation classifications, they are increasingly referred to by management. While studying the literature, one can meet with the views that innovations in the sphere of management, to a greater extent than product, marketing, process or strategy, are responsible for creating value (Baran, 2012) and strengthening competitiveness (Hamel, 2006; Hamel & Breen, 2008; Kraśnicka, Głód, & Wronka, 2014). Hamel and Breen (2008) indicate the growing need for innovations in management, which modern management calls "aging technology." In addition, they drew attention to the fact that management over the last few decades has not changed much - the hierarchy has flattened but is still visible, the first line employees are more independent and better trained, but they are still required to be subordinated to management decisions. The advancement of lower-level managers still requires the consent of the more senior members. Strategic decisions are always made at the very top; the responsibility is dispersed, there is centralization.

As a solution, Hamel proposes innovations in management (often translated as management innovations). According to Hamel and Prahalad (2002), innovations in management are a departure from traditional management principles, processes and practices. In other words, innovations in management concern new solutions in the area of: processes, operating principles, methods of operation and organizational management structures that significantly change the ways of achieving the organization's goals (Birkinshaw, Hamel, &

Mol, 2008), these are therefore new practices and methods of management that assume a change in the way the organization operates, and thus its evolution (Flak, 2012). According to Nowacki (2010), innovations in management relate to management processes in the area of marketing, finance, human resources and knowledge, and affect the competitive position of the organization. A very interesting approach to innovations in management was presented by Flak (2012), pointing to innovations in the functional, objective and process areas. Włodarczyk (2007) points out that the development of technology requires a new look at innovation. Process quality, environmental protection and human health are the main factors for assessing the real progress of technology and require changing attitudes in management, namely that the management starts treating employees as participants in the innovative process, and somewhat less as the conveyors of the board's instructions.

From the outlined state of knowledge, you can provide an original definition of innovations in management, which means implementing new solutions, approaches and practices to management in a process approach to achieve goals in an efficient and effective manner. Efficiency and effectiveness are two values that demonstrate the efficiency of management, while efficiency means a surplus of benefits over inputs, while effectiveness means a degree of achievement of goals. For the purpose of this study, the definition of Stabryła (2007) is adopted, according to which management is an information-decision process, which is supported by the functions of planning, organization, motivation and control. Relating innovation to management, it can be stated that it concerns new trends in thought and culture in the above-mentioned areas, as well as new ways of making decisions.

As previously stated, the changing innovation paradigms refer not only to the business world but also to the organization of the third sector or public administration, including universities. Leja (2011) defines the university as an institution with more than 900 years of history identified with the temple of knowledge. According to Leja (2011), the university is a kind of organization full of paradoxes, conflicts and contradictions of the old and new. The author points out that for centuries universities have operated in a stable environment, while at the turn of the twentieth century, their functioning and management, as well as business, political and social organizations, is becoming more and more complex. Innovation in university management means the transformation of universities from the model of bureaucratic organization towards an entrepreneurial university with a commitment to tradition. The search for a balance between continuity and change is the age-old problem of academic institutions, and the corporate structure of the university makes it a conservative institution (Leja, 2011). When talking about innovations in managing universities, they should be understood in a similar

way as in enterprises, as a departure from traditional management principles and practices. In this context, it is worth citing the words of Drucker (2004) that public utilities, including universities, should be as entrepreneurial and innovative as enterprises.

As mentioned earlier, Hamel notes that the breakthrough concepts of brand management or the division of the organizational structure into divisions had a more significant impact on gaining a competitive advantage than any fruit of the work of laboratories or focus groups. He gives examples of Toyota, Whale Foods, GE, Whirpool (Hamel, 2006) and draws attention to the fact that although innovations in the field of rules and management processes can provide a long-term competitive advantage, few companies have implemented this type of innovation so far. Most companies have a methodology of innovation in the field of products, many of them have research and development units, each company performs systematic reconstruction of business processes to increase management efficiency, but is reluctant to implement innovation in the sphere of management. The lack of practical methodology indicates the main barrier to innovation in the sphere of management. Hamel also points out that a new view of management should be a challenge. It requires a look at the organization from the point of view of short-term profits as well as long-term development. Another barrier that arises is the managers' realization that the links are ineffective and need to be changed. In order to be able to make such a diagnosis, a list of incompetence and blockages should be drawn up which appears to be extremely difficult. Additionally, it is necessary to skillfully anticipate future challenges related to changes and development of the market.

Discussing the barriers to innovation in university management, attention should be paid to their stimulants. Kraśnicka, Głód and Wronka (2014) as determinants list the characteristics of the management staff, management style, and organizational culture. The organization's ability to implement innovations in management favors the creation of an innovation-oriented culture in the company. This culture is focused on new ideas, encourages employees to jointly develop new solutions, take risks, as well as to acquire the ability to make changes. An organization whose innovation-oriented culture focuses on effects creates new opportunities in different areas of activity, and managers are oriented towards supporting new things, motivating the crew to innovate and trying to counteract the emerging barriers to innovation (Canen, 2002).

Shaping and consolidating the innovation culture should be supported by the human resources management system (communication, motivation), strategy, organizational structure and pro-innovative management style. Creating a pro-innovative culture requires the personal commitment of the management team. Apart from the factors mentioned above, it indicates the features, attitudes and skills of managers such as readiness to change, building

teams, learning, not succumbing to dogmas and stereotypes, accepting interactive, partnership management, making common achievements. Krzakiewicz and Cyfert (2013) and Bratnicka (2011) note the growing role of leaders in innovation management.

3. The concept of empirical research

As to management sciences, it is often pointed out that they are located in a group of empirical and practical sciences. Matejun (2013) and Lisiński (2011) draw attention to the strong relationship of management with practical activity, stressing the necessity of constantly raising scientific disciplines in the field of management science both in the field of knowledge gathering and application of research methods and processing empirical verification of the theory.

The outline of steps in the research process to achieve the purpose of this study is presented in Figure 1.

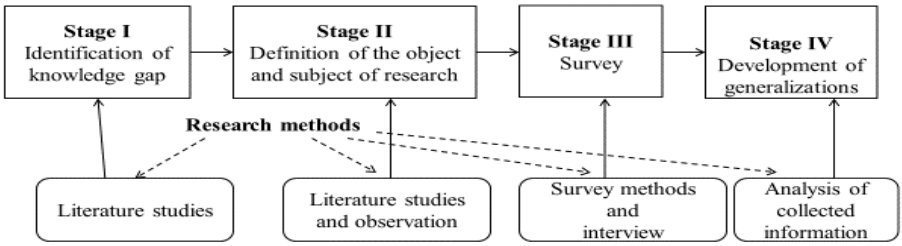

Figure 1. Stages of the research process

As indicated in Figure 1, the research procedure began with the review of continuous publications, and above all peer-reviewed scientific articles, monographs and research reports. The theoretical studies of literature allowed us to draw on the existing state of knowledge to identify a knowledge gap, which is an underestimation in the innovation literature in management, as well as the lack of identified determinants and barriers to innovations in management. The outline of the above background allowed for the second stage of the research process, in which the subject of research was determined - innovations in management and the research subject - universities in Poland and Austria. Subject and object of the study were determined on the basis of the analysis of literature and observation. The third stage of the research process was a research questionnaire aimed at comparing innovations in management in Austrian and Polish universities, as well as the identification

of their stimulants and barriers. According to Lisiński (2016, p. 12), two basic types of scientific methods (assuming that their structure is a criterion) are the inductive and deductive methods that refer to two classic ways of thinking: analysis and synthesis. For the development of generalizations in the middle stage of the research process, the analysis and evaluation of the information that was obtained as a result of questionnaire studies were pilot and were made on the sample of people connected scientifically with management - students and university staff in Austria and Poland. Surveys were conducted based on survey methods and interviews. In total, the questionnaire was sent electronically and distributed directly in universities to 290 people; the return amounted to 180 pieces, which constituted 62% of all respondents.

The questionnaire was divided into three main parts, corresponding in substance to the considerations presented in the theoretical part of this study. The first part of the questionnaire included questions about innovations in management in a process aspect; in the second part of the questionnaire, questions related to barriers and stimulant of innovations in management, the questionnaire posed questions about the impact of innovations in management on the efficiency of activities in the organization. In total, 27 tabular questions with a five-point scale of assessment were included in the questionnaire. The respondents gave an answer to the extent to which a given principle or action in the field of management innovation occurs in their university. The evaluation was based on a five-point Likert scale, where 1 meant that the given principle/ action was completely absent, 2 - none, 3 - partly does not occur partially, 4 - occurs, 5 - occurs to a very large extent.

Median and modal value were used for inference. Fashion - modal value (E) - is the most common value. The median, on the other hand, is a value that means that at least 50% of the observations are less than or equal to it. The median is a measure of the central tendency and in an ordered, from the point of view of the tested feature X of the population - it is a value that is placed exactly in the middle. The median is usually marked Me or x (Starzyńska, 2005).

The analysis and evaluation of the collected information allowed for the development of generalizations that constitute the conclusions of this study.

4. Innovations in management in Polish and Austrian universities

In order to meet the empirical goal, the following questions were included in the questionnaire, which can be grouped in three areas:

- management process - in this area the questions in the questionnaire concerned the introduction of changes, new practices and a different approach in planning, organizing, motivating, controlling and making decisions;

- determinant of innovations in management - in this area, questions related to teamwork, communication, transformational leadership, support of creative thinking, psychosocial climate for change;
- the impact of innovations in management on the efficiency of operations and the competitiveness of the organization.

Figure 2 illustrates the results of research on innovations in management in a process approach.

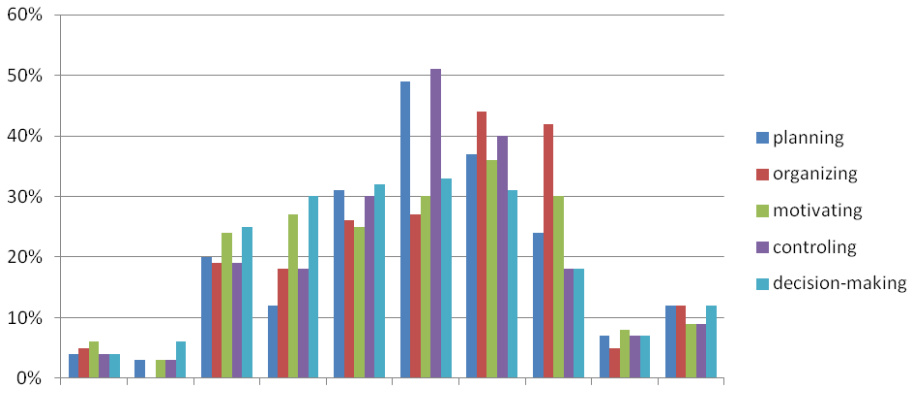

Figure 2. New solutions and practices in the area of management functions

Source: own study based on the conducted research.

Analyzing the data compiled in Figure 2, which concern modern management functions (planning, organizing, motivating, controlling) and new challenges in decision-making, it should be stated that the use of new methods and techniques in this area is not visible. New planning methods are implemented only partially; this is particularly visible at Austrian universities - based on the answers of 48.5% of respondents, the median is equal to 3. Analyzing Polish universities, changes in the planning area are visible (37.4% of respondents answered), as well as partially visible (31.3% of respondents indicated). The conclusion that can be made is that new solutions in the area of planning in the examined institutions are not implemented sufficiently neither in Austria nor in Poland.

Analyzing the area of new solutions in the area of the organization, it can be stated that changes in the area of organization are visible both in universities in Austria and Poland. The median and the modal value is equal to 4. However, it should be noted that nearly 30% of respondents in Austria and Poland have determined that there is only a partial follow-up towards the flexibility of the structure. It can be concluded that this area also needs to be changed.

Changes in the area of motivating are only partially visible. Me and E in these areas are equal to 3. In addition, it is worth noting that nearly 30% of respondents stated that there are no new solutions in these areas. The control area is definitely lower rated in Austria than in Poland. Respondents at Austrian universities determined that new control methods were partially implemented (51.5% of respondents), while 18.2% of respondents stated that no new control methods were implemented at Austrian universities. Respondents in Polish universities have determined that control systems are changing.

Summarizing this part of the considerations, one can conclude that new solutions in the scope of management functions and in decision making are implemented sufficiently in both Austrian and Polish universities. However, when it comes to new solutions in the field of control, new methods of control are implemented in Polish institutions, as nearly 70% of respondents have described.

The second area of research concerned the determinants of innovations in management. For these reasons, the next questions included in the questionnaire were asked if there are activities in the field of teamwork, building open communication, transformational leadership, triggering creativity and psychosocial climate for changes (results 2-6).

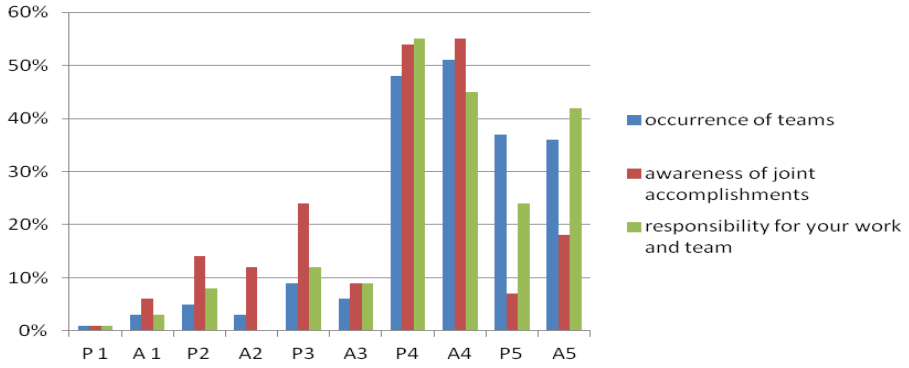

Figure 3. Undertaking activities in the area of teamwork

Source: own study based on the conducted research.

Another area analyzed are activities aimed at building open communication, which speed up the implementation of innovations in the sphere of management. The results are depicted in Figure 3.

Analyzing the area of teamwork, it can be stated that actions are being taken in this area. There are teams in both Polish and Austrian institutions - this is stated by approximately 50% of respondents, while 40% stated that teams perform very well in the analyzed institutions. Similarly, the area of responsibility for one's

own and teamwork was assessed. On the basis of the analysis, it can be stated that joint achievements in the examined organizations are communicated (nearly 54% of respondents answered in this way). It can be concluded that activities supporting teamwork are undertaken in the examined institutions.

Another area analyzed are activities aimed at building open communication, which speed up the implementation of innovations in the sphere of management. The results are depicted in Figure 4.

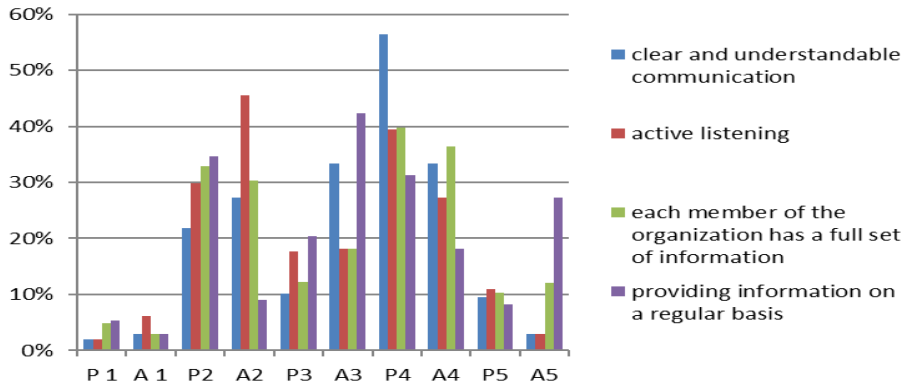

Figure 4. Activities building open communication

Source: own study based on the conducted research.

In terms of activities related to the area of building open communication, attention should be paid to active listening, which was assessed negatively by 45% of respondents (no action is taken to activate listening), 30% of Polish respondents also assessed that these activities do not occur in Polish institutions. In the surveyed institutions, not every member of the organization receives a full set of information. Me and E equal 4, but there is also a large percentage of respondents (nearly 30%) who have stated that they do not have full information. The updating of information on a regular basis is similar. At Austrian universities, respondents assessed that information was partially supplemented on a regular basis (42.4% of respondents identified it), while Polish respondents in 34.7% stated that they were not replenishing, and 31% of respondents stated that they were being supplemented. Therefore, it can be concluded that the information is not currently being introduced to the institutions under review and no open communication is being encouraged.

When assessing the undertaking of actions in the area of transformational leadership (Figure 5), such as preventing misunderstandings, openness to the needs of others, the ability of the organization members to compromise, combining freedom with triggering energy for action, new management

solutions are being undertaken. Me and E for these activities equal 4. Therefore, it can be concluded that in the institutions under investigation, actions should be taken that characterize transformation leadership.

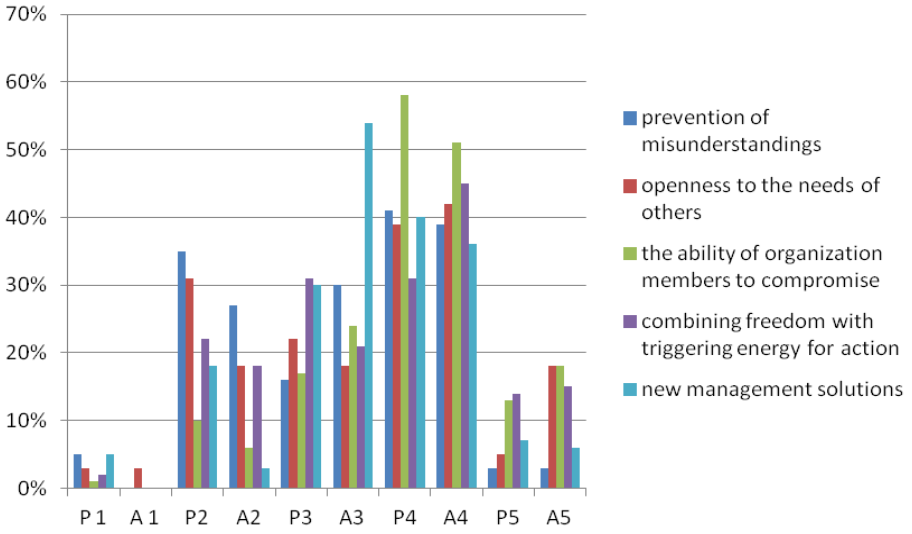

Figure 5. Activities building transformation leadership

Source: own study based on the conducted research.

Innovative solutions to a greater extent. At this point, it can be concluded that in the examined institutions it is worth focusing activities on the activation of creative thinking. Another area that was analyzed is support for creativity (Figure 6). When reviewing the responses regarding activities affecting entrepreneurial creative thinking, we note that actions in this area are not implemented to a sufficient degree. This is evidenced by the median equal to 4, but the modal value is equal to 3, which means that 50% of respondents answered that in the analyzed area the relevant departments are not taken or are taken partly. In the area of support for creativity, actions are taken to motivate abstract thinking, and new solutions are combined with existing concepts. The actions that are worth taking are to direct the thought process to associations, to new ways of acting, and to use the examples and analogies to innovative solutions to a greater extent. At this point, it can be concluded that in the examined institutions it is worth focusing activities on the activation of creative thinking.

A new civilization enters into our lives, which brings with it a new lifestyle, changes in work, in love and life, a new economy, new political conflicts, and above all, a completely different consciousness (Lubrańska, 2004). For these

reasons, a very important element helping to implement innovations in the sphere of management is the psychosocial climate for changes that have been analyzed. The results of the research are depicted in Figure 7.

Analyzing the actions in the area of psychosocial climate for changes, it can be stated that there is an atmosphere conducive to new solutions in the examined institutions, as well as models and good practices with support for new solutions. It can also be concluded that the analysis and identification of change areas are the actions taken in the examined institutions.

However, there are barriers that restrict creative thinking (in Polish universities it is more visible than in Austrian universities) and in this area, action should be taken to break them down.

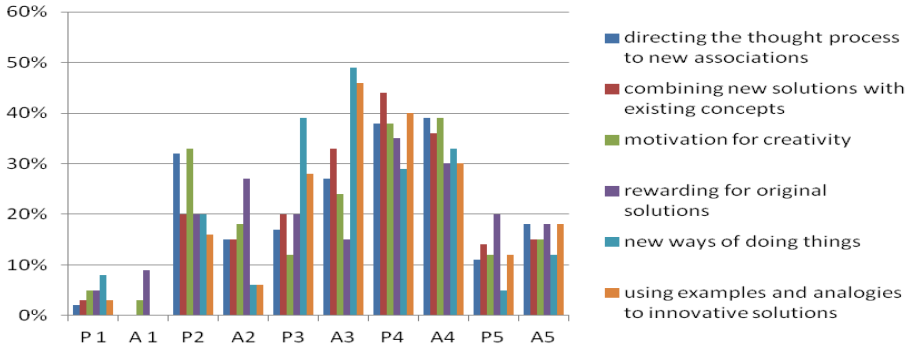

Figure 6. Activities in the area of supporting creative thinking

Source: own study based on the conducted research.

A new civilization enters into our lives, which brings with it a new lifestyle, changes in work, in love and life, a new economy, new political conflicts, and above all, a completely different consciousness (Lubrańska, 2004). For these reasons, a very important element helping to implement innovations in the sphere of management is the psychosocial climate for changes that has been analyzed. The results of the research are depicted in graph 6.

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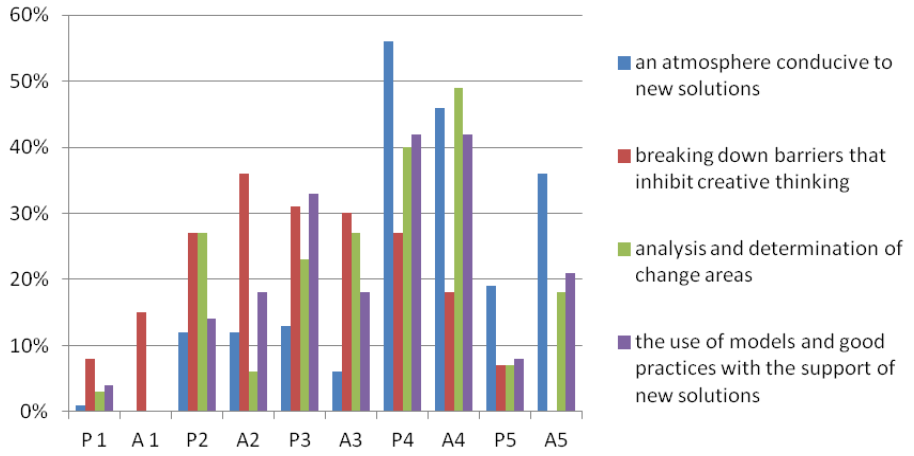

Figure 7. Psychosocial climate for change

Source: own study based on the conducted research.

The third research problem was the analysis of the impact of innovations in management on the management efficiency and competitiveness of the organization. For these reasons, the questionnaire regarding these areas was included in the questionnaire. The results of the research are depicted in Figure 7.

The third research problem was the analysis of the impact of innovations in management on the management efficiency and competitiveness of the organization. For these reasons, the questions regarding these areas were included in the questionnaire. The results of the research are depicted in Figure 8.

Analyzing the data depicted in Figure 8, it can be stated that in the opinion of the respondents, both in Poland and in Austria, innovative management is the source of competitive advantage of the universities studied.

This is evidenced by E = 4 and Me = 5 for results in Austria and E = 5 and Me = 5 for Poland.

In the opinion of the respondents, innovations in management increase the efficiency of operations (effectiveness and economic efficiency) of the universities studied. Both the median and the modal value are equal to 5 for these areas. Therefore, it can be concluded that innovations in management are the source of competitive advantage for universities and increase their efficiency.

It can be concluded that there are no significant differences regarding the implementation of new solutions and practices in management at Austrian and Polish universities. Despite the fact that in the respondents' opinions, innovations in management are a source of competitive advantage and increase the efficiency of the organization's operation, new solutions are not implemented sufficiently.

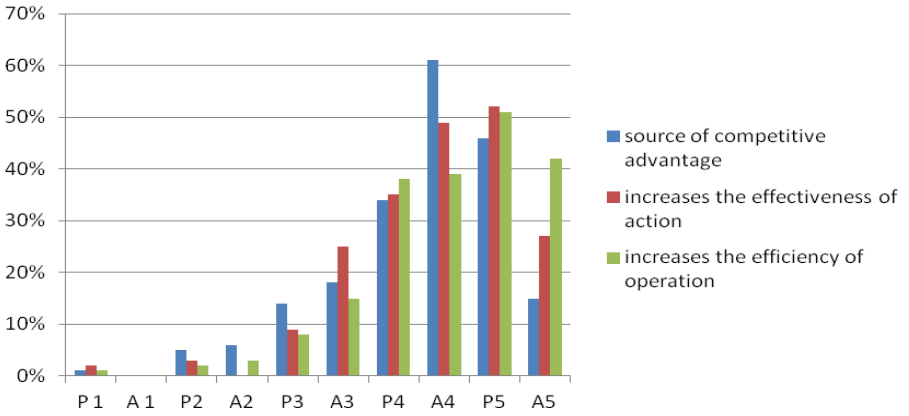

Figure 8. The impact of innovations in management on the competitive advantage and efficiency of the organization

Source: own study based on the conducted research.

Among the stimulants for a new approach to management in the surveyed institutions, the following factors can be mentioned: occurrence of teams, awareness of joint accomplishments, responsibility for their own work and team, the ability of the organization members to compromise, an atmosphere conducive to new solutions, determination of change areas. Barriers, on the other hand, are lack of active listening, lack of open communication, lack of openness to the needs of others, lack of support for creativity, presence of barriers in creative thinking.

5. Conclusion

The goal of the article was realized. A comparison of innovations in management in Austrian and Polish universities was made, and the stimulants and barriers to these innovations were determined. On the basis of the literature analysis, innovations in university management were defined as the transformation of universities from the model of a bureaucratic organization towards an entrepreneurial university with preservation of tradition. Innovations in university management should be understood in a similar way as in enterprises, as a departure from traditional management principles and practices. The lack of practical methodology should be pointed out as the main barrier to innovation in the sphere of management. A new view of management is not a challenge for managers. Another barrier that appears is the managers' awareness of which links are inefficient and what needs to be

changed. In order to be able to make such a diagnosis, a list of incompetence and blockages should be drawn up and this is extremely difficult. Additionally, it is necessary to skilfully anticipate future challenges related to changes and development of the market. Among the determinants, one should mention the features of the managerial staff, management style, and organizational culture. The organization's ability to implement innovations in management favors the creation of an innovation-oriented culture in the company. This culture is focused on new ideas and encourages employees to jointly develop new solutions, take risks, as well as the ability to make changes.

The use of survey and interview methods allowed us to state that a new view of management in terms of the process and changes in the way of making decisions are not visible in both Austrian and Polish universities. The main barriers to innovation in the management of Polish and Austrian universities are the lack of open communication, transformational leadership, triggering and support for creativity. Stimulants of innovation in management in the examined institutions are teamwork, awareness of common accomplishments, building an atmosphere conducive to new solutions, defining areas of change. Finally, it can be concluded that innovations in university management affect the efficiency of the audited institutions.

The above considerations allowed us to determine the directions of further improvement of the research problem undertaken in the article, through an attempt to model the innovation in management, as well as to develop methods for their measurement.

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USE OF KEY EMPLOYEES IN THE KNOWLEDGE MANAGEMENT PROCESS IN POLISH ENTERPRISES

***Michał Igielski*[1]**

Abstract

The primary objective of the study is to determine the degree of occurrence of knowledge management concepts in Polish enterprises and to assess the effectiveness of using key employees in this process. Obviously, in the beginning, the author will identify key employees in the surveyed entities (based on the literature of the subject he will propose and describe in detail the features of their work and their competences). The set of objectives determined the further course and nature of the study. Therefore, two basic research methods were applied: analysis of the subject literature and structured interview with the employees of the analyzed entities. The survey itself was conducted in 2017 in 14 randomly selected large enterprises based in Poland (432 people took part in the survey). As shown by literature analyses and empirical studies, the degree of occurrence of knowledge management concepts in Poland and the number and use of key employees in this process is still at a low level - Poland's distance from the richest and most developed countries is still of a structural nature.

Keywords: *knowledge, knowledge management, key personnel.*

1. Introduction

In the 21st century, we can say that knowledge is already a fixed part of governance. Such as physical assets, organizational structures, strategies, processes, systems, financial, human and information resources. Of course, there will continue to be work, jobs, key employees, the knowledge they use and the value they create. Therefore, in the opinion of the author of the study, it is necessary to eliminate all barriers standing in the way of implementing this concept and to use in this process the competence of employees. For

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organizations, this will mean higher employee productivity, more innovation, flexibility to adapt to changes, motivation and loyalty. Moreover, for employees, the fact that more intelligently organized work can be lighter, more useful, more rewarding, and more responsive to their needs.

Therefore, the main objective of the article is to determine the degree of occurrence of knowledge management concepts in Polish enterprises and to assess the effectiveness of using key employees in a given organization in this process. Additionally, the author will try to assess the actual state of knowledge management in the Polish economy and identify the conditions that accompany this process.

The adopted set of objectives determined the further course and nature of the study - the author applied the following set of research methods:

1) Literature analysis - to systematize the language of concepts used in the concept of knowledge management at the organizational level.
2) Comparison - to indicate characteristic features and ways of understanding the defined concepts (e.g., knowledge, knowledge management, key personnel, etc.).
3) Interview – including, in particular, structured interview with employees of the surveyed entities. The survey was conducted in 2017 in 14 randomly selected large enterprises with their registered offices in Poland - a total of 432 people took part in the survey.

As shown by literature analyses and empirical research, the degree of occurrence of knowledge management concepts in Poland and the number and use of key employees in this process is still at a low level. Poland's distance from the richest and most developed countries is still structural. This is strange because company boards are aware of the importance of this capital for the future of their organization. They also know what barriers they have to overcome to put this concept into practice. So can we afford our economy, which aspires to catch up with the most developed economies, to use its intellectual potential in an inefficient way? After all, the ability to understand the essence of knowledge, work based on knowledge or the effective use of key employees' competences may become one of the instruments of catching up with the forefront, or perhaps a unique advantage.

2. Methodology and description of conducted research

On the basis of the observations made by the author of the study, in his opinion, the implementation of the concept of knowledge management in a given business entity is entirely dependent on the specificity and determinants of the development of all its components. Investment in this type of capital is therefore very risky, as most of it does not belong to the company concerned

at all, but is adequately staffed or externally owned. Therefore, many boards of directors of companies, although aware of the importance of implementing and managing this capital in their organizations, decide not to base their strategy on it.

This is what the author of the study focused on, conducting research in 2017 in 14 large companies from all over Poland. Unfortunately, due to the reluctance of many companies to participate and the specificity of the knowledge management process itself, the author adopted the principle of selection on the basis of his own declaration of participation (questions were sent to 50 entities whether they were interested in participating in such an undertaking). Unfortunately, the research sample did not reflect the assumed characteristics of the whole group. Therefore the presented results are not a complete set - we may consider them as a pilot study.

The first objective of the survey was to determine the degree of occurrence of knowledge management concepts in Polish enterprises. The second one was to assess the effectiveness of using key employees employed by the given company in this work process.

The author chose the method of individual interview as the research method, as it is the employees working in the given position who have the greatest knowledge of the nature of their work. The employee himself can provide most information about his knowledge base, the processes of knowledge in which he is involved, the expectations of the organization, the results and conditions of his work. Therefore, the basic technique of key personnel survey may be an interview. Other techniques provide partial, fragmentarily more reliable data, which can be confronted with the results of interviews, but it seems that they should be the basic source. They provide the information most suited to the purpose of the study; they ask questions about the exact knowledge and how it is used. One of the conditions is to translate the language of concepts used in knowledge management into a language understood by the examined person - the task would be to formulate questions in a common language. On the other hand, the investigator must first obtain basic data on the nature of the work in order to be able to develop detailed questionnaires, so preliminary interviews may be useful.

In turn, the research technique was a questionnaire interview, in which an extensive questionnaire was used as a research tool. Respondents in the first stage of the survey were persons managing enterprises - 32 persons who were supposed to provide answers on the existence of knowledge management processes in companies managed by them. In the second stage of the survey, which involved 400 employees employed in the surveyed enterprises, the author planned to identify the features and tasks corresponding to the key employees and to determine their impact on the knowledge management processes in their

organizations. Unfortunately, already at the level of the first stage of the survey, it turned out that there was no formal knowledge management mechanism in the companies selected to be surveyed, despite previous declarations. This is confirmed by the research results presented below.

3. The silhouette of a "key employee" in a modern company

Different employees, as well as different people, have different qualities, skills or talents. The problem is to identify the most talented, ambitious and, last but not least, motivated ones. This skill is undoubtedly crucial for the success of any company operating in the modern market. However, many organizations have a problem with this - they are not able to do it fully. Why is this happening? How do you recognize an employee with the highest potential? Unfortunately, according to the author, these questions cannot be answered unambiguously due to the complexity of the concept as well as the specificity of human nature.

According to the Management Encyclopedia (10.03.2018), key employees are not only specialists in technology with unique knowledge, experience or skills, the loss of which may lead to a significant decline in the market value of the organization. These are also people who can facilitate the process of preparation and integration, for example, managers who have already participated in the implementation of mergers and acquisitions. Therefore, depending on the sector of activity of a given enterprise or its nature, the "key character" of an employee may be something completely different for each employer. For one employer it will be the most experienced employee, for another, it will be the deficit one, difficult to replace with a qualified IT specialist, and for another manager who is skillfully and effectively able to solve internal conflicts (see more in Cynk, 2016, p. 72). All of these people are described as indispensable employees, the most valuable people who are difficult to replace, and therefore their loss is unaffordable (Branham, 2001), who have the potential to do so.

Fernández-Aráo (2014) defined the potential of an employee very accurately, considering it an ability to adapt and develop within the framework of increasingly complex tasks and environments. He also drew attention to the basic features of such a person: striving for perfection, curiosity, perspicacity, commitment and determination. On the other hand, Carter (2009), when defining the term of potential, cited three main features: ability, commitment and aspirations for development. On the other hand, the Centre for Leadership defines the concept of a high-potential employee as one who, in addition to talent, is highly committed to the company, is motivated to be in the organizational hierarchy and wants to achieve success in the highest

positions. A similar definition is provided in the UNC Report, which identifies as a key employee a person who has the potential, ability and aspirations to successfully hold managerial positions in the organization. In fact, according to research quoted in the report, only 3-5% of employees in companies are of high potential (Kowalówka, 2015). Therefore, companies have a big problem with their identification and the conditions attached to the employee's belonging to this group are no longer so obvious.

It seems that three scientists, Ready, Conger and Hill (2010), can help in this process through four factors that characterize the employee with high potential. They were among them:

1) Striving for excellence - the constant pursuit of success can lead to extreme results. It is not enough to achieve only very good results at work - you have to be the best – even at the expense of even your personal life.
2) Acquiring and using knowledge in business processes - to be recognized as a key employee, lifelong learning is essential - drawing on knowledge and experience from every situation, both in professional and personal life.
3) Entrepreneurial spirit - key employees must not be afraid to leave their "comfort zone" (professionally and personally). They need to adapt their personal style and develop new strategies. They must also be able to take responsibility - new challenges mean acting as support and doing things under influence, not under direct control.
4) Responsiveness - high capacity also poses major challenges for key decision making and associated risks of error - all of which can be a source of stress. The key employee must be aware of this and react properly (without emotion) in every situation.

As we can see, the definitions given above are very similar, emphasizing similar features or conditions which characterize the work of key employees. It is also worth noting the expectations of an employee with high potential, which concern any investment of a given organization in its further development. This is due to their commitment to career planning and their aversion to monotony and boredom in their daily work - they usually expect challenges and diversity.

On the other hand, it is difficult to find a universal model (set of measures) that would allow for an increase in the effectiveness of a given enterprise on the basis of the potential of its employees. However, it is certainly necessary to start by involving employees more closely in the company's decision-making processes and by introducing various forms of participatory management. According to the author of the study, giving more and more autonomy to employees and making strategic decisions for a given company, based on their knowledge and skills, becomes an indispensable element of management in

modern organizations. Therefore, attracting creative people is a fundamental step towards increasing the creativity of the company (Igielski, 2017, p. 146).

To sum up, in today's economic reality it is the employee with the high potential who is most often perceived as crucial from the point of view of the functioning of the company. Nor can we doubt that the most valuable resources held by every company are people, and 'success in business' depends on employing the right people in key positions. In the English language literature, such people are assigned the term High Potentials (HIPOs) and there is a prevailing belief that proper management of them can translate into market success of enterprises. Of course, it is not easy to identify them, due to the complexity and subjectivity of the criteria mentioned above. The problem also lies in the very definition of high potential employees, because not all of them are key employees, despite their high efficiency.

4. Knowledge management process

In the Dictionary of the Polish Language PWN (27.03.2018) knowledge is defined as the total of knowledge gained through research, learning, etc., and as a resource of information in a particular field, or knowledge of something. In turn, in the Internet Encyclopedia of the Eastern Partnership (27.03.2018), knowledge is, in a narrower sense, all reliable information about reality and the ability to use it (scientific knowledge). In a broad sense, it is a collection of information, views, beliefs, which are attributed a cognitive or practical value. Therefore, in a narrower sense, knowledge has an attribute of credibility, i.e., it should be verified and true (like scientific knowledge). It covers both knowledge and skills (putting knowledge into practice). In a broad sense, knowledge does not have to be true - it can only be views and beliefs and it is enough for someone to find them useful.

It is worth mentioning here that in addition to knowledge per se, literature also includes the concept of organizational knowledge. It would seem that it should mean all the knowledge existing in the organization. On the other hand, the understanding of it is usually narrower. Although Myers (see more in 1996, p. 2) understands it as processed information embedded in activities and processes enabling action, and mainly related to people, for knowledge to provide the company with a lasting competitive advantage, it must be independent of people, i.e., taken over by the organization. For Walsh and Ungson (1991), organizational knowledge (memory) is information that is processed by an organization and defines the processes by which its members can obtain, maintain, process, and store knowledge. Kowalczyk and Nogalski (see more in 2007, pp. 21, 102) limit knowledge to that important from an organizational and economic point of view. Knowledge is a contribution

to achieving objectives and its management should be of benefit to the undertaking. Knowledge that cannot be included in the company's assets - i.e., the knowledge of employees - is eliminated. Organisational knowledge is understood here as independent from changes in personnel, as it is based on procedures, processes, systems, values and relations of the company. Copying such knowledge is practically impossible for competitors.

Knowledge in a company can also be understood as a resource, collected, disseminated and protected, as well as a product, a result of an innovation process and a result of the company's activities sold out (Tuomi, 1999). Knowledge as a resource can be personalized, codified or well-established (see more in Perechuda, 2005, p. 16). It should be stipulated immediately that people (employees) are not a resource, but have a resource. Among the most important components of human resources, Pocztowski (2007) includes knowledge, abilities, skills, health, attitudes, values and motivation. It should be remembered that it is the employees who own this resource and make it available to their employers at work. The organization, therefore, has limited power and control over this resource. Moreover, as F. Flamholtz writes, it is not the people themselves who are a human asset in the company, but the expenditures that capitalize on them (see more in Dobija, 2003, p. 124).

Knowledge as a strategic resource undoubtedly has many advantages, but it also has disadvantages. Surely the key feature is that it is an inexhaustible resource - there are no limits to the intensity and scope of its application. It is also perfectly renewable: the application of knowledge causes an increase in its value and an increase in new knowledge (Fazlagić, 2001). If it is used intensively, it develops faster and brings more effects. Unused knowledge is lost in value and degraded. Learning is similar: the ability to learn is also inexhaustible (although the intensity is limited), and the lack of learning among employees causes the ability to learn to reverse (see more in Bukowitz & Williams, 2000, p. 133).

The question remains, however, whether the knowledge is manageable. The managers so believed in the universality of rational decision making that they wanted to manage other facilities, e.g., to influence markets, manage consumers and rationalize other areas of activity in a similar way. It has become fashionable to call attempts to influence something in the management of this something (see more in Schement & Curtis, 1998, p. 146). For the pioneer of scientific management, Fayola (1998), managing means running a business in order to achieve its goal and bringing out the maximum possible opportunities from all the resources at our disposal. In the Organisation and Management Encyclopedia (1981, p. 609), management is defined as the management activity of setting objectives and causing them to be attained by the organizations under management on the basis of ownership or disposal of the means of production.

We can see that a special role in the definitions of governance is assigned to the authority resulting from the ownership of the means of production or entrusted by their owners. The main part of knowledge in the organization lies with the employees, and it is they who own the organization, not the organization. However, as its owners, they entrust limited management powers to representatives of the organization. Therefore, it can be said that an organization has the right to manage their knowledge on their behalf (see more in Stankiewicz, 2006, pp. 357-358). Once knowledge is fixed in carriers outside the employees' minds (structural capital), it becomes the property of the legal owners of the enterprise. The company already has full authority over this and can manage it fully. Myers (1996) even claims that organizational knowledge can only be managed to the extent that it is captured by an organization's systems, processes, products, policies and culture.

To sum up: what we describe as knowledge, according to the author, can be tried to manage with better or worse results. If there is no reduction in the understanding of the term management, it is in place. The problem is not in management but in knowledge. Is knowledge as an organizational resource a sufficiently clear subject for management? It can, therefore, be said that the term knowledge management is not perhaps the luckiest word, nor is it clear to everyone, but it is difficult to point out the better. With a bit of good will and understanding, they can be accepted, and their vagueness should constantly encourage us to define better what it is and what the body of knowledge consists of (see more in Grudzewski & Hejduk, 2004, pp. 81-82).

Below, in Table 1, the author shows various attempts at definitions of knowledge management gathered during the literature review - these are often not the same definitions, but only descriptions of elements or aspects of this process.

It should also be taken into account that the organization's ability to acquire external knowledge consists of processes, mechanisms and organizational routines. However, in all cases, special attention is paid to the process approach, which describes the process of recognition, acquisition, assimilation, processing and use of valuable external knowledge by an organization for the achievement of enterprise objectives by means of a sequence of activities (see more in Lis, 2017, p. 317). In summary, knowledge management is usually referred to as a concept, process or system. There are also such terms as area, method, business model, targeted and repeatable actions, procedure, or even art. Therefore, the place and scope of knowledge management are not fully understood. A concept or area is the broadest term that encompasses the whole organization, and a procedure or method limits the role of knowledge management to a section of its activity.

Table 1. Selected definitions of knowledge management

Source	Definition
Bukowitz and Williams (2000)	Knowledge management is the process by which an organization generates wealth based on its knowledge or intellectual capital. By using knowledge, processes are streamlined. This lowers costs and shortens operating cycles. Knowledge also creates more value for the customer. The highest effect is to use knowledge to stimulate creativity. A favorable environment for knowledge creation and sharing needs to be provided.
Grudzewski and Hejduk (2004)	Knowledge management is a modern, systemic concept, which consists in effective use of the knowledge resources of an organization. Knowledge management encompasses all the processes associated with locating, acquiring, creating, transferring and using knowledge to achieve an organization's objectives. In particular, knowledge management aims at transforming this knowledge into sustainable value for customers, employees of the organization and the organization itself.
Koźmiński (2004)	Knowledge management is the control of the processes of generating knowledge, its codification, ordering, storing, finding, processing, transferring and applying.
Murray and Myers (1997)	Knowledge management is the set of processes enabling the creation, dissemination and use of knowledge to achieve an organization's objectives.
Malhotra (2000)	Knowledge management addresses key issues of organizational adaptation, survival and competence in the face of an increasingly discontinuous business environment. It includes organizational processes that seek synergies between IT data and information processing capabilities and people's creative capabilities.
Walkowiak (2004)	Knowledge management is „the clearly defined and systematic management (planning, organizing, motivating and controlling) of knowledge relevant to an organization and related processes of creating, collecting, organizing, diffusing, applying and operating in pursuit of its objectives.
Gupta, Sharma and Hsu (2004)	Knowledge management is an emerging model for business activities with all aspects of knowledge in context, including knowledge creation, codification, knowledge sharing and the use of these activities to promote learning and innovation. This includes both technological tools and a multi-component organizational routine.

Source: own study based on selected sources.

5. Analysis of research results

An important problem at the beginning of the research process was to find out how the surveyed organizations understand knowledge and how to apply it. Therefore, this question was asked to the 32 most important, in terms of decision-making, persons in the surveyed enterprises. At this point, the answers were optimistic, as almost 70% of them perceive it as innovation and its use as an improvement (83% of respondents).

Unfortunately, it was getting worse and worse because, as the author mentioned at the beginning of the study, there was no formalized knowledge

management process in any of the surveyed companies. Therefore, in Table 1, the author of the study presented only an opinion on the knowledge management process in the surveyed entities, provided by the persons managing them.

Table 2. Awareness of knowledge management among business managers

	Question raised	Respondents' answers		
		YES	NO	I DON'T KNOW
1.	Can knowledge management contribute to the growth of the company's value?	26	2	4
2.	Can knowledge management develop the potential of the employees?	6	8	18
3.	Is knowledge management based on people, processes and technologies	6	4	22
4.	Barriers to the implementation of knowledge management in the enterprise:			
	a) financial barriers	18		
	b) formal and organizational barriers	8		
	c) mental barriers, namely people	6		

Taking into account the opinion of the respondents, we can conclude that the survey only confirmed the increased interest of enterprises in knowledge management and its elements. Certainly we can also see the growing importance of intangible resources, including knowledge as a factor that increases their value and competitiveness in the market. We can also point out, which is particularly pleasing for the author of the study, the growing importance of employees who, after all, operate in the information society. This is important because the success of any organization, including a qualitatively oriented one, depends to a large extent on the knowledge, skills and commitment of its employees. Therefore, the respondents were asked about the key features of the employed staff, which in their opinion are the most important. The characteristics of key personnel identified by respondents are presented in Figure 1.

As we can see, the opinions of employees and managers are not always the same. Among the first, the highest marks were given to teamwork, openness to contacts with others, communicativeness and, one which you could not expect, knowledge of the principles of organization management.

The management, on the other hand, attaches particular importance to their experience, performance and specific competencies (in this case IT) when defining the characteristics of their key employees.

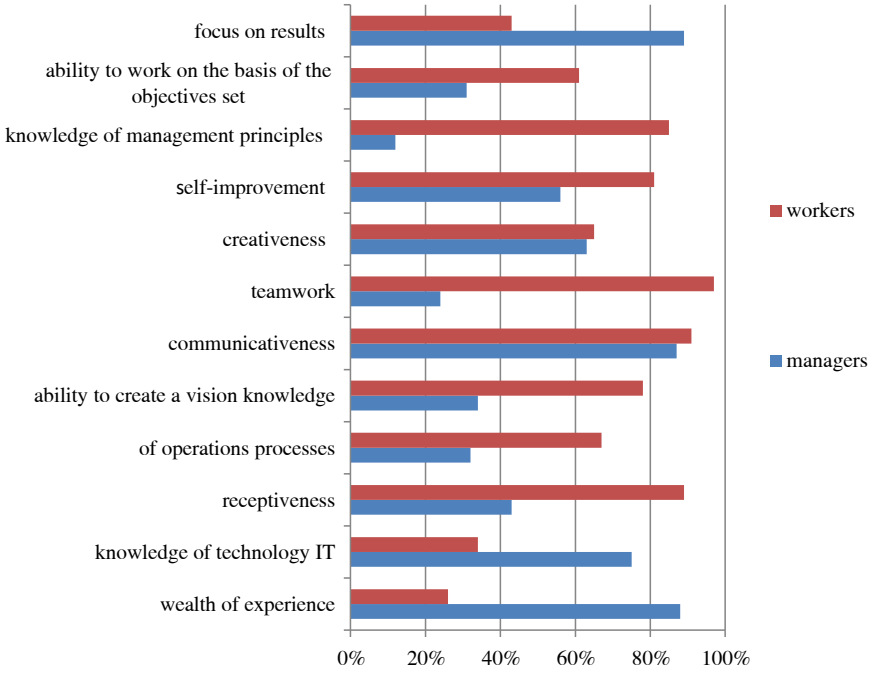

Figure 1. Characteristics of key personnel defined by respondents themselves

This can confirm the thesis that employees are primarily expected to achieve results, which is undoubtedly the main barrier to creating a vision for knowledge management. Interestingly, the respondents (from the group of employees, of course) placed great emphasis on the so-called leadership features, which included, first of all, systemic thinking, common vision, friendly attitude towards others (even altruism) or courageous engagement.

These discrepancies were also confirmed by the question of the tasks of key staff, which was another problem in the field of research. Of course, the condition of fulfilling these tasks, indicated in Figure 2, is to have appropriate attributes already defined. In this case, the managers focused primarily, once again, on everyday work (preparing documents or procedures), and the employees indicated mainly the issues related to the use of knowledge, i.e., its collection, processing and use.

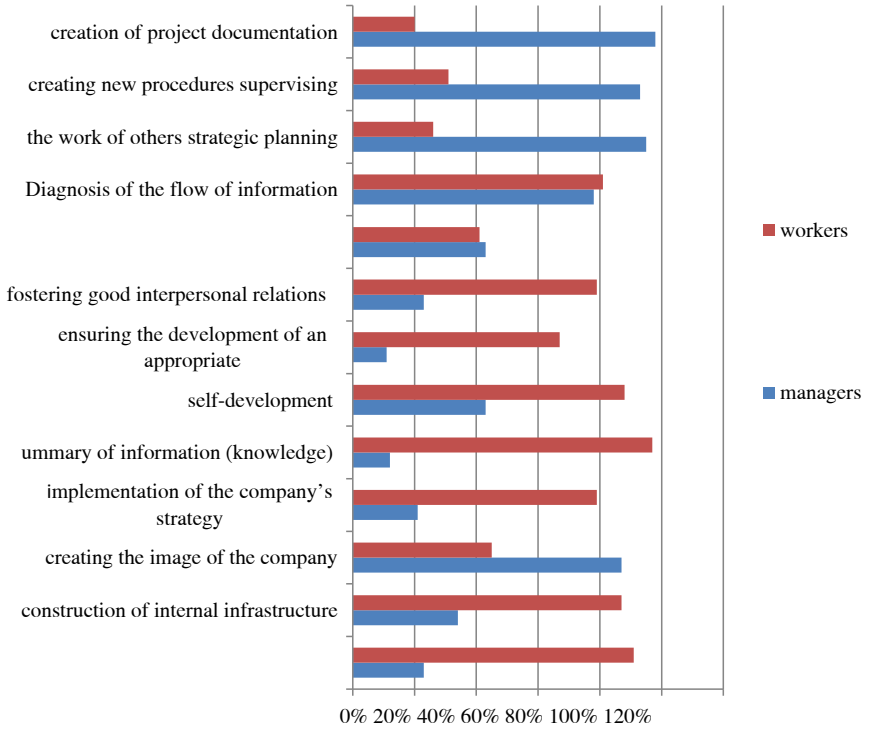

Figure 2. Tasks of key personnel

One of the comforting things is the fact that respondents reported relatively few problems, barriers and limitations, which make it difficult for them to effectively implement knowledge processes and manage it (this is probably a result of the lack of official procedures for managing this resource in the surveyed enterprises). Creating current solutions and more serious studies and proposals make personal contact with one's superior too difficult - it builds distance, makes it difficult to share knowledge, solve problems in a team and persuade one to think about them. Another barrier, this time a mental one, is the resistance of other employees to accepting proposals of changes and the lack of positive models - employees do not have anyone to learn from, and on the other hand, to whom to pass on their skills, attitudes and values (the system of individual work dominates). Sometimes there are communication problems (misunderstandings, conflicts) with other employees, resulting from their lower competences, attitudes or emotions in the situation of a delivery problem.

6. Conclusions

As wrote by Nonaka and Takeuchi (2000), knowledge production starts with language. This change of language allows us to change the way we see the issue, to describe it, to name it, to submit it. The new association is the beginning of innovation. According to both authors, managerial staff should direct the activity of the organization towards creating knowledge by providing language. The role of the chief executive in the spiral of knowledge is to search for, define, redefine and invent new concepts, new metaphors, and new associations. The role of middle managers, on the other hand, is to provide the grassroots workers with this conceptual framework and pattern of thought to help them make sense of their experiences.

As a result, both in the context of theoretical considerations and, above all, empirical research, it is difficult to talk about the use of key employees in knowledge management processes in Polish enterprises. At the moment, according to the author, for managers in Polish realities, the process of knowledge management should start with:

1) Promote innovative behavior as part of their company's core strategy - from vision to results.
2) Changes in management styles, from authoritarian to partner, which create an atmosphere of mutual trust, loyalty, integration and full internal cooperation, based on dialogue and open communication.
3) Radical extension of the cooperation between the enterprise and its environment.
4) Building an organizational culture geared to the creation and exploitation of knowledge.
5) Introducing a clear knowledge management function into the structures.
6) Preparation of knowledge management procedures, including the establishment of appropriate IT systems.

Therefore, knowledge must be seen as a key factor at the macro and micro levels. Without it, no entity will achieve the expected level of innovation. Of course, this process is accompanied by fundamental dilemmas, which concern the type of determinants influencing the development of knowledge and conditions for managing this most valuable capital in a company. However, despite all this, recent years have shown that the concept of knowledge management is becoming a basic and strategic orientation of management, which affects the position of the company in the market.

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Biographical note

Michał Igielski, (Ph.D.), is a graduate of political science with a specialization in local government at the University of Gdańsk. He additionally graduated in post-graduate studies on EU Funds and on Human Resources Management. He also finished his doctoral studies at the Faculty of Management at University of Gdańsk and in 2011 got a doctor's degree in economic studies. Since 2006 he has been working at universities where, besides teaching, he has been involved in enterprise, project management and human resources management. At the moment he is working at the Gdynia Maritime University, where he is the coordinator of EU projects and is also an academic teacher. Also, for nearly ten years he has been an adviser to enterprises in the Baltic Sea region.

BARRIERS TO THE APPLICATION OF A RISK-BASED APPROACH IN THE MANAGEMENT OF MEDICAL DATA IN MEDICAL ENTITIES

***Wojciech Krówczyński*[1]**

Abstract

The article aims to define the barriers to the application of a risk-based approach in the management of medical data in medical entities, in connection with the Regulation of the European Parliament and the EU Council of 27 April 2016, on the protection of personal data (GDPR). Medical entities manage personal data of special importance regarding the health of patients. The progressive development of information technology creates new information channels and at the same time many unprecedented threats related to their improper use. GDPR requires the healthcare provider to identify the risk of losing the safety of medical data and to determine the level of its significance. The article presents the nature and types of risk in business, and then describes the risk-based approach to managing medical data, as required by GDPR. As a result of this analysis, barriers have been identified in the application of a risk-based approach to the processing and protection of medical data in healthcare entities. The value of the article also lies in the systematization of sources and types of risk related to the management of medical data. The results of the analysis constitute a valuable contribution to the conceptualization of risk in the management of medical data, on the grounds of economics and management. Moreover, they are of great practical importance in the process of introduction and further implementation of the requirements of GDPR in healthcare entities. The article is conceptual and based on the analysis of the subject literature and participant observation.

Keywords: *risk-based approach, management, medical data, medical entities.*

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1. Introduction

The risk-based approach in the protection of medical data became a valid approach for medical entities, according to GDPR[2] on 25th May 2018, thus being a relatively new issue in personal data protection, and still waiting for its detailed description in specialist publications. The article uses the term medical entities with reference to entities performing medical activities regulated by the Act on Medical Activities of 15th April 2001 (uniform text: Journal of Laws 2018, item 160, as amended). Entities performing medical activities also comprise professional self-employment of doctors, dentists and nurses performing their medical profession on the basis of, respectively: the Act on Professions of a Doctor and a Dentist (uniform text: Journal of Laws from 2017, item 125 as amended) and the Act on Professions of a Nurse and a Midwife (uniform text: Journal of Laws 2018, item 123 as amended)Before implementing the regulation, a risk-based approach had not been used in processing medical data. The assessment of the loss of rights and freedoms of individuals due to unauthorized access, modification or loss of medical data was made only by comparing the existing regulations with the actual situation. The new regulation imposes the obligation to use a risk-based approach in managing personal data, especially medical data.

2. Research approach

This article aims to attempt to determine the barriers to the application of the new approach to medical data protection in medical entities. Taking the above into consideration, the author formulated the following research questions:

1) What is the essence, the sources and the types of risk in managing medical data by medical entities?
2) What does the risk-based approach in managing personal data, required by GDPR, consist of?
3) What are the barriers to using a risk-based approach in managing personal data by medical entities?

In order to obtain the answers to the above-formulated questions, the author conducted a survey explaining the cause and effect relations concerning the application of a risk-based approach in managing medical data by medical entities. The data was collected from primary sources using a direct survey in the form of a group interview and a personal interview with the persons representing medical entities and with the persons authorized to process medical data. In the survey, the direct telephone survey method as well as the internet

2 Regulation of the European Parliament and of the Council (EU) 2016/679 of 27th April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ EU L 119 from 04.05.2016, p. 1).

method (videoconferences, website) were used, where both the questions and the answers are provided orally. Also, non-survey methods of collecting data from primary sources, consisting of participant observations and a mystery patient technique were used. The replies to the research questions also reflect the conclusions stemming from the analysis of secondary data, especially from the minutes of the meetings devoted to the implementation of a risk-based approach, reports on the degree of safety of medical data processing and financial and accounting reports. The processing of medical data is an operation or a set of operations performed on medical data or sets of medical data in an automated or non-automated way, such as collecting, consolidating, organizing, ordering, storing, adapting or modifying, downloading, viewing, using, revealing by sending, popularizing or other form of providing access, adjusting or combining, limiting, deleting or destroying data (on the basis of Article 4 point 2 of GDPR).

The content of the subsequent points of the article is subordinated to the provision of the answer to the above questions. In point 2 the author reviews subject literature concerning the essence, sources and types of risk in medical data management by medical entities, and also discusses a risk-based approach in the light of the GDPR regulation. The third point of this article is devoted to the discussion on barriers to the application of a risk-based approach in managing medical data by these entities. The summary offers synthetic answers to the above research questions. The issues presented in the article, due to the lack of earlier data, have not been thoroughly analyzed in the subject literature.

2. Literature background

2.1. The essence, sources and types of risk in managing medical data by medical entities

The essence of the health care system lies in providing health services, promoting pro-health attitudes and conducting didactic activities, including scientific and research activities. The healthcare system is regulated by the legislative authority, government administration, self-government administration, self-governments of medical professions, the National Health Fund (Polish abbreviation: NFZ) and medical universities (Golinowska, 2015). Managing the risk[3] of losing the security of medical data is one of the requirements for their processing, according to GDPR. The resources allocated for a particular

3 For simplification reasons the article uses interchangeably the term "application of a risk-based approach" and the term "risk management".

health procedure must ensure the required standards of decreasing the risk of unwanted events while managing medical data. This especially concerns the risk of unauthorized access to medical data, its unauthorized modification, as well as complete or partial loss[4]. Medical activity can be performed by medical entities as a business activity, public benefit activity, charity, care or scientific research activity (Wołoszyn-Cichocka, 2015). Such activity is intrinsically related to the management of medical data concerning patients' health. In the economic sense, managing medical data covers activities and resources needed for processing and protecting such data, namely to generating and using such data in order to satisfy particular needs (achieving specified usefulness). The above-mentioned activities and related resources include (Krówczyński, 2017):

- maintaining and developing a material and non-material infrastructure for processing and protecting medical data;
- creating, updating and developing formal legal and organizational rules for activities in this area;
- supervising the personnel responsible for processing medical data;
- current operational activities concerning processing personal data;
- improving activities and resources (training and advisory services in processing and protecting medical data).

Each of the above activities related to managing medical data is accompanied by some uncertainty. We can limit this uncertainty by determining the risk as a form of measurable uncertainty. This concept was first introduced by an American economist, Frank Hyneman Knight. In 1921, Knight published his concept of measurable uncertainty, which he called risk, and immeasurable uncertainty which he called uncertainty *sensu stricto* (Knight, 1921). Knight defined the concept of risk as measurable uncertainty determined by the combination of the effect and the probability of certain events. Immeasurable uncertainty cannot be classified in the risk category since we cannot determine either its probability or its effects. Therefore we deal with risk only when we can determine with some likelihood the consequences of particular events. When assessing risk, contrary to uncertainty, we can apply the theory of probability (Wierzbicka, 1996). The finance theory explains the influence exerted by measurable risk on the activity of the business entities. According to Knight's approach, the issue of risk boils down to the problem of assessing it. The problem of uncertainty lies in the fact that we do not know how to assess it at all (Klimczak, 2008). The risk, as presented above, thus means the measure of the degree of threat to confidentiality, integrity and availability of information expressed as the product of probability (possibility)

4 Privacy Impact Assessment Commission Nationale Informatique et Liberté (CNIL) accessed on: https://www.cnil.fr/sites/default/files/atoms/files/cnil-pia-piaf-connectedobjects-en.pdf.

that a situation will occur which constitutes such a threat and a degree of harmfulness of its effects (losses) (Liderman, 2006).

One of risk classifications used for assessing the activities of entities is the division into the following categories (Bizon- Górecka, 2004)

- reputation risk- related to the loss of reputation of the entities conducting business;
- financial risk – understood as threats related to decisions taken in the course of activities of the entity, which translate into its financial results;
- management risk connected with the lack of conformity to the valid external institutions regulating the activities of business entities;
- technology risk – understood as threats related to technology aspects of the conducted activities;
- organizational risk concerning harmonization of processes and procedures and also continuity of operations.

Another risk classification, proposed by the Project Management Institute, is its division into the following categories (PMBOK Guide 2017):

- unpredictable external risk, which comprises the following elements: natural disasters, unpredictable institutional changes, sabotage, vandalism, social and economic crisis;
- external risk covering the predictable and announced in advance institutional changes, security, demand for particular goods;
- internal, non-technical risk, namely a particular organizational structure, employees' competencies, processes and procedures in operation;
- technical risk associated with technological changes, including information technology;
- legal risk related to failure to fulfill the terms of contracts and the subsequent claims put forward by clients, suppliers, employees.

The risk of the occurrence of unfavorable events for medical entities includes in particular:

- the risk of loss of health and life by a patient;
- the risk to a medical entity operations, covering (Nieszporska, 2012):
  - Non-specific risk, comprising technical risk, forces of nature, frauds and crimes;
  - Specific risk, such as systemic and legal risk, unfavorable financial decisions, liability, deficit of medical personnel;
- the risk of contracting services with payers of such services (National Health Fund, other insurance institutions).

Risk management consists of identifying potential events or situations, assessing the consequences that may be caused by them and the probability of their occurrence (Kokot-Stępień, 2015). Risk management comprises all

activities aimed at identifying risk, assessing it and dealing with it. It covers (Bizon-Górecka, 2013):

- regular monitoring of the risk issue and constructing the risk map;
- creating an information base containing past quantitative data on risk-prone events;
- building a complex strategy of protection against the negative effects of risk and controlling risk effects.

The infrastructure used in managing medical data by a medical entity covers, in particular, the following resources:[5]

- type of medical data;
- processes and procedures related to processing medical data:
  a) procedures for performing health services;
  b) the method of collecting medical data;
  c) dealing with incidents;
  d) managing risk;
  e) passing on medical data;
  f) entrusting with medical data;
  g) running medical documentation;
  h) issuing and providing access to medical documentation;
  i) giving authorizations to process medical data.
- type of equipment used for processing medical data.
- computer software used.
- communication and telecommunication media used.
- the entity's premises and their surroundings.
- persons authorized to process medical data.
- organization of medical data protection.

The identification of potential threats to particular resources may consist of using ready catalogs of threats possessed by a medical entity. These might be physical, technical, organizational or personal resources. Another way of identifying threats lies in using the experience of external experts. It is a frequent procedure to appoint internal teams composed of persons with appropriate experience in identifying risk. In the employee area, specified competencies to perform particular activities allow us to diagnose, mostly through participant observations, deviations from the assumed standards. The susceptibility diagnosis is greatly helped by susceptibility questionnaires and assessments made through group analysis. As a result, in each of the listed areas, a risk map is created, described by the criteria of frequency of a given incident and effects caused by such an incident. Most often these parameters are scaled on several levels, each of them describes the degree of probability that a particular unfavorable incident may occur and its effects if it does occur. The effect can be material; then it is estimated by determining the costs of

5 On the basis of PN-ISO/IEC 27005:2014-01.

reconstructing a particular resource. With non-material effects, a descriptive scale is used. When estimating the probability of the event, following the above guidelines, the following elements are taken into consideration:

- statistics concerning similar events;
- attractiveness of a particular resource;
- environmental factors;
- type of susceptibility;
- existing security measures.

A risk-based approach, in line with the norm ISO/IEC 27005[6], assumes the following possible types of dealing with risk:

- modifying risk, consisting in using appropriate security measures reducing risk. These may include removing the source of risk, changing the probability of risk or changing its effects;
- preserving risk by taking a conscious decision to accept risk, taking into account the criteria of such acceptance;
- avoiding risk, namely the lack of activities that could cause its occurrence;
- transferring risk – sharing relevant risk with entities processing medical data they were entrusted with.

In the case of medical data requiring specific assets, the identification of potential threats and the assessment of the risk level requires great experience from persons making such assessment. This is connected with the accurate attribution of the probability and effects to the essence of particular susceptibility and the occurring events. Such juxtaposition constitutes the basis for deciding on the method of dealing with risk. When determining the level of acceptable risk (residual risk), no additional activities are taken unless future circumstances require a different assessment. If it is possible, particular risk can be avoided by withdrawing from using a specific apparatus or appliance or switching off the zones with a high risk of losing security. A frequent method consists in transferring risk onto other entities by outsourcing particular activities. This especially concerns solutions in the IT infrastructure which is becoming more and more responsible for the quality of the rendered medical services and which, due to the lack of appropriate technical personnel, is not supported sufficiently within a medical entity's own resources. The most frequent, though not the cheapest, method of dealing with risk is to minimize it within internal actions.

6 Technika informatyczna - Techniki bezpieczeństwa - Zarządzanie ryzykiem w bezpieczeństwie informacji PN-ISO/IEC 27005:2014-01

2.2. A risk-based approach in the light of the GDPR regulation

Medical entities managing medical data take risks connected with their functioning in the health care system, especially with ensuring the required quality of health care services offered by them. It is assumed that the offered services should provide high standards of medical treatment and be performed with due respect for doctor/patient confidentiality and patient's personal dignity. Doctor/patient confidentiality covers all data concerning the patient's health and all additional information by means of which particular medical data can be ascribed to a specific person. Such data, according to the GDPR regulation, are called particularly sensitive data related to one's health. Such data should be protected against privacy loss in line with the technical and organizational capabilities of an entity processing such data on the basis of a risk-based approach.

The management of medical data by medical entities following a risk-based approach is governed by the requirements of GDPR. The regulation has been valid since 25th May 2018. It is applied directly to the domestic law order. The main goal of the lawmakers is to adjust the standards of personal data protection, including medical data, to the dynamically changing ways of processing such data, mainly in an electronic form. The approach used so far, specified in Directive 95/46/[7] assumed a uniform standard of security for the processed personal data, regardless of how it was processed. GDPR obliges medical entities to introduce certain protection standards depending on the internal and external contexts and the assessed risk of losing security of the processed data. In place of the current reactive approach to data protection, a pro-active approach has been adopted, subordinated to the following rules:

1) Performing a risk analysis in accordance with a risk-based approach.
2) Self-control of a medical entity and following the principle of taking into account protecting data during the design stage (*privacy by design*) and default protection of data (*privacy by default*).
3) Obliging a medical entity to assess whether, and in what way, the planned type of processing data will affect the privacy of people whom such data concern, the size of threat and the application of specific solutions by such entity, eliminating or minimizing such threats.

The possibility of verification of the effectiveness of the activities conducted by a medical entity by the superior organ and issuing, if necessary, a written recommendation or applying more severe measures. A risk-based approach, developed on the basis of GDPR and in line with GDPR guidelines[8], consists of the following stages:

7 Directive 95/46/EC of the European Parliament and of the Council of 24th October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data (OJ. L281/31 from 23.11.1995).

8 Jak stosować podejście oparte na ryzyku- Poradnik GIODO 2017. Retrieved from https://giodo.gov.pl/pl/p/opinie-wytyczne-wskazowki accessed on 25.03.2018.

1) Determining the context. It consists of determining the conditions in which an entity functions, describing and classifying the processed data, the used security measures and determining the criteria of risk acceptance.
2) Determining the method of control. It covers the requirements concerning the application of control and security measures and the degree of their fulfillment for the data processing processes.
3) Estimating risk, covering the identification of threats and susceptibility, the analysis and assessment of threat consequences, the estimation of the risk levels.
4) Dealing with risk. Deciding to reduce, accept, avoid or transfer the risk.
5) Assessing the effects for data protection, consisting of determining whether it is necessary to conduct an assessment of the effects. It requires eliciting the opinions of experts and persons whom the data concerns or their representatives.

Dealing with the risk, according to the Recommendations of the Center of Health Care Information Systems,[9] may take the following forms:

1) Limiting risk, namely introducing and modifying the existing organizational and technical mechanisms of control concerning the security of the IT infrastructure. Their goal is to limit the probability or the effects of the occurrence of a particular threat.
2) Transferring risk that is moving the part or the whole risk related to a particular threat onto an external entity by commissioning the performance of an activity to external service providers.
3) Avoiding risk, that is not taking actions which are associated with a particular risk.
4) Accepting risk on an appropriate level, that is consciously abstaining from activities decreasing risk and possible ensuring financial means to cover potentially related losses which may be caused by such risk.

Article 24 of the GDPR obliges the entity to implement appropriate technical and organizational measures so that data processing is performed in accordance with GDPR and so that such compliance could be demonstrated. These measures must reflect the nature, scope, context and goals of processing and the risk of infringing on the rights or freedoms of natural persons of different likelihood and severity. Similar formulations concerning taking into account the risk of infringing the rights or freedoms of natural persons with various probability of occurrence and weight of the threat are quoted in Article 25 of GDPR concerning data protection in the design stage and the default data protection. A medical entity implements appropriate technical and organizational measures, such as pseudonymization, data ciphering, taking

9 Recommendations of the Center of Health Care Information Systems on the security and technological solutions used in processing medical documentation in the electronic form - CSIOZ Warszawa 2017. Retrieved from https://www.csioz.gov.pl/fileadmin/user_upload/rekomendacje_bezpieczenstwo_projekt_kwiecien2017_58f615848ab44.pdf

into account the state of technical knowledge, the cost of implementation, the nature, scope, context and goals of the processing and the risk of infringing the rights and freedoms of natural persons with different likelihood and severity. These means are to be designed in order to provide data processing with the necessary security measures to meet the requirements of GDPR and to protect the rights of the persons they concern.

The risk of infringing the rights or freedoms of the persons, of varying likelihood and severity, results from such processing of medical data which may lead to physical damage, material or non-material damages (point 75 of GDPR). These threats are defined as:

- discrimination;
- identity theft or identity fraud;
- financial loss;
- damage to the reputation;
- loss of confidentiality of personal data protected by professional secrecy;
- unauthorized reversal of pseudonymization;
- any other significant economic or social disadvantage;
- depriving data subjects of their rights and freedoms;
- preventing data subjects from exercising control over their personal medical data.

According to point 76 of GDPR, the likelihood and severity of the risk to the rights and freedoms of the data subject should be determined by reference to the nature, scope, context and purposes of the data processing. The risk should be evaluated on the basis of an objective assessment, by which it is established whether data processing operations involve a certain level of risk.

The new approach to protecting medical data is characterized by relativism. It obliges entities processing medical data to evaluate the risk of losing security of data processing on their own, relying on their own cognitive and economic capabilities. As a result of the performed risk evaluation, a medical entity has to adopt adequate solutions for a given situation which will improve the degree of security of the processed personal data. According to point 15 of GDPR, these solutions must be technologically neutral. This means that the protection of medical data should not depend on the applied techniques and should be used both in manual and automated processing of personal data. Article 31 section 1 of GDPR regulates the security of processing medical data. According to the article, taking into account the state of the art, the costs of implementation and the nature, scope, context and purposes of processing as well as the risk of varying likelihood and severity for the rights and freedoms of natural persons, the medical entity shall implement appropriate technical and organizational measures to ensure a level of security appropriate to the risk, including inter alia as appropriate:

- the pseudonymization and encryption of personal data;
- the ability to ensure the ongoing confidentiality, integrity, availability and resilience of processing systems and services;
- the ability to restore the availability and access to personal data in a timely manner in the event of a physical or technical incident;
- a process for regularly testing, assessing and evaluating the effectiveness of technical and organizational measures for ensuring the security of the processing.

If a particular type of processing, especially using state of the art technologies (due to its nature, scope, context and goals) is likely to result in a high risk to the rights and freedoms of natural persons, the medical entity shall, prior to the processing, carry out an assessment of the envisaged processing operations on the protection of personal data (Article 35 section 1 of GDPR). A single assessment may address a set of similar processing operations that present similar high risks. The infringement of the rights and freedoms of natural persons (point 75 of GDPR) concerns:

- physical, material and non-material damage, such as loss of control over one's own personal data;
- limiting the rights, discrimination, identity theft or identity fraud;
- financial loss, damage to the reputation;
- loss of confidentiality of personal data protected by professional secrecy;
- any other significant economic or social disadvantage.

The consequence of assessing the effects for data protection may be the necessity to consult the supervisory authority by the medical entity (Article 36 of GDPR). This should take place when the data protection impact assessment indicates that the processing would result in a high risk in the absence of measures taken by the controller to mitigate the risk. In the case of a medical data infringement, the medical entity shall without undue delay and, where feasible, not later than 72 hours after having become aware of it, notify the medical data infringement to the supervisory authority unless the above violation is unlikely to result in a risk to the rights and freedoms of natural persons (Article 33 of GDPR). Where notification is not made within 72 hours, it shall be accompanied by reasons for such delay.

The medical entity documents all infringements to the medical data protection, including the circumstances of such infringement, its effects and the remedial action taken by it. Such documentation must enable the supervisory authority to verify the compliance with this Article. The medical entity will have to assess (and the burden of proof is on the entity's side) whether it is unlikely that a given violation will result in the risk of infringing the rights and freedoms of natural persons. Therefore it is necessary to train the employees so that they react immediately to any incidents concerning security of personal

data and pay more attention to technical and organizational measures used to protect medical data.

A risk-based approach also demands, in the case of large-scale medical data processing, appointing a data protection inspector. The criteria determining the size of the data processing scale, in accordance with the guidelines of the Working Group, Article 29[10] are:

- the number of people the data concerns (data subjects) – a specific number or the percentage of a specific group of the society;
- the scope of the processed personal data;
- the period over which the data are processed;
- the geographical scope of the personal data processing.

In the case of medical entities, the number of people is the number of active patients and the scope of the personal data processing is the scope within which medical services are provided. The period over which medical data are processed is specifically determined by the sector regulations. An example of processing medical data on a large scale is the provision of health care services by a hospital. Small-scale medical data processing is performed by a single doctor. The developed code of good practice[11] assumes that small-scale medical data processing is the provision of health care services by medical entities meeting any of the below criteria:

1) Providing ambulatory health care services, including those within Ambulatory Specialist Healthcare (Polish abbreviation: AOS), which have rendered services for not more than 600 unique patients in the past 3 months (average for the past 3 months).
2) Providing the services exclusively within the Basic Health Care (Polish abbreviation: POZ) and possessing fewer than 2750 ascribed patients in the past 3 months (average for the past 3 months).
3) Providing full-time and all-day healthcare services:
   a) Hospital services – providing heal thcare services for not more than 100 unique patients,
   b) Other than hospital services – providing heal thcare services for not more than 150 unique patients in the past 3 months (average for the past 3 months).

The data protection inspector appointed on the basis of the above guidelines is responsible for supporting the medical entity in applying a risk-based approach. The essence of such activities lies in adjusting the method of managing medical data to the scale of risk. They are evaluated taking into consideration the possibility of losing confidentiality, integrity and availability of data. When assessing the risk, medical entities take into account the scope of managing medical data, the degree of their sensitivity, the context and goals

10 The Guidelines of the Working Group Article 29 on personal data protection concerning data protection inspectors, accepted on 13th December 2016. Retrieved from http://ec.europa.eu/justice/data-protection/index_en.html.
11 The code of procedure for the entities performing medical activities. Retrieved from www.rodowzdrowiu.pl.

of data processing. A risk-based approach concentrates on seeking measures mitigating the probability of the occurrence of the most painful threats and seeking measures reducing the effects of their occurrence.

4. Discussion – barriers to the application of a risk-based approach to managing medical data by medical entities

From 25th May 2018 medical entities are obliged to implement, in line with a risk-based approach, appropriate technical and organizational measures to ensure the processing of medical data is compliant with the GDPR regulation. The pro-active approach to the protection of medical data has generated a series of problems as there was a deficit of tested patterns in this area. It requires moving away from the review of the existing, documented standards of managing data and creating and documenting new standards, generated as a result of the risk assessment. Such an approach forces the ongoing adjustment of security standards to the requirements of the fast-progressing digitization of the medical sector. This requires updating the tele-information infrastructure, software and applications. This is associated with the necessity to allocate appropriate financial means for which most medical entities are not ready. The new IT solutions need to be implemented in the operations of the medical entity. People authorized to process medical data need to be trained. This often generates resistance and fear of new solutions. The persons coordinating the process of adjustments are not always qualified sufficiently to manage IT systems. Moving to automated forms of managing medical data is associated with new technological threats, which are hard to diagnose accurately. We can observe inaccurate risk assessment, which gives medical entities a misleading feeling of security of their processed medical data. When assessing the risk, medical entities usually analyze the effects of the occurrence of some threats without taking into account the likelihood of their occurrence. Facing difficulties in the proper assessment of the risk in managing medical data, many medical entities do not implement procedures in this scope and limit their actions to monitoring medical events.

When analyzing risk, serious difficulty is posed by the determination of potential threats with reference to the specificity of the possessed resources. This is related to the lack of experience in carrying out checks and difficulties of making the ex-ante evaluation. The deficit of people trained in assessing risks is visible while using the services of external entities in this respect causes many conflicts. They mostly result from the lack of understanding of the specific conditions in which a medical entity functions, as it is closely subordinated to some legal institutions specific for the healthcare sector. An additional difficulty is posed by the necessity to meet the higher than

elsewhere security standards concerning health data, treated as especially sensitive data. These are the reasons why medical entities have to incur relatively higher costs of implementing the required solutions. The lack of external financial support develops frustration among the working people, especially the medical staff. The necessity to improve security standards takes the time which they originally devoted to contact with patients. This increases patients' dissatisfaction and their claims due to the inappropriate performance of medical services. Many medical entities, facing a growing deficit of medical staff, do not implement the appropriate changes and calculates their absence in the risk of non-conformity with the GDPR provisions. Some medical entities limit the use of information technologies in processing medical data to the bare minimum required by the provisions only to limit the risk of losing data or unauthorized access to data. Such activities make the entities less attractive to patients, especially as far as private services are concerned, when a patient has a greater possibility of choosing the medical entity. The ambiguous approach to the management of risk related to security of the processed medical data in medical entities is increasingly differentiating the quality of health care services provided by them.

We can draw a conclusion that in the case of processing medical data, a risk-based approach generates more problems than ever before and requires a larger material and financial expenditure. The adjustment activities are accompanied by high uncertainty, mostly due to the lack of past experience and any additional, except for GDPR, more detailed institutional solutions.

The most frequent barriers to the application of a risk-based approach are presented in Table 1.

5. Conclusion

The article presents the barriers to the application of a risk-based approach in managing medical data by medical entities in connection with GDPR. The article discusses the essence, sources and types of risk in managing medical data. The nature of risk lies in decreasing the uncertainty *sensu stricto* by determining the measurable uncertainty which is a combination of effects and likelihood of the occurrence of certain events.

Using a risk-based approach, medical entities assess the risk of managing medical data as a combination of the effect and the probability of undesirable events related to unauthorized access to medical data, unauthorized modification or loss of such data. The source of the unwanted events are physical, technical, organizational and personnel resources of the medical entity managing the data.

Table 1. The classification of barriers to the application of a risk-based approach

No.	Type of barrier	Used resources
1.	Growing digitization of the medical sector	Equipment for processing medical data Software Processes and procedures Used ICT media
2.	Lack of historical data when identifying risk	Processes and procedures Organization of medical data protection The company premises and the surroundings
3.	Inaccurate assessment of the effects when an incident occurs	Processes and procedures Organization of medical data protection The company premises and the surroundings
4.	Not taking into account the probability of the incident occurrence when assessing the risk	Processes and procedures Organization of medical data protection The company premises and the surroundings
5.	Lack of experience in describing risk levels	Processes and procedures Organization of medical data protection Persons authorized to process medical data
6.	Lack of understanding of a risk-based approach	Processes and procedures Organization of medical data protection Persons authorized to process medical data
7.	Lack of financial support	Equipment for processing medical data Software Processes and procedures Used ICT media
8.	Resistance to changes	Persons authorized to process medical data
9.	Lack of professionals in risk-based approach	Persons authorized to process medical data
10.	Disorganization of work at the implementation stage	Processes and procedures Organization of medical data protection

Source: own elaboration on the basis of PN-ISO/IEC 27005:2014-01.

The use of a risk-based approach by medical entities allows them to decrease the uncertainty *sensu stricto* in managing medical data. This should lead to the ability to avoid the sudden occurrence of problems in crisis situations and mitigating potential threats related to the loss of medical data security. GDPR, insisting on a risk-based approach, requires that medical entities use proactive risk management and implement on its basis such infrastructure and organizational changes which improve the level of security of the processed medical data. These changes, mostly related to the digitization of the medical sector, constitute a significant burden on medical entities, both in the organizational and cost aspect. These entities, due to the greater value of medical data, also face a greater risk of losing security of such data. The lack of appropriate qualifications and experience in risk management constitute another visible barrier to the application of a risk-based approach.

Serious problems are also caused by limited financial resources allocated for modernizing security measures. The resistance to change and disorganization of work at the implementation stage of the new approach pose a significant challenge to management.

The use of a risk-based approach brings about greater complexity of processes and security procedures in processing medical data. This increases the costs of implementing the new regulations. In the adjustment period we can observe noticeable uncertainty related to the lack of prior patterns in this area. However, the final impact of a risk-based approach related to the security of medical data processing should be positive due to greater transparency of actions related to increasing security of the processed medical data and thus limiting potential claims made by patients.

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ACADEMIC ENTREPRENEURSHIP RESEARCH PROFILING: TOWARDS TEMATIC BOUNDARIES OF THE FIELD

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Abstract

The issues of academic entrepreneurship have been receiving growing attention among researchers in recent years. This increasing interest results in the number of publications. Nevertheless, so far, the research field has not been mapped thoroughly. The paper aims to identify thematic boundaries of the research field related to academic entrepreneurship and its key contributors through research profiling. The following objectives have been defined to design the research process oriented to achieving the aforementioned aim: (1) to identify nations, research institutions, journals and authors considered to be the key contributors in the field, (2) to identify the leading subject areas grouping research output in the field, and (3) to identify predominant topics of publications. Research profiling is a method applied to achieve the aim of the study and related objectives. Research profiling comprises three components: general research profiling, subject area profiling and topic profiling. General research profiling is conducted in order to identify key contributors in the field with the focus on such aspects as countries/territories producing the highest number of publications, the most productive affiliated institutions, source titles and authors. Exploring diversity of research perspectives within the research field, subject area profiling is applied to identify and analyze the distribution of the research output in the field among various subject areas, which highlights the multidimensionality of the issues related to academic entrepreneurship. Topic profiling, with the emphasis on differences among source titles, authors, subject areas and core references, is aimed at identifying key topics and research streams in the field. The study contributes to the existing body of knowledge through mapping the research field related to academic entrepreneurship and discovering its thematic boundaries, which has not been done before. This originality and novelty of the paper strengthen

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its value in the theory of academic entrepreneurship. Due to its theoretical character, the paper shows more research than practical implications as it provides recommendations for further theoretical studies aimed at exploring and describing the research field.
Keywords: *academic entrepreneurship, university entrepreneurship, bibliometrics, research profiling.*

1. Introduction

Universities in developed countries have become increasingly entrepreneurial. For instance, since the early 1980s, US universities have greatly increased their entrepreneurial activities along with many dimensions: patenting and licensing, creating incubators, science parks, university spin-offs (Shane, 2004a) and investing equity in start-ups, among other indicators. A concomitant rise in university entrepreneurship can also be observed in Europe (Rothaermel, Agung & Jiang, 2007). The nature of universities in Europe has changed significantly since the mid-1990s (Wright, Clarysse, Mustar & Lockett, 2007).

The development of academic entrepreneurship has gradually resulted in a move from the traditional formation of a Humboldt University (Sułkowski & Seliga, 2016). Many of the universities have taken action to develop a 'third-mission', also known as 'entrepreneurial university' or 'third-generation university' where, in addition to their traditional missions of education and research (Rothaermel et al., 2007), they promote entrepreneurship, innovation and stimulate creativity (Piotrowska-Piątek, 2016) by fostering links with knowledge users and facilitating technology transfer (Perkmann et al., 2013). There is a growing need for universities to develop more 'rapid' linkages between science, technology and utilization and serve a 'third-mission' of contributing to local economic development. These developments are posing challenges to the traditional role of the university and its support practices towards entrepreneurial activities (O'Shea, Allen, Chevalier & Roche, 2005). There is a growing need for universities to disseminate the knowledge generated beyond the narrow confines of the academic community itself (O'Shea et al., 2005).

In addition, academic entrepreneurship is also identified with entrepreneurial behavior and entrepreneurial orientation (Starnawska, 2017), education in the field of entrepreneurship, activation to entrepreneurship (Stawasz, 2007), stimulation of pro-innovative behavior in students (Sikorski & Bieńkowska, 2013), promotion of entrepreneurship and entrepreneurial attitudes and behaviors. Moreover, academic entrepreneurship means

'academic engagement' which is defined by Perkmann and his associates as "knowledge-related collaboration by academic researchers with non-academic organizations. These interactions include formal activities such as collaborative research, contract research, and consulting, as well as informal activities like providing ad hoc advice and networking with practitioners" (Perkmann et al., 2013, p. 424). Active engagement in technology transfer by universities members is a signal of their acceptance of the university's initiative for academic entrepreneurship (Bercovitz & Feldman, 2008). The entrepreneurial university encompasses and extends the research university (Etzkowitz, 2003). The entrepreneurial university can generate a focused strategic direction, both in formulating academic goals and in translating knowledge produced within the university into economic and social utility (Etzkowitz, 2003).

These significant developments have attracted the increasing attention of researchers both in the United States and in Europe (Rothaermel et al., 2007). Therefore academic entrepreneurship is a topic receiving more and more attention in the literature (Powers & McDougall, 2005), which results in the growing number of publications in the field (cf. Figure 1). Nevertheless, so far, the research field has not been mapped thoroughly. Research profiling is one of bibliometric methods recommended to review an abundant body of knowledge in order to map the research field (Porter, Konghton & Lu, 2002). As of 19 May 2018, neither Scopus nor the Web of Science databases included any records containing the conjunction of phrases ('academic entrepreneurship' OR 'university entrepreneurship') AND 'research profiling' in their titles, abstracts and keywords, which shows the research niche. Therefore, in order to fill this gap, the paper aims to identify thematic boundaries of the research field related to academic entrepreneurship and its key contributors through research profiling. The following objectives have been defined to design the research process oriented to achieving the aforementioned aim: (1) to identify nations, research institutions, journals and authors considered to be the key contributors in the field, (2) to identify the leading subject areas grouping research output in the field, and (3) to identify predominant topics of publications.

2. Method of study

Research profiling was a method applied to achieve the aim of the study and related objectives. As already mentioned, research profiling is one of the bibliometric methods recommended to review an abundant body of knowledge in order to map the research field (Porter et al., 2002). "Why is this method expected to provide any additionality relative to a simple narrative review or systematic review of literature?" – It was a question of

high importance we were asked in the reviewing process. The major flaw of traditional literature reviews is their incompleteness resulting from a very limited research sample taken for the qualitative analysis. Research profiling, categorized among descriptive bibliometric studies, offers the opportunity to analyze a wide body of quantitative data describing the research output in the field. Porter et al. (2002, p. 351) who "propose enhancing the traditional literature review through »research profiling«" that "[t]his broad scan of contextual literature can extend the span of science by observe better linking efforts across research domains. Topical relationships, research trends and complementary capabilities can be discovered, thereby facilitating research projects". Therefore in designing the research process, aimed at identifying thematic boundaries of the research field related to academic entrepreneurship and its key contributors, we decided to apply research profiling methodology.

The procedure of research profiling consists of three main components: general publication profiling, subject area profiling and topic profiling (cf. Choi, Lee & Sung, 2011; Martinez, Jaime & Camacho, 2012). This procedure, correlated with research objectives, determines the structure of the paper. First of all, the research sampling process is explained and the sample is characterized by the analysis of the number of publications and citations they received. Secondly, general research profiling is conducted with the focus on such aspects as countries/territories producing the highest number of publications, the most productive affiliated institutions, source titles and authors. Thirdly, the research output is profiled from the perspective of key subject areas. Finally, topic profiling is conducted with the focus on journals, authors, subject areas and core references. The structure of the paper follows the benchmark of the paper by Martinez et al. (2012) and inspirations were also taken from Lis (2017) and Lis, Czerniachowicz and Wieczorek-Szymańska (2017).

Scopus was used as a source of data for bibliometric analysis aimed at profiling research output related to the issue of academic entrepreneurship. Scopus is considered to be one of the most widespread, high-quality and prestigious bibliometric databases indexing publications. While compared and contrasted with other literature collections, Scopus shows many strengths, but it also has some weaknesses which should be made explicit. Similarly to other databases, Scopus uses the number of citations as a criterion to rank the importance of publications. Scopus covers a wide range of journals, which should be highlighted as its unquestionable strength in searching for keywords and citations. In comparison with the Web of Science, its main competitor, Scopus is found to provide more coverage for citation analysis. On the other hand, Scopus is limited to very recent publications, i.e. mainly those issued after 1995, which should be considered as its weakness, especially when compared against the Web of Science (Falagas, Pitsouni, Malietzis & Pappas,

2008). As validated by Archambault, Campbell, Gingras & Larivičre (2009) "[d]espite the fact that WoS and Scopus databases differ in terms of scope, volume of data and coverage policies (Lopez-Illecas, Moya-Angeon & Moed, 2008), the outputs (papers) and impacts (citations of countries obtained from the two databases are extremely correlated". The number of records including phrases 'academic entrepreneurship' OR 'university entrepreneurship' in their titles, abstracts and keywords in both collections is very similar, i.e. Scopus – 598, Web of Science – 597. Due to a comparable coverage, we decided to choose Scopus as it is more user-friendly when it comes to retrieving keywords included in publications. Because we used keywords to search for predominant themes in the research field this functionality was of primary importance for the quality of the research process.

3. Research sample

For the purpose of the sampling process, the publications indexed in Scopus and including phrases 'academic entrepreneurship' OR 'university entrepreneurship' in their titles, abstracts and keywords were selected. We chose these two key, most common expressions to explore the research field due to the fact that we consider them to be the keywords of predominant importance and their definitions cover the scope of other relevant expressions such as: 'academic/university spin-offs/outs,' 'university-business collaboration' or 'student entrepreneurship.' In Anglo-Saxon literature, academic entrepreneurship is identified with the creation of spin-off or spin-out technology companies, based on knowledge and know-how, created at the university. On the other hand, in Europe, academic entrepreneurship is defined much more broadly, as the whole spectrum of activities, including, for example, supporting science-business relations, pre-incubation and incubation of enterprises from universities, various forms of business activity undertaken by representatives of the environment academic – academic staff, students, PhD students, graduates, upbringing to entrepreneurship and its promotion, supporting entrepreneurs who are students, recent graduates or doctoral students, or research workers, or as supporting the transfer of new technologies to the economy. Therefore, we focused on 'academic entrepreneurship' and 'university entrepreneurship' considered to be the two key expressions in both Anglo-Saxon and European literature in the field.

As of 19 May 2018, 598 publications including the phrases 'academic entrepreneurship' OR 'university entrepreneurship' in their titles, abstracts and keywords were retrieved, which in total generated 11,608 citations. The h-index for the sample is 49. Distribution of the number of publications and their citations over time is presented in Figure 1.

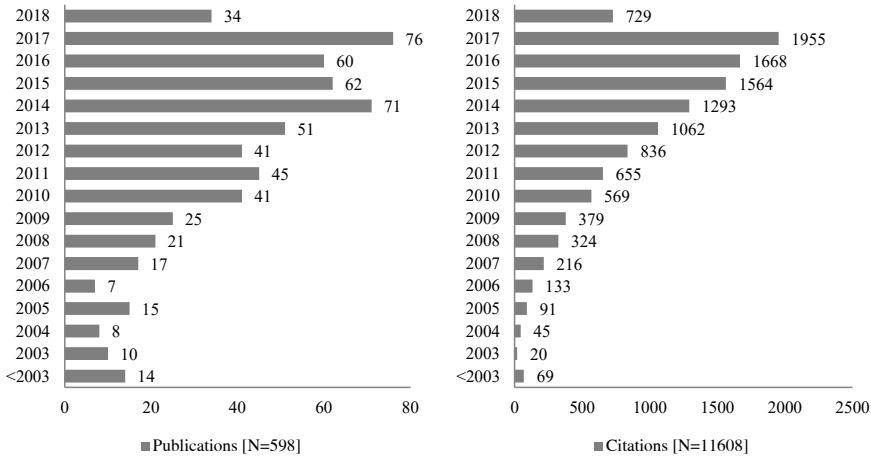

Figure 1. Scientific productivity of research on academic entrepreneurship

Source: own study based on data retrieved from Scopus database (accessed 19 May 2018).

The distribution of productivity in the research field and the number of citations received by analyzed publications confirm the growing interest of the academia in researching the academic entrepreneurship issues. In the analyzed period, 3 stages can be distinguished in regard to the yearly research production: (1) 2003-2009 (from 8 to 25 papers per year), (2) 2010-2013 (from 41 to 51 papers per year), and (3) 2014-2017 (from 60 to 76 papers year). The fluctuation of research productivity between 2003 and 2017 may be described with the linear function ($y = 5.0964x – 10207$; $R^2 = 0.9235$) or the 3 degree polynomial function ($y = -0.0475x3 + 286.74x2 - 576584x + 4E+08$; $R^2 = 0.9475$). The increase in the number of citations between 2003 and 2017 shows the features of the 2 degree polynomial function ($y = 9.217x2 - 36913x + 4E+07$; $R^2 = 0.997$).

4. General publication profiling: Identifying key contributors

4.1. Country profiling

Within the research sample, there are 26 publications of undefined country/ territory. All the remaining research output is distributed among 57 countries from all the continents. European and North American nations make up the top 10 of most productive countries (cf. Table 1). The main contributors from other continents are China (N=16, rank 14), Brazil (N=8, rank 20-22), South

Africa (N=8, rank 20-22), Australia (N=5, rank 30). Poland with 9 publications is ranked 18-19.

Among the most productive countries, the leaders, in regard to both quantity and quality of publications, are the United States and the United Kingdom. 161 publications (26.9% of the research sample) affiliated by the U.S. institutions received more than a half of all citations (N=6,257, 53.9%). The UK contributes with 97 papers (16.2%) which were cited 3,625 times (31.2%). These two Anglo-Saxon countries make in total 43.1% of publications under the study and 85.1% of all citations in the field. In both cases, high values of h-index are observed i.e. respectively 33 for the United States and 27 for the United Kingdom.

Table 1. Top most productive countries/territories in research on academic entrepreneurship

No.	Country/territory	Publications		Citations		
		N	%	N	%	h
1.	United States	161	26.9	6257	53.9	33
2.	United Kingdom	97	16.2	3625	31.2	27
3-4.	Germany	56	9.4	1333	11.5	14
3-4.	Italy	56	9.4	1234	10.6	15
5-6.	Spain	45	7.5	703	6.1	11
5-6.	Sweden	45	7.5	1279	11.0	14
7.	Belgium	34	5.7	1350	11.6	18
8.	Norway	25	4.2	606	5.2	10
9.	Netherlands	24	4.0	584	5.0	8
10.	France	23	3.8	837	7.2	8

Source: own study based on data retrieved from Scopus database (accessed 19 May 2018).

The remaining most productive countries can be categorized in two following-up groups: (1) Germany, Italy, Sweden and Belgium which contribute with more than 30 publications per country and their inputs are characterized by at least 1,000 citations and h-index ranging from 14 to 18; (2) Norway, Netherlands and France with the output below 30 items, the number of citations below 1,000 and h-index below 10. Spain may be considered as a 'bridge' between these two categories as its research outputs (45 publications) received fewer citations (N=703, h=11) in comparison to Sweden or Belgium.

4.2. Institution profiling

While analyzing institution profiling from the quantitative perspective, fragmentation of research output may be observed. There are only 11 universities which contributed with 10 or more publications on academic entrepreneurship (cf. Table 2). These most prolific institutions produced 115 papers (145 if contributions are calculated separately one by one) which constitutes 19.2% (24.2% if contributions are calculated separately) of the research sample. Nevertheless, as regards the quality of publications, the papers affiliated at the top most productive universities are cited more often than the others. They received 3,595 citations (5,501 if contributions are calculated separately), which makes up respectively 31.0% (47.4% if contributions are calculated separately). The value of their h-index is 31.

Table 2. Top most productive institutions in research on academic entrepreneurship

No.	Institution	Country	Publications		Citatiowns		
			N	%	N	%	h
1.	Imperial College London	UK	20	3.3	1188	10.2	14
2.	Universiteit Gent	Belgium	19	3.2	838	7.2	12
3.	Alma Mater Studiorum Universita di Bologna	Italy	15	2.5	696	6.0	7
4.	University of Cambridge	UK	14	2.3	550	4.7	6
5.	KU Leuven	Belgium	13	2.2	508	4.4	8
6-7.	Universidad de Deusto	Spain	12	2.0	141	1.2	5
6-7.	Hoskolan i Halmstad	Sweden	12	2.0	86	0.7	6
8-11.	Universita degli Studi di Bergamo	Italy	10	1.7	97	0.8	4
8-11.	University of Nottingham	UK	10	1.7	949	8.2	10
8-11.	Indiana University	US	10	1.7	369	3.2	5
8-11.	Lunds Universitet	Sweden	10	1.7	79	0.7	5

Source: own study based on data retrieved from Scopus database (accessed 19 May 2018).

All the most productive research institutions represent the countries identified as the main contributors to the research field. Among them, the leaders in regard to quantity and quality of research are Imperial College London and Ghent University (Universiteit Gent). The researchers at Imperial College London produced 20 works cited in 1,188 publications (h=14). The output of Ghent University is 19 papers with 838 citations (h=12). Moreover, the University of Nottingham needs to be highlighted due to a high number of received citations (N=949) and h-index value (10). It is interesting that among the top most productive institutions there is only one US university (Indiana University). Taking into account the dominant position of the United States

among top contributing countries it may be a manifestation of a more equal distribution of research output among researching institutions.

4.3. Journal profiling

Similarly to institution profiling, the analysis indicates that the research output in the field is very much fragmented and distributed among numerous source titles. Within the sample, only 5 journals are noticed which contributed 10 or more papers, while the threshold of 5 publications is achieved by 22 source titles. The top 5 most productive journals in research on academic entrepreneurship are presented in Table 3.

Table 3. Top most productive journals in research on academic entrepreneurship

No.	Journal	Publications		Citations		
		N	%	N	%	h
1.	Journal of Technology Transfer	62	10.4	1085	9.3	16
2.	Research Policy	34	5.7	3643	31.4	26
3.	Industry and Higher Education	25	4.2	107	0.9	6
4.	Small Business Economics	11	1.8	316	2.7	7
5.	Advances in the Study of Entrepreneurship, Innovation and Economic Growth	10	1.7	64	0.6	5

Source: own study based on data retrieved from Scopus database (accessed 19 May 2018).

The most prominent source titles within the field are *Journal of Technology Transfer* and *Research Policy*. *Journal of Technology Transfer* is the leader as regards the number of publications in the sample (N=62, 10.4%). *Research Policy*, being the second most prolific journal in the field, may be considered as the most highly regarded one for the quality of its papers, which in total received 3,643 citations (31.4%) and are characterized by the h-index value equal to 26.

4.4. Authors profiling

Among the most productive researchers dealing with the issue of academic entrepreneurship, there is only 1 who authored more than 10 papers included in the research sample, while 27 writers contributed with at least 5 papers.
M. Wright from Imperial College London is the unquestioned leader in the field. The top most productive authors in research on academic entrepreneurship are listed in Table 4.

Among the most prolific writers, the most attention is received by the works of M. Wright from Imperial College London, which gathered

1,078 citations, i.e. 9.3% of all citations in the research sample and their h-value is 13. His most influential works comprise: a book on academic entrepreneurship in Europe (Wright et al., 2007), a study of creating spin-offs in public sector research organizations (Lockett, Siegel, Wright & Ensley, 2005), a reconceptualization of the academic entrepreneurship concept and changing role of higher education institutions (Grimaldi, Kenney, Siegel & Wright, 2011) and an editorial on the role of human capital in supporting technological entrepreneurship (Wright, Hmielski, Siegel & Ensley, 2007). M. Wright is followed by R. Grimaldi (664 citations) and R. Fini (541 citations) representing the University of Bologna as well as H. Etzkowitz (599 citations) from International Triple Helix Institute. In regard to the number of publications, E. Rasmussen affiliated at Nord University Business School should be mentioned as well.

Beside the aforementioned review reassessing the idea of academic entrepreneurship (Grimaldi et al., 2011), R. Grimaldi's main contributions to the field are: a co-authored review of the literature comparing and contrasting the gist, antecedents and effects of 'academic engagement' and commercialization (Perkmann et al., 2013), and a study of the role of universities and the local environment in fostering spin-off initiatives (Fini, Grimaldi, Santoni & Sobrero, 2011). R. Fini's the most cited works include the already mentioned papers produced in collaboration with R. Grimaldi and other colleagues (Perkmann et al., 2013; Fini et al., 2011). Another important contribution is a comparison of two opposing approaches to creating academic enterprises, i.e. within or outside the system of the university intellectual property (Fini, Lacetera & Shane, 2010). H. Etzkowitz's main publication deals with the internal organization of a research university consisting of research teams considered as 'quasi-firms' (Etzkowitz, 2003). E. Rasmussen, in collaboration with O.J. Borch, identifies the capabilities of universities which support spin-off processes (Rasmussen & Borch, 2010).

5. Subject area profiling: Exploring diversity of the research field

The papers included in the research sample are distributed among 20 subject areas. The highest number of records is categorized under the following subject areas: Business, Management and Accounting (442), Economics, Econometrics and Finance (160), Social Sciences (160), Engineering (129), which will be the subject of a thorough subject area profiling.

Table 4. Top most productive authors in research on academic entrepreneurship

No.	Author	Institution	Country	Publications		Citations		
				N	%	N	%	h
1.	Wright M.	Imperial College London	UK	16	2.7	1078	9.3	13
2-3.	Grimaldi R.	Alma Mater Studiorum Universita di Bologna	Italy	9	1.5	664	5.7	5
2-3.	Rasmussen E.	Nord University Business School	Norway	9	1.5	247	2.1	7
4.	Fini R.	Alma Mater Studiorum Universita di Bologna	Italy	8	1.3	541	4.7	6
5-13.	Czarnitzki D.	KU Leuven	Belgium	7	1.2	137	1.2	5
5-13.	Etzkowitz H.	International Triple Helix Institute	US	7	1.2	599	5.2	4
5-13.	Guerro M.	Newcastle Business School	UK	7	1.2	134	1.2	4
5-13.	Hayter C.S.	Arizona State University	US	7	1.2	98	0.8	5
5-13.	Meoli M.	Universita degli Studi di Bergamo	Italy	7	1.2	51	0.4	3
5-13.	Siegel D.S.	Arizona State University	US	7	1.2	340	2.9	4
5-13.	Toole A.A.	Zentrum fur Europeische Wirtchaftsforschung GmbH Department of Agriculture	Germany US	7	1.2	137	1.2	5
5-13.	Urbano D.	Universitat Autonoma de Barcelona	Spain	7	1.2	134	1.2	4
5-13.	Vismara S.	Universita degli Studi di Bergamo	Italy	7	1.2	51	0.4	3

Source: own study based on data retrieved from Scopus database (accessed 19 May 2018).

The remaining categories are: Decision Sciences (58), Arts and Humanities (26), Computer Science (19), Environmental Science (12), Medicine (9), Multidisciplinary (8), Psychology (8), Biochemistry, Genetics and Molecular Biology (7), Energy (4), Pharmacology, Toxicology and Pharmaceutics (4), Materials Science (3), Chemistry (2), Earth and Planetary Sciences (2), Mathematics (2), Agricultural and Biological Sciences (1) and Chemical Engineering (1). Subject area profiling of the research output related to academic entrepreneurship covers the identification of the most prominent source titles, top contributing authors, and core references in each of the top areas under study i.e. Business, Management and Accounting, Economics, Econometrics and Finance, Social Sciences, and Engineering.

5.1. Journal – subject area profiling

In order to verify whether key subject areas are associated to some specific source titles, the top most productive journals in each of key subject areas are listed in Table 5. The catalog includes journals with 10 or more publications related to the issue of academic entrepreneurship.

Taking at least ten papers published as a cut-off point, we are left with five top-publishing journals: *Journal of Technology Transfer*, *Research Policy*, *Industry and Higher Education*, *Small Business Economics* and *Advances in the Study of Entrepreneurship, Innovation and Economic Growth*. All of them are included in the category of Business, Management and Accounting and categorized as leading journals in other subject areas under study. For instance, Business, Management and Accounting and Engineering have the same most cited journals. These are the *Journal of Technology Transfer* and *Research Policy*. The Economics, Econometrics and Finance area shares with Business, Management and Accounting such journals as *Small Business Economics* and *Advances in the Study of Entrepreneurship, Innovation and Economic Growth*. Finally, Social Sciences have the same most cited journal, i.e. *Industry and Higher Education* as Business, Management and Accounting area.

Table 5. Top most productive journals by subject area

Subject area	Journals
Business, Management and Accounting (442)	Journal of Technology Transfer (61) Research Policy (34) Industry and Higher Education (25) Small Business Economics (11) Advances in the Study of Entrepreneurship, Innovation and Economic Growth (10)
Economics, Econometrics and Finance (160)	Small Business Economics (11) Advances in the Study of Entrepreneurship, Innovation and Economic Growth (10)
Social Sciences (160)	Industry and Higher Education (25)
Engineering (129)	Journal of Technology Transfer (61) Research Policy (21)

Source: own study based on data retrieved from Scopus database (accessed 19 May 2018).

5.2. Author – subject area profiling

Another aspect which potentially can vary across different subject areas is related to the identification of the most prolific researchers. The list of key contributors in each of the key subject areas under study is provided in Table 6.

Table 6. Top most productive authors by subject area

Subject area	Authors
Business, Management and Accounting (442)	Wright M. (16), Grimaldi R. (9), Fini R. (7), Meoli M. (7), Rasmussen E. (7), Siegel D.S. (7), Vismara S. (7)
Economics, Econometrics and Finance (160)	Czarnitzki D. (5), Toole A.A. (5), Meoli M. (4), Vismara S. (4), Wright M. (4),
Social Sciences (160)	Etzkowitz H. (4), Nelles J. (4), Vorley T. (4)
Engineering (129)	Wright M. (7), Hayter C.S.(4)

Source: own study based on data retrieved from Scopus database (accessed 19 May 2018).

Analysis indicates that M. Wright is the most prolific researcher in the subject areas of Business, Management and Accounting (16) and Engineering (7). In the first-mentioned subject category, the main authors are as well: R. Grimaldi (9) and R. Fini, M. Meoli, E. Rasmussen, D.S. Siegel and S. Vismara (each of them wrote 7 works). In the case of Economics, Econometrics and Finance the highest number of publications was produced by D. Czarnitzki (5) and A. Toole (5), while in Social Sciences the most prolific authors are: H. Etzkowitz, J. Nelles, T. Vorley (each of them contributing 4 papers).

5.3. Core references – subject area profiling

The list presented in Table 7 includes the top most cited references categorized under the following leading subject areas: Business, Management and Accounting (BusMan&Acc), Economics, Econometrics and Finance Eco2Fin), Social Sciences (SocSci) and Engineering (Eng).

Among the most cited references, the main attention is received by the book of S. Shane titled *Academic Entrepreneurship: University Spinoffs and Wealth Creation* (Shane, 2004a), representing the Business, Management and Accounting subject area, which gathered 643 citations. In this work, the author explains the formation of university spin-off companies and their role in the commercialization of university technology and wealth creation in the United States and elsewhere. In the Economics, Econometrics and Finance subject area, the most often cited is the article of F. Rothaermel, S. Agung, and L. Jiang titled "University entrepreneurship: A taxonomy of the literature" (Rothaermel et al., 2007). Business, Management and Accounting and Engineering subject areas share the study of H. Etzkowitz titled "Research groups as 'quasi-firms': The invention of the entrepreneurial university" which is focused on an analysis of the transition from a research university to a entrepreneurial university (Etzkowitz, 2003) and the paper "Entrepreneurial orientation, technology transfer and spinoff performance of U.S. universities" authored by O'Shea et al. (2005).

Table 7. Core references by subject area

Article	Citations	Subject Areas			
		Bus-Man &Acc	Eco-2Fin	SocSci	Eng
Shane (2004a)	643	X			
Rothaermel, Agung & Jiang (2007)	572		X		
Etzkowitz (2003)	557	X			X
O'Shea, Allen, Chevalier & Roche (2005)	385	X			X
Walter, Auer & Ritter (2006)	372	X			
Klofsten & Jones-Evans (2000)	210		X		
Wright, Hmielski, Siegel & Ensley (2007)	89		X		
Rosa & Dawson (2006)	79		X		
Goethner, Obschonka, Silbersein & Cantner (2012)	54		X	X	
Galloway & Brown (2002)	136			X	
Colyvas & Powell (2007)	56			X	
Powers (2004)	54			X	
Urbano & Guerro (2013)	51			X	
Perkmann et al. (2013)	359	X			X
Gulbrandsen & Smeby (2005)	280				X
Goldfarb & Henrekson (2003)	252				X

Source: own study based on data retrieved from Scopus database (accessed 31 May 2018).

In addition, the top most cited reference categorized into the Social Sciences subject area is the work of L. Galloway and W. Brown titled "Entrepreneurship education at university: A driver in the creation of high growth firms" (Galloway & Brown, 2002). Summing up, in the catalog including the top 5 most cited publications in four subject areas under study (in total 20 titles) there are only 4 papers shared by two areas. Business, Management and Accounting shares 3 top highly-cited publications with Engineering (O'Shea et al., 2005; Walter, Auer & Ritter, 2006; Perkman et al., 2013). The work by Goethner, Obschonka, Silbersein and Cantner (2012) is shared by Economics, Econometrics and Finance with Social Sciences.

6. Topic profiling: Searching for predominant themes

The search for the keywords most often included in the papers comprising the research sample was used in order to identify the leading research topics within the field. The catalog of top 10 most often cited keywords contains such words as: 'academic entrepreneurship' (288), 'technology transfer' (117), 'education' (91), 'entrepreneurship' (55), 'societies and institutions' (51), 'university entrepreneurship' (42), 'university spin-offs' (40), 'entrepreneurial university' (39), 'innovation' (39), and 'entrepreneur' (37). Topic profiling of

the research output related to academic entrepreneurship is conducted from the perspective of contributing authors, the most prominent source titles, leading subject areas and core references.

6.1. Author – topic profiling

Continuing the analysis allows us to identify the following main topics (keywords) in research on academic entrepreneurship and their representative authors and these are listed in Table 8.

Table 8. Top 10 most often cited keywords

Keywords	Authors
academic entrepreneurship (288)	Wright M. (11), Meoli M. (7), Rasmussen E. (7), Vismara (7), Fini R. (6)
technology transfer (117)	Wright M. (8), Hayter C.S. (6), Grimaldi R. (5), Meoli M. (5), Vismara (5)
education (91)	Wright M. (8), Grimaldi R. (3), Knockhaert M. (3), Salter A. (3), Tartari V. (3)
entrepreneurship (55)	Hayter C.S. (5), Goel R.K. (2), Guerrero M. (2), Shane S. (2), Urbano D. (2)
societies and institutions (51)	Wright M. (5), Cunningham J.A. (2), Lockett A. (2), Rasmussen E. (2)
university entrepreneurship (42)	Nelles J. (3), Vorley T. (3), Bergmann H. (2), Chang T.Y. (2)
university spin-offs (40)	Wright M. (4), Bergren E. (3), Fernandez-Lopez S. (3), Rasmussen E. (3), Rodeiro-Pazos D. (3), Rodriguez-Gulias M.J. (3)
entrepreneurial university (39)	Errasti N. (4), Etzkowitz H. (4), Guerrero M. (3), Markuerkiaga L. (3), Urbano D. (3)
innovation (39)	Chang T.Y. (2), Cooke P. (2), Evers N. (2), Rasmussen E. (2), Shah S.K. (2)
entrepreneur (37)	Baba Y. (2), Bagchi-Sen S. (2), Braunerhjelm P. (2), Brostrom A. (2), Guerrero M. (2), Mosey S. (2), Rasmussen E. (2), Smith H.L. (2), Urbano D. (2)

Source: own study based on data retrieved from Scopus database (accessed 19 May 2018).

The topics of 'academic entrepreneurship,' 'technology transfer,' 'education,' 'societies and institutions' and university 'spin-offs' have the works of M. Wright in common, who is the leader as far as the number of publications in these areas is concerned. C.S. Hayter is the researcher who wrote most often about 'entrepreneurship' (5) and the second top author focused on 'technology transfer' (6). N. Errasti and H. Etzkowitz are the main contributors to studies on the issue of the 'entrepreneurial university.'

Regarding the topics of 'innovation' and 'entrepreneur,' there is no leading author found who used them more than 2 times.

6.2. Journal – topic profiling

Further analysis also allows us to identify the most often cited keywords that have been used by the most prominent journal titles within the field.

Table 9. Top most often cited keywords by journals

Journal	Keywords
Journal of Technology Transfer (62)	academic entrepreneurship (51), technology transfer (37), education (30), societies and institutions (20), university spin-offs (11), knowledge management (9), patents and inventions (9), industry (8), spin-off (8), engineering education (7), entrepreneurship (7)
Research Policy (34)	academic entrepreneurship (28), technology transfer (18), education (13), societies and institutions (12), research (7), industry (6), innovation (5), knowledge management (5), patents and inventions (5), university spin-offs (5), university-industry relations (5)
Industry and Higher Education (25)	academic entrepreneurship (12), entrepreneurial university (5), technology transfer (4), entrepreneurship (3), knowledge transfer (3), university entrepreneurship (3)
Small Business Economics (11)	academic entrepreneurship (7), technology transfer (4), entrepreneurial universities (3), entrepreneurship (2), regional development (2), spin-offs (2)
Advances in the Study of Entrepreneurship, Innovation and Economic Growth (10)	entrepreneurship centers (2), entrepreneurship education (2), university entrepreneurship (2)

Source: own study based on data retrieved from Scopus database (accessed 19 May 2018).

4 of the top 5 most prominent journals in the field (the exception being the *Advances in the Study of Entrepreneurship, Innovation and Economic Growth*) share the keywords of 'academic entrepreneurship' and 'technology transfer' among the top most often cited keywords. In all but one top 5 journals, 'academic entrepreneurship' is the leading keyword. *Journal of Technology Transfer* is the leader as regards the frequency of occurrence of 'academic entrepreneurship' (51) in its publications. Almost twice as rarely does this keyword appears in the journal *Research Policy* (28) and even less frequently in *Industry and Higher Education* (12) and *Small Business Economics* (7). The same applies with regard to 'technology transfer.' The third most often cited keyword both by *Journal of Technology Transfer* as well *Research Policy* is 'education' (43 times in total) and the fourth one – 'societies and institutions' (32 times in total).

Finally, *Advances in the Study of Entrepreneurship, Innovation and Economic Growth* is focused on 'entrepreneurship centers,' 'entrepreneurship education' and 'university entrepreneurship.' Only these three keywords can be found in this journal within the scope of the study.

6.3. Subject area – topic profiling

Table 10 shows the main topics (keywords) in the analyzed literature categorized by subject area.

All the subject areas put 'academic entrepreneurship' as the most frequently appearing keyword, which is cited most often in the subject area of Business, Management and Accounting (227 times), then in Engineering (96 times), Social Sciences (61 times) and the least in Economics, Econometrics and Finance (51). The next most often cited keyword is 'technology transfer.' Three of four subject areas are focused on that except for Engineering, which is a bit more centered on 'education' (57) than 'technology transfer' (54). 'University entrepreneurship' and 'entrepreneurial university' occur in three of the four subject areas except for Engineering.

Table 10. Top most often cited keywords by subject area

Subject area	Keywords
Business, Management and Accounting (442)	academic entrepreneurship (227), technology transfer (95), education (71), societies and institutions (40), entrepreneurship (37), university spin-offs (37), innovation (30), entrepreneurial university (27), university entrepreneurship (27), entrepreneurship education (22)
Economics, Econometrics and Finance (160)	academic entrepreneurship (51), technology transfer (21), entrepreneur (16), entrepreneurship (10), entrepreneurship education (9), university sector (8), university spin-offs (7), entrepreneurial university (6), spin-offs (6), universities (6), university entrepreneurship (6)
Social Sciences (160)	academic entrepreneurship (61), technology transfer (19), entrepreneur (17), entrepreneurship (17), entrepreneurial university (13), university sector (13), entrepreneurship education (12), university entrepreneurship (11), innovation (9), universities (9)
Engineering (129)	academic entrepreneurship (96), education (57), technology transfer (54), societies and institutions (37), engineering education (17), university spin-offs (17), industry (15), knowledge management (15), research (15), innovation (14), patents and inventions (14)

Source: own study based on data retrieved from Scopus database (accessed 19 May 2018).

As regards 'university spin-offs', this keyword also appears in three of the four subject areas excluding Social Sciences. Furthermore, Business,

Management and Accounting and also Engineering are focused on 'societies and institutions' (77 times if contributions are calculated together) but, interestingly, it does not appear in Social Sciences.

6.4. Core references – topic profiling

Table 11 shows core references corresponding to the top 5 keywords within the field, i.e.: 'academic entrepreneurship' (AE), 'technology transfer' (TT), 'education' (Edu), 'entrepreneurship' (Ent) and 'societies and institutions' (S&I). 7 publications are shared among the key research topics. The paper by Perkmann et al. (2013) is the only one included into three topics ('academic entrepreneurship,' 'technology transfer' and 'education'). The works by Etzkowitz (2003) and Walter et al. (2006) are shared by the studies focused on the issues of 'academic entrepreneurship' and 'technology transfer.' O'Shea et al. (2005) combine the topics of 'technology transfer' and 'societies and institutions,' Bercovitz and Feldman (2008) – 'technology transfer' and 'entrepreneurship' while Henrekson and Rosenberg (2001) – 'education' and 'societies and institutions.'

The most prominent authors have their specific topics of study. Etzkowitz (2003), Walter et al., (2006) and Perkmann et al. (2013) are concerned principally with 'academic entrepreneurship'; however, their studies also deal with some other topics such as 'technology transfer.' O'Shea et al. (2005) are focused on 'technology transfer' and 'societies and institutions.' In their research, the authors try to understand why some universities are more successful than others at generating technology-based spin-off companies. Henrekson and Rosenberg (2001) concentrate on topics such as 'societies and institutions' and 'education,' in particular, the authors suggest a framework for identifying the strategic individual decisions involved when educational choice is translated into science-based entrepreneurship. Their analysis suggests that a policy aimed at encouraging science-based entrepreneurship should focus on strengthening individual incentives for human capital investment and entrepreneurial behavior both within universities and in business. The studies by Bercovitz and Feldman (2008), Powers and McDougall (2005), Shane (2004b), Urbano and Guerro (2013), Toole and Czarnitzki (2007) are related to entrepreneurship.

7. Conclusions

Distribution of productivity in the research field and the number of citations received by analyzed publications confirm the growing interest of academia in researching the academic entrepreneurship issues.

Table 11. Top 5 most often cited core references by topic

Article	Citations	Topics				
		AE	TT	Edu	Ent	S&I
Etzkowitz (2003)	557	X	X			
Walter, Auer & Ritter (2006)	372	X	X			
Perkmann et al. (2013)	359	X	X	X		
Gulbrandsen & Smeby (2005)	280	X				
Goldfarb & Henrekson (2003)	252	X				
O'Shea, Allen, Chevalier & Roche (2005)	382		X			X
Bercovitz & Feldman (2008)	295		X		X	
Grimaldi, Kenney, Siegel & Wright (2011)	197			X		
Galloway & Brown (2002)	136			X		
Henrekson & Rosenberg (2001)	112			X		X
Bozeman, Fay & Slade (2013)	112			X		
Powers & McDougall (2005)	268				X	
Shane (2004b)	172				X	
Urbano & Guerro (2013)	51				X	
Hayter (2011)	45				X	
Toole & Czarnitzki (2007)	45				X	
Lockett, Siegel, Wright & Ensley (2005)	219					X
Van Looy, Landoni, Callaert, Van Pottelsberghe, Sapsalis & Debackere (2011)	102					X
Colyvas (2007)	82					X

Source: own study based on data retrieved from Scopus database (accessed 31 May 2018).

In order to provide the background for exploring thematic boundaries of the field, first of all, the paper identifies nations, research institutions, journals and authors considered to be the key contributors in the field. The findings show that the main contribution is provided by researchers affiliated to institutions in Europe and North America. Among the most productive countries, the leaders, in regard to both quantity and quality of publications, are the United States and the United Kingdom. While analyzing institution profiling from the quantitative perspective, the fragmentation of research output may be observed. Nevertheless, as regards the quality of publications, the papers affiliated at the top most productive universities are cited more often than the others. The most productive research institutions are Imperial College London and Ghent University (Universiteit Gent). The most prominent source titles within the field are *Journal of Technology Transfer* (the highest number of publications) and *Research Policy* (the highest number of received citations). M. Wright from

Imperial College London is the unquestioned leader among the most productive researchers within the research field related to academic entrepreneurship.

Secondly, the paper identifies the leading subject areas grouping research output in the field. The publications included in the research sample are distributed among 20 subject areas. The highest number of records is categorized under the following subject areas: Business, Management and Accounting, Economics, Econometrics and Finance, Social Sciences, and Engineering. Subject area profiling of the research output related to academic entrepreneurship has covered the identification of the most prominent source titles, top contributing authors, and core references in each of the top 4 areas under the study. Taking at least ten papers published as a cut-off point within the aforementioned key subject areas, five top-publishing journals are identified: *Journal of Technology Transfer*, *Research Policy*, *Industry and Higher Education*, *Small Business Economics* and *Advances in the Study of Entrepreneurship, Innovation and Economic Growth*. M. Wright is the most prolific researcher in the subject areas of Business, Management and Accounting and Engineering. In the first-mentioned subject category, the leading authors are as well: R. Grimaldi, R. Fini, M. Meoli, E. Rasmussen, D.S. Siegel and S. Vismara. In the case of Economics, Econometrics and Finance the highest number of publications was produced by D. Czarnitzki and A. Toole, while in Social Sciences the most prolific authors are H. Etzkowitz, J. Nelles, and T. Vorley. The most highly cited reference is the book of S. Shane titled *Academic Entrepreneurship: University Spinoffs and Wealth Creation* (Shane, 2004a), representing Business, Management and Accounting subject area, which gathered 643 citations. In the catalog including the top 5 most cited publications in the four subject areas under study (in total 20 titles), there are only 4 papers shared by two areas. None of the publications are listed among the top 5 within more than two subject areas.

Finally, the paper identifies predominant topics of publications within the research field. The catalog of top 10 most often cited keywords used for topic profiling comprises such words as: 'academic entrepreneurship', 'technology transfer', 'education', 'entrepreneurship', 'societies and institutions', 'university entrepreneurship', 'university spin-offs', 'entrepreneurial university', 'innovation', and 'entrepreneur'. Topic profiling of the research output related to academic entrepreneurship has been conducted from the perspective of contributing authors, the most prominent source titles, leading subject areas and core references. The works by M. Wright from Imperial College London, considered to be the most prolific author, are at the top of the publications related to 5 out of 10 leading topics within the field (i.e. 'academic entrepreneurship', 'technology transfer', 'education', 'societies and institutions' and university 'spin-offs'). 4 of the top 5 most prominent

journals in the field (the exception being the *Advances in the Study of Entrepreneurship, Innovation and Economic Growth*) share the keywords of 'academic entrepreneurship' and 'technology transfer' among top most often cited keywords. Moreover, *Journal of Technology Transfer* and *Research Policy* show much interest in issues related to 'education' and 'societies and institutions.' In regard to *Industry and Higher Education* and *Small Business Economics*, the other areas of interest are: 'entrepreneurial university' and 'entrepreneurship.' Similarly, 'academic entrepreneurship,' and 'technology transfer' are at the top of the lists for all subject areas under study. 'University entrepreneurship' and 'entrepreneurial university' occur in three out of the four subject areas except for Engineering. 'University spin-offs' is also found in three of the four subject areas excluding Social Sciences. As regards core references corresponding to top 5 keywords within the field, i.e.: 'academic entrepreneurship,' technology transfer,' 'education,' 'entrepreneurship' and 'societies and institutions,' 7 publications are identified which are shared among the key research topics. The most multidisciplinary is the paper by Perkmann et al. (2013) – the only publication covering three leading topics ('academic entrepreneurship,' 'technology transfer' and 'education').

Summing up, the study contributes to the existing body of knowledge through mapping the research field related to academic entrepreneurship and discovering its thematic boundaries, which has not been done before. This originality and novelty of the paper strengthen its value in the theory of academic entrepreneurship. The study responds to the question "Who constitutes the scholarly community engaged in the particular research domain?" (cf., Porter et al., 2002, p. 354) by defining top contributing nations, universities and researchers as well as core references. "What issues are central? (cf., Porter et al., 2002, p. 354) – this is the second important question which is answered by the study which identifies and thoroughly analyses leading subject areas and topics within the field.

Concluding the profiling study of the research field related to academic entrepreneurship, the limitations of the research process should be made explicit. First of all, although research profiling is considered to be an effective method of mapping the research field, using only one method should be considered as a weakness of the study. Moreover, although based on very concrete bibliometric data, the research methodology shows some tendency for subjectivity, e.g. while deciding about the criteria (the number of items) to cut off the data taken for more detailed analysis. Therefore, in order to validate the findings and increase the objectivity of the findings, further studies applying various methods (e.g., co-citation analysis or keywords analysis) are recommended in order to ensure enough triangulation. Secondly, the limitations of Scopus as a source of data for analysis should be mentioned. Certainly, Scopus is regarded as one of the

most prestigious database publications. Nevertheless, some important academic journals in the field of entrepreneurship (e.g., *Entrepreneurship Theory and Practice*) are not indexed in Scopus[3]. Therefore, in future research, other databases (e.g. Web of Science, EconLit, etc.) could be used to compare and contrast the identified thematic boundaries of the field. Moreover, Scopus is biased towards papers written in English, while neglecting a very abundant body of literature published in other languages. In order to mitigate the impact of this aspect, the replication of the study with the use of other databases covering publications in languages other than English is suggested. Thirdly, this study takes a picture of the research field as of May 2018. Due to the very dynamic development of the research field (cf., Figure 1), this static approach shows a high risk of becoming outdated. Therefore, the exact replication of the study over a 2-3 year perspective and a compare/contrast dynamic analysis are recommended in order to provide the answer to the last remaining question "how is the research domain evolving over time" (cf., Porter et al., 2002, p. 354).

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Biographical notes

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RESEARCH ON THE PROACTIVITY OF STUDENTS OF ECONOMICS AND MANAGEMENT FOCUSED ON A PROFESSIONAL CAREER

Anna Mazurkiewicz[1]

Abstract

The article focuses on the issues of proactivity, the sense of effectiveness in a career, and the orientation in the career of students of economics and management. These issues gain special significance in relation to the group of people planning and starting their careers as the decisions taken at the time of starting their professional activity have a significant impact on their future lives - both personal and professional ones. In addition, the responsibility for the shape and course of the professional career has been shifted towards the unit as its implementer. The aim of the article is to identify the orientation of students of economics and management majors towards a professional career and to get to know their assessment of the actions they undertake when starting their career, as well as to assess the effectiveness of these activities. The article contains theoretical considerations and the results of empirical research of a pilot nature. The research was conducted on a group of students from the Podkarpackie Province making a transition from the education system to the labor market. Their results showed that these people are more active than they are convinced of the success of their own efforts in planning and pursuing a professional career. The stability of employment is especially important for them; they are also aware of the importance of their knowledge and practical skills in their professional life. It is also important to reconcile private and professional life. Less important is the acquisition of successive managerial positions, independent action and socially useful activity. They have a moderate need for creativity, creation of new products and taking on challenges. Young or potential employees are least interested in geographical stability - they declare high mobility.

Keywords: *young people, career, career orientation, proactivity, sense of effectiveness in a career.*

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1. Introduction

Actions focused on the individual's influence on reality, engaging in changing the environment, using its creative capital (Szara, 2017) are nowadays expected both by the employee and necessary for the development of the organization. The willingness to take initiatives, the correct assessment of own abilities, as well as striving for development are characteristics valued by employers (Wypych, 2012).

The reasons are the changes taking place in the economic sphere, as well as socio-cultural and political ones, which affect the style and quality of private and professional life (Cybal-Michalska, 2012). Production and consumption patterns are changing and technological progress is continually being made. Changes in the labor market, which is becoming more and more diverse, are considered particularly important for employees (Baruch, 2004). The new conditions create challenges for employees and employer which also applies to career management. The possibilities of professional development have become less definable and predictable (Savickas et al., 2009). A contemporary career is characterized by transitions between organizations, often changing the profession (specialty) or a form of employment (Arthur & Rousseau, 1996, Briscoe & Hall, 2006, Sullivan & Arthur, 2006). In the traditional model of employer-employee relations, employees were involved in the long-term for the organization, today the transition to short-term relations is emphasized (Bohdziewicz, 2010). Career is perceived to a greater extent as the property of an individual - a view opposed to the traditional perception of it as a structural property of an organization or profession (Bańka, 2007). It is interpreted as "the total of positions, work, positions and professional experience accumulated by the individual" (Bańka, 2007, p. 13), which means that each individual carries out a unique career.

The presented premises stress that employees should engage in managing their own careers. In this context, the issue of pro-active action, which is perceived as the success factor of both the organization and the individual career, becomes important (Crant, 2000). Proactive individuals are also characterized by a strong sense of self-efficacy. When it comes to managing a career, first of all, the sense of effectiveness is vital.

The presented issues gain special significance in relation to the group of young people planning and starting their careers. Taking up a professional role is the most important task during early adulthood (Bańka, 2005), conditioning the solution of other problems related to the transition to adulthood. The decisions that are taken at this stage concern, among other things, career choices.

Knowledge about the level of proactivity and self-efficacy of young people is valuable for managers since the contemporary career, although the burden

of responsibility for its shape and course has shifted towards the individual as its implementer (Bohdziewicz, 2010), is managed in the organization (Baruch, 2004). Presented premises induce to look for actions that can be taken by employers to shape conditions that will enable the organization's goals to be met, as well as individual goals of young employees, for whom development opportunities are an attractive factor in the professional sphere (Mazurkiewicz & Moczulska, 2014) of their chosen career area.

The study focuses on issues of proactivity and a sense of effectiveness in a career, including individual orientations towards a career. The aim of the article is to identify the orientation of economics and management students towards a professional career, and to get to know their assessment of the activities they undertake when starting their career, as well as to assess the effectiveness of these activities.

In order to achieve the goal of the work, the literature of the subject was analyzed, and empirical studies were also carried out. The article emphasizes the importance of proactivity and self-efficacy, especially in a career, for young people starting their professional activity, and also specific orientations in their careers. The results of the empirical research and the use of selected statistical methods were presented and subjected to qualitative analysis - correlation relationships between proactivity, sense of effectiveness in career and orientation in the career of young people were determined.

2. Proactivity in career management by young people

Proactivity means that between a stimulus and a reaction a person has the freedom of choice (Covey, 2001). It defines the way individuals work, differentiates them to the extent to which they undertake activity to influence the environment (Crant, 2000). The proactive individual has "an ability to shape the environment to the extent that the environment is able to shape behavior" (Banka, 2005, p. 8), becomes an actor in organizational activities and is not only an "object" of the impact of organizational incentives and conditions at the workplace.

Proactivity includes both personality and contextual variables. A proactive personality is a disposition to take actions aimed at changing the environment (Bateman & Crant, 1993). Proactive activities, on the other hand, are taking initiatives to improve the current state or create new conditions (Crant, 2000).

Proactive individuals are characterized by initiative, responsibility for their own lives, conscious management of selected values to which actions are subordinated (Covey, 2001), perseverance and concentration on the long-term perspective (Veldhoven & Dorenbosch, 2008). A high level of extraversion, conscientiousness and openness to new experiences is characteristic for them

(Bateman & Crant, 1993) and high internal motivation (Wypych, 2012). These attributes are important for effective operation.

The main manifestation of proactivity is the management of one's own career (Wypych, 2012). Proactive units gain qualifications in advance, raise competences useful for the positions they want in the future. Thus, they contribute to promotion due to better preparation when taking up new positions.

The significant role of proactivity in career management stems from the fact that proactive entities create situations in which they are more effective. They set high standards and use available resources to achieve them (Bateman & Crant, 1993). They are determined to achieve the set goals, understand the sense of their actions take the initiative (Parker, 2010).

Proactivity is important at every stage of the career implementation, especially when starting a career - decisions made during the transition from science to the labor market have a significant impact on further life - both personal and professional (Suchar, 2010). Proactivity consists not only in predicting change, but most of all in creating it (Prabhu, 2013). Greater proactivity is important for the success of the career - objective and subjective (Erdogan & Bauer, 2005; Seibert, Crant & Kraimer, 1999). Bańka (2005) emphasizes that proactivity is "the most important condition for a successful transition to adulthood and the labor market" (p. 30).

3. Self-efficacy in managing a professional career

The shape and course of a career are largely determined by the conviction of self-efficacy, i.e. an individual judgment of one's own abilities, an ability to achieve the expected results (Bandura, 1994), concerning the individual's beliefs about their ability to engage in a specific field of behavior (Betz, 2004). The sense of self-efficacy affects the individual's well-being, thinking, motivation and action (Bandura, 1994), their choices, the effort involved and perseverance in the implementation of their efforts (Bańka, 2016).

People with strong conviction about their own abilities are willing to take on challenges, set more difficult goals, which leads to interest in and commitment to the activities carried out. They are more persistent, even in the event of failure. They have a sense of exercising control over difficult situations (Juczyński, 2000), which is undoubtedly the transition from the education system to the labor market. Self-efficacy is an important determinant of undertaking a specific action and its continuation. It is therefore important in the context of choosing and shaping a professional career.

Self-efficacy may be of a general nature or concern specific tasks, including those related to career planning. Its lack reflects negatively primarily in the self-efficacy of careers, in disorders of aspirations and decision-making processes

related to career (Krause, 2012). Self-efficacy in a career means assessing one's own personality traits, predispositions, qualifications and competences acquired as resources to pursue a career and assessing the chances of success (Krause, 2012). This is an assessment of trust in (Bańka, 2016):

- own social competences related to the learned skills of dealing with interpersonal contacts in various social, organizational and cultural environments (assessment of the possibility of success due to the possession of these social skills and experience) - trust in general life competences;
- qualifications and professional competences possessed from the perspective of requirements on the modern labor market - confidence in one's own professional competences;
- own skills of controlling life events (assessment of the ability to subject the situation directly and direct agency) - trust in own competence of event control;
- own skills of coordinating basic spheres and roles in life, such as work, family and others - trust in one's own competence in the field of coordination of various spheres of life.

4. Career orientation as a manifestation of the internal career dimension

Career has an external and internal dimension. In the external dimension, the career is interpreted in the context of activities undertaken in the organization towards people pursuing a career. It reflects the actual limitations and possibilities in the organization - it has a more objective character than the internal dimension (Derr & Laurent, 1989), which in turn means an individual representation of the individual regarding professional life and his own role in it, personal plans and aspirations. The essence of an internal career is, therefore, an individual career concept in the context of organization and occupations, while the essence of the external career is the organizational and professional context.

An important element of the internal career is the career anchor (Schein, 1985) or career orientation (Igbaria, Greenhaus, & Parasuraman, 1991). It is a set of talents and abilities perceived by the individual, basic values, motives and needs related to a career (Schein, 2007). Its importance stems from the impact on career choices, decisions regarding the choice and change of the profession, working conditions, as well as the employee's reactions to their professional experience. The career anchor shapes values important in the life of an individual, determines individual views on the future (Igbaria, Meredith, & Smith, 1995).

The identification of career anchors enables an organization to find a match between organizational and individual needs. The career anchor

directs the employees' efforts and indicates the actions that can be taken to achieve career goals (Igbaria et al., 1995). Eight career anchors are identified (Schein, 2007; Igbaria & Baroudi, 1992):

1) Technical/Functional Competence – related to the concentration on the internal, technical aspect of the work content and functional area of work.
2) Managerial competence – related to the pursuit of vertical promotion for a managerial position, which is a means to achieve a sense of success.
3) Autonomy/Independence – concerns situations related to the performance of professional duties, in which the entity is as limited as possible by organizational requirements in the use of its professional competences.
4) Security/Stability – applies to both geographical security (investing in a stable lifestyle in a specific geographical area), as well as employment security.
5) Entrepreneurial Creativity – characteristic for people striving to create something new by themselves - to develop a new product or service, set up their own business.
6) Service or dedication to a cause - related to devotion to others and making the world a better place to live and work.
7) Pure Challenge – features individuals with predispositions to overcome difficult obstacles, solve difficult problems and win with the most talented opponents.
8) Life style – individuals with this orientation, strive to develop a lifestyle that integrates the family and professional aspects with care for their own development.

The anchor of the career reflects the relationship between the character of the career chosen by the individual and its motivations and needs, the declared hierarchy of values and perceived competences.

5. Research methods

The research used a fragment of the Proactive Behavior Scale Questionnaire in Career developed by Bańka (2005), which is a tool enabling the measurement of the level of involvement and initiatives of people seeking to get their first job. The measurement was based on the part concerning general proactivity which refers to building the image of one's own person resistant to threats, adversities, partial failures, flexibility and openness to change. This part of the questionnaire consists of ten statements, evaluated on a 7-point Likert scale, from 1 ("totally disagree") to 7 ("I completely agree").

In order to assess self-efficacy in the career, the Self-esteem Self-confidence Scale in the International Career by Bańka (2016) was used, which

is applied to assess student perceived self-efficacy in a career. The Trust to Own Vocational Competency (SSZ) subscale was used which reflects the assessment of coping with the implementation of one's own professional career. The subscale consists of seven statements, evaluated in a 7-point Likert scale, from 1 ("totally disagree") to 7 ("I completely agree").

Career orientation was examined using a short version developed by Schein (1985) Career Orientation Inventory (COI) by Igbaria and Baroudi (1993). The inventory contained 25 statements, of which 15 related to the importance of each of the issues related to career (assessed on a scale from 1 - "meaningless" to 5 - "essential"), and another ten related to preferences for careers assessed on a scale from 1 - "I totally disagree" to 5 - "I totally agree".

The use of a short version or individual scales of questionnaires was justified by specific needs resulting from the purpose of the study, as well as the standardization of the research tool and the reduction of time-consuming use of it.

6. Results of pilot studies

Pilot studies were carried out in the Podkarpackie Voivodeship from November to December 2017. 186 students from three Podkarpacie higher education institutions participated in them, making a transition from the studies to the labor market – students in the last year of their second degree were invited to the study. Respondents studied as full-time (71%) and part-time (29%) students. Among them, there were women who constituted over 82% of the respondents. The proportions determined according to the gender criterion correspond to the structure of students and result from the specifics of the fields of study (Economics, Management) on which the research was carried out. The average age of respondents was 24.5 years old, and the average professional experience - less than two years (1.88 years), while more than half of the people (54.6%) had not undertaken any professional activity until the research was conducted. 85% of the respondents were single people. Taking into account the place of residence, the majority of respondents were rural residents (59%).

Individual indicators were calculated as average values from responses to statements specifying proactivity, a sense of self-efficacy in a career (table 1), as well as career orientation (Table 1).

The results of the conducted research prove that students have more than average proactivity - they rated their general disposition for proactivity on average to 4.84, with slightly higher activity of men (4.87) than women (4.83). The obtained results testify to an above-average commitment to changing

one's self through building inner psychic strength and harmony, which bring closer to the goals related to the definition and start of a career.

Table 1. Descriptive characteristics of respondents' answers regarding proactivity and the sense of effectiveness in a career

Characteristics	Total	Women	Men
General proactivity	4.84	4.83	4.87
A sense of self-efficacy in a career	4.37	4.35	4.55

Source: author's own calculations based on research results.

Students declare the greatest activity in the search for opportunities contributing to the start of their careers. On the other hand, it is a difficult task for them to anticipate events - they admit that others can perceive opportunities faster. Such high results do not mean that the respondents lack people who are characterized by average or lower involvement in activities related to managing their own careers at the initial stage - some people have not shown much activity in this area.

Men are more convinced of self-efficacy in their career performance (average result 4.55) than women, for whom the average value was 4.35. This means that men have more trust in their professional competences, have greater predispositions to take up challenges and engage in activities related to planning and pursuing their careers, and are more resistant to failure in this area. They are more confident in decisions related to the choice of career goals and in planning processes related to career orientation.

An analysis of career orientation results (Table 2) showed that the respondents were the most job-oriented, which ensures employment stability (average result 4.77), and is a particularly important issue for women - the result of 4.81 significantly distinguishes this from other results in this group. Certainty of employment is also the most important for men, with the fact that the differences in the obtained average values regarding the orientation towards a career are smaller among them than in the case of women. Individuals anchored in the sphere of security are looking for an employer with whom they could become loyally involved, which translates into career planning within a given organization (Smolbik-Jęczmień, 2017).

Young people are also aware of the growing importance of knowledge and skills - they are strongly anchored in technical competencies (average result 4.49). It is important for them to be an expert in a specific field, confirm their own championship, which is especially important for women (average result 4.51), and to a lesser extent for men (average result 4.43). Individuals

with such interests do not strive for higher positions as horizontal promotion is satisfactory for them.

Table 2. Descriptive characteristics of respondents' answers regarding career orientation

Orientation in a career	Total	Women	Men
Technical competence	4.49	4.51	4.43
Managerial competence	4.32	4.31	4.39
Autonomy/Independence	4.13	4.11	4.24
Security – Job tenure	4.77	4.81	4.59
Security – Geographic	3.69	3.69	3.68
Entrepreneurial Creativity	3.92	3.90	3.98
Service or dedication to a cause	4.17	4.17	4.18
Pure Challenge	3.84	3.81	4.0
Life style	4.34	4.34	4.31

Source: author's own calculations based on research results.

Students' lifestyle is of lesser importance (average result 4.34) and managerial competences (average result 4.32). The first result means striving for harmony between various aspects of life, especially professional, personal and leisure time (Smolbik-Jęczmień, 2017). The expectation of flexible working time and mobility is more important for women (average result 4.34) than for men (average result 4.31), which could be explained by the multiplicity of roles they have to meet in society. On the other hand, managerial competences are more important for men (average result 4.39) than for women (average result 4.31). Managerial orientation is associated with well-developed interpersonal, leadership and emotional skills as well as the skills of integrating one's own work and the team. These skills go beyond the technical aspect of the job. Individuals with this orientation strive to gain new experiences in managerial positions, increase the scope of power, and make decisions about financial consequences (Smolbik-Jęczmień, 2017).

Further determinants of the careers of young people are services and dedication to the cause (average result 4.17) and autonomy and independence (average result 4.13). In the case of the first anchor, the results are similar for both women and men, which mean that students are naturally oriented to socially useful activity - providing help and support to others. To this extent, they also have developed social needs. They are moderately interested in achieving something significant in a context that is broader than professional (related to earning income).

Men tend to be more inclined to act independently (average result 4.24). In the case of women, activity without restrictions related to bureaucracy

and autocratic management style is less important (average result 4.11). This means that students are moderately interested in broadening the scope of their independence and at the same time taking over responsibility for the implemented activities, which is especially true for women. The work of an independent specialist is only appropriate for some of them.

In the case of other anchors, the average result for the whole group of respondents was obtained, as well as separately for women and men at the level not exceeding 4.0. The highest level of skills, motivation in relation to the lowest-rated anchors, students declare in the field of creative entrepreneurship (average result 3.92). To a very moderate degree, they feel the need for creativity and creation of new products, which was confirmed mainly by women (average result 3.90). Men are more strongly orientated towards solving non-standard problems, initiating changes, taking calculated risks, becoming independent; they also feel a stronger need for autonomy - in this group the average result was 3.98. Men are motivated by the challenges (average result 4.0) far more than women (average result 3.81). They are more focused on rivalry, risk-taking, searching for new solutions, overcoming barriers and limitations.

The lowest numbers are anchored in geographical stability – the average score in the group of respondents was 3.69, with the answers of women and men converging. This means that they have little predisposition to stabilize their lives in geographical terms – settling in a specific region and abandoning the displacements proposed by the employer. They are flexible and show a greater propensity for mobility.

The last stage of the research was to establish the relationship between gender, proactivity, sense of effectiveness in a career and career orientations (table 3).

The sense of effectiveness in a career is strongly correlated with creative entrepreneurship (correlation coefficient 0.32), a challenge as well as autonomy and independence, followed by dedication to the cause and managerial competences and lifestyle. It should be noted that for the majority of respondents, the dependencies of proactivity and the sense of effectiveness in a career with particular career orientations, correlation coefficients are statistically significant. On the other hand, gender in the case of young people is not a determinant of career orientation. Relations confirm the stronger orientation of men to the challenge, autonomy and independence as well as managerial competences, while women are primarily focused on employment stability, lifestyle and technical competences. However, the correlation coefficients obtained are not statistically significant, except for the correlation with the orientation on employment stability.

Table 3. Correlations between gender, proactivity, sense of effectiveness in a career and career orientations

Variables	Career Orientations								
	Technical competence	**Managerial competence**	**Autonomy/ Independence**	**Security Job tenure**	**Security Geographic**	**Entrepreneurial Creativity**	**Service or dedication to a cause**	**Pure Challenge**	**Lifestyle**
Gender (1-M,2--K)	0.06	-0.05	-0.08	0.2*	0.02	0.00	-0.004	-0.09	0.03
General proactivity	0.33*	0.33*	0.36*	0.15*	0.06	0.35*	0.16*	0.30*	0.18*
A sense of efficiency in a career	0.16*	0.25*	0.28*	0.14	0.18*	0.32*	0.25*	0.29*	0.22*

* values of the correlation coefficient statistically significant at the significance level α=0,05.
Source: author's own calculations based on research results.

7. Conclusion

The aim of this article was to identify the orientation of economics and management students towards a professional career, and to get to know their assessment of the activities they undertake when starting their career, as well as to assess the effectiveness of these activities. An analysis of the results of the conducted research has shown that young people transitioning from the education system to the labor market are more involved in activities aimed at starting and implementing a career than they are convinced about their effectiveness in managing their own careers. The answers provided show that most of them are aware of the importance of a proactive approach to shape their own careers, which is expressed by taking actions that bring them closer to achieving goals and tasks related to a career start. Some people, however, have little or no involvement in planning their own careers, which confirms the results of research conducted so far in Poland (including Bańka, 2005). This is a surprising observation as career planning is particularly important for potential employees (De Vos, De Clippeleer & Dewilde, 2009). This attitude may be influenced by the perception of the future as uncertain, hence in a general way (Krause, 2012). Establishing individual career goals is the basis for engaging in proactive careers (De Vos et al., 2009).

At the same time, young people do not assess their own personality traits, predispositions, acquired qualifications and competences as necessary resources to pursue a career, as well as their chances of success. The reason for this situation may be inadequate professional experience or lack of it, which makes it impossible to confirm the status of these attributes - the inability to verify in practice the level of competence, predisposition or awareness of one's own personality traits in the professional sphere.

For young or potential employees, especially women, stability of employment is particularly important - it proves the aspirations of people starting their professional life to achieve employment and regular remuneration in an unstable environment, which will in turn give stability to their private lives. They are also aware of the high importance of their knowledge and practical skills, and to assess the level of development of their interpersonal, emotional and teamwork skills. At the same time it is important for them to maintain a balance between work and private life.

Young people are more active than they are convinced about the success of their own efforts in planning and pursuing a career. Their impact on the environment is positively correlated, especially with career orientations that require special activity and creativity in their professional life. Proactive behavior, focused on a career at an early stage, is important for career success (De Vos et al., 2009). With regard to the sense of effectiveness in a career, the weakest correlation occurs with orientations that do not require any changes - with safety and stability. This sense is significant for orientations related to independent action and risk-taking. The results regarding the sense of effectiveness in a career are important due to the fact that the level of motivation, affective states and actions of the individual depend to a greater extent on its perception of the possibility of a specific action than on the objective state. Hence, it is important that managers learn individual, subjective assessments of their own capabilities by employees (Banka, 2016). In turn, knowledge about career orientation is useful both for an individual planning a career or intending to change its current course, as well as for employers supporting employee activities in career management.

The conducted research indicates the intentions and motivations necessary to take action. They do not focus on the results of this action regarding career progression and its success. It would be beneficial to broaden the research into further areas, in particular, to extend the time perspective, which would enable a comparison of intentions with real achievements. It would also be valuable to focus on the issue of the shape of your career in relation to actions taken at its early stage.

Empirical research was conducted on a group of students of economics and management in the Podkarpackie Voivodeship, which is not a basis for

generalizing the obtained results to students of other disciplines and students studying in other centers. The respondents' answers may also be influenced by cultural conditions, socio-economic status and other characteristics that have not been included in this research.

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THE IMPACT OF EXTERNAL FINANCING ON FLEXIBILITY AND PERFORMANCE OUTCOMES OF MICRO AND SMALL ENTERPRISES

Tomasz Miszczak[1], Edward Stawasz[2]

Abstract

The aim of the presented paper is to assess the impact of external financing on the flexibility and performance outcomes of micro and small enterprises. The concept, related factors, areas and effects of enterprise flexibility as well as the determinants of using external funding by enterprises are discussed. The impact of external financing on flexibility, including commercial and public sources of funding, is also presented. The second part of the paper presents the results of empirical research carried out on 91 micro and small Polish enterprises that were using external financing. The conducted research confirms the hypothesis concerning a diversified impact of external financing on the flexibility of enterprises. The hypothesis about the impact of flexibility on achieving development goals of enterprises has also been confirmed. Success in this area requires improved flexibility.

Keywords: *micro and small Polish enterprises, external financing, flexibility.*

1. Introduction

In the management literature, flexibility and entrepreneurship are mentioned as natural assets of the sector for micro and small enterprises (Blackburn, Hart, & Wainwright, 2013; Gudkova, 2008). The use of these assets is one of the significant challenges in running enterprises successfully in an increasingly uncertain business environment (Grabowski & Stawasz 2017).

Flexibility is a complex and multidimensional concept (Krupski, 2008; Dreyera & Gronhaugb, 2004; Osbert-Pociecha, 2004). In the paper, flexibility is understood as the ability of an organization to quickly respond to changes in the environment as well as within the organization itself, and as the freedom

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of managers in shaping structures and procedures as well as in implementing development plans (Van der Weerdt, Verwaal, Volberda, & Stienstra, 2014; Golden & Powell, 2000). Flexibility, in the case of micro and small enterprises, results, as a rule, from their small size, scope and scale of operations, their simple organisational structure and the dominant role of the owner in managing the enterprise, which enables faster assessment and decision making as compared to larger scale entities (Spithoven, Vanhaverbeke, & Roijakkers, 2013; Ebben & Johnson 2005). It also allows managers to implement faster innovative and entrepreneurial ideas (Berends, Jelinek, Reyman, & Stultiens, 2014). Thus understood, flexibility is mentioned as one of key conditions of success for micro and small enterprises (Bodlaj, Povse, & Vida, 2017; Matejun, 2015; Fiegenbaum & Karnani, 1991). Among the determinants of flexibility, financial resources can be mentioned, including access to external financing. The issue of the impact of external financing on small enterprises' performance is quite well recognized (Abdulsaleh & Worthington, 2013; Nurdiani, Borslet, & Fricker 2012; Vos, Jia-Yuh Yeh, Carter, & Tagg, 2007; Hatum & Pettigrew, 2006). However, there is no in-depth interpretation of the impact of external financing on shaping the flexibility of micro and small enterprises (Stanisławski, 2013). This impact seems to be determined by numerous factors: industry and market-related factors, the scale and age of enterprises, the degree of development of the consulting services market, as well as the knowledge and experience of business managers. On the other hand, flexibility can play a modifying role in determining the external financing-business performance outcomes relationship (Van der Weerdt et al., 2006). For this reason, it may be interesting to examine the role of external financing in shaping the flexibility and performance of micro and small enterprises.

The paper is devoted to discussing the impact of external financing on the flexibility and performance outcomes of micro and small enterprises. An assumption has been made about a diversified impact of external financing on the flexibility of enterprises, depending on individual sources of external financing, the scale and age of enterprises, as well as the business knowledge of their managers. The assumption about a positive and significant impact of changes in flexibility, caused by external financing, on the achievement of development goals has also been adopted, i.e., the higher the required performance of enterprises, the greater the importance of improving the flexibility of enterprises. The paper presents the diversification of enterprises due to the level of their flexibility and the relationship between external financing and enterprise flexibility, as well as the determinants and effects of this relationship. The second part of the paper presents the results of empirical research conducted among 91 Polish micro and small enterprises that were using external financing, broken down into commercial and public sources

of funds, operating in industries characterized by high instability and posing a considerable risk for enterprises operating in them. The analysis of the results of the research confirms the hypothesis assumption about a diversified impact of external financing on the flexibility of enterprises, depending on the sources of financing as well as the scale and age of enterprises, along with the level of business knowledge of their managers. It also confirms the hypothesis about the impact of changes in flexibility, caused by external financing, on the achievement of development plans of enterprises.

2. External financing and flexibility of micro and small enterprises

2.1. The concept of flexibility

Flexibility, along with quality and efficiency, is becoming a pillar of a modern paradigm of managing organizations that function in an increasingly dynamic and uncertain environment (Krupski, 2008). It is a complex and multidimensional concept, which is why there is no single universally accepted definition in the literature (Dreyera & Gronhaugb, 2004; Osbert-Pociecha, 2004). It is contrasted with such concepts as stability (Orton & Weick, 1990) and rigidity (Stabryła, 2005), and associated with the concept of adaptation. Adaptation and flexibility, in the context of an organization, are often perceived as synonymous. More precisely, adaptation is an adjustment, while flexibility means agility, mobility, extensibility, as well as quick response and recovery, which is also a kind of adaptation (Krupski, 2008). Based on a review of definitions in the literature, the authors have formulated their own definition of flexibility – it is an organization's ability to respond effectively and quickly to changes within and around a given enterprise, its ability to create these changes, and adapt to a change of each element separately as well as to change in the organization as a whole. The variety of definitions of flexibility present in the literature is also related to the variety of types of flexibility (Kortmann, Gelhard, Zimmermann, & Piller, 2014; Cingoz & Akdogan, 2013; De Toni & Tonchia, 2005; Osbert-Pociecha, 2004).

Flexibility, as one of key strengths of micro and small enterprises, means a need for a better use of knowledge resources by managers and their employees, their openness to change, and the monitoring skills used to recognize even the weakest, but important, signals coming from the enterprise itself and/or its environment. In this case, the reaction time and, consequently, the time taken to make decisions is a key factor in the exploitation of an opportunity or providing a response to a threat, compared to larger scale entities (Spithoven et al., 2013; Chajęckim Krzakiewicz, & Chajęcki, 2012;

Ebben & Johnson, 2005). It enables managers to implement innovative and entrepreneurial ideas (Berends et al., 2014). Flexibility is thus an important tool affecting the competitiveness of a given enterprise in its environment. Quick reactions, efficient actions undertaken and a readiness to make changes may result in effective exploitation of emerging opportunities or mitigation of threats affecting the functioning of an organisation. Flexible organisation management translates into the effectiveness of a given company, which ultimately affects its performance and success (Pecujlija et al., 2017; Krupski, 2008; Englehardt & Simmons, 2002).

Elements shaping flexibility are diverse and concern many areas of every company's operations. Among them, the following can be distinguished: the organisation's goals (which when properly defined indicate the direction the company is to follow); information resources, including all kinds of knowledge in the company's possession; speed of information acquisition; employee qualifications and the ability to use employee competencies; as well as financial resources that, when combined with entrepreneurial management, directly enable the organisation to provide the necessary material resources, and grant the freedom to adapt technologies, used to implement the key production and/or service activities of the company. A lack of access to financial resources hinders the development of an organisation (Sipa, Gorzeń-Mitka, & Skibiński, 2015; Zvirblis & Buracas, 2012).

2.2. Flexibility and external financing

External financing is a surplus of capital – financial or material – coming from outside of the company, lent or given into the possession of this company, for a definite or indefinite period, with the rules set out in an agreement. External financing can be divided into: commercial financing and financing with the participation of public funds. Commercial financing includes: credit, leasing, credit guarantee fund, venture capital fund, and factoring. Financing with the participation of public funds encompasses: EU subsidies for starting a business, EU subsidies for innovation, research and development of enterprises, loan funds (e.g., JEREMIE), and funds from the labour office or PFRON. Financing with the use of public funds is characterised by non-returnable capital received or a low interest on debt incurred in the case of loans.

The choice of the type of financing, commercial or public, seems to be a factor influencing the flexibility (freedom of action) of an enterprise. The offer of commercial financing for micro and small enterprises is limited, due to, for example, their short period of activity, lack of credit history, sureties and collaterals. For this reason, financing with the participation of public funds may play an important role in financing these enterprises. Using solutions

existing within the framework of regional and national support systems targeted at entrepreneurs gives them the opportunity to obtain non-returnable funding for the establishment or development of business activities (Beck & Demirguc-Kunt, 2006; Matejun, 2015). The use of public funds is, however, connected with some inconveniences that entrepreneurs have to face when deciding on this form of financing. The most significant are: complicated procedures for submitting a grant application as well as related documentation and statements; a long period for processing applications which may result in a delay in investment; limited flexibility in spending the received financial assistance; audits conducted by the financing institutions, and in the case of irregularities, financial liability (Matejun, 2015). The above-presented factors may negatively affect the flexibility of micro and small enterprises (Głodek & Wiśniewska, 2016).

The impact of external financing on flexibility seems to be determined also by numerous factors: industry and market-related factors, the scale and age of enterprises, the degree of development of the consulting services market, as well as the knowledge and experience of the managers of enterprises (Abdulsaleh & Worthington, 2013; Łuczka, 2001). The business knowledge of managers about the conditions of obtaining external financing gives them the opportunity to choose what type of financing to use. In this case, the scale and age of the company also play a role, since they are often correlated with the choice of the type of financing. The entrepreneur's experience in the area of business management, as well as obtaining external financing, may also have a significant impact on the decisions made. Managers learn to acquire financing, and then in subsequent stages they can operate in a smoother, more flexible and efficient manner in this respect.

The model of dependencies illustrating the relationship between external financing, flexibility and business performance is presented in Figure 1. The following research hypotheses have been adopted: about a positive impact of external financing on improving the flexibility of enterprises (H1), about a positive impact of external financing on the performance outcomes of enterprises (H2), and about a positive impact of improved flexibility on the performance outcomes of enterprises (H3). The above-presented dependencies are modified by the characteristics of enterprises (the scale and age) as well as managers' characteristics (their experience and level of business knowledge).

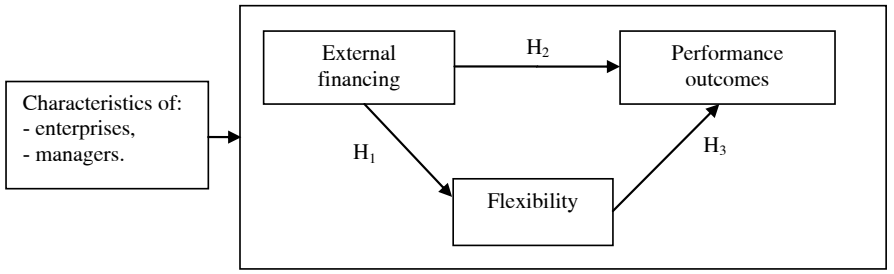

Figure 1. The proposed impact model

3. Research methodology

3.1. Characteristics of the sample

The inference as to the impact of external financing on the flexibility and performance outcomes of enterprises was made based on the results of empirical research[3]. The research methodology assumed that the sample would include 130 business entities from the sector of domestic micro and small enterprises (with up to 49 employees) operating in various industries, randomly selected using a random number generator from a group of 400,000 entities in a database of enterprises operating in the Lodz and Lublin Voivodeships.

In the analysed sample of 130 enterprises, 91 entities (70% of the total sample) used external financing, including public funds. The majority of the 91 enterprises were mature entities with more than 3 years of market presence (69.3% of the enterprises), while the share of young enterprises (up to 3 years of activity) amounted to 30.8% of the sample. Most of the enterprises were micro enterprises (employing up to 9 people), constituting 86.8% of the sample, while the share of small enterprises (with 10-49 employees) was small and amounted to 13.2% of the sample. As far as the market structure was concerned, the regional and national market predominated (66.9% and 61.5% of the enterprises, respectively), while 16.9% of the enterprises surveyed operated in international markets. The vast majority of the enterprises conducted business activity in the form of individual business activity (84.6% of the enterprises), the remaining were partnerships (9.9%) and commercial

3 The study was conducted with the participation of the Authors in 2017 as part of the project entitled "Flexibility of small enterprises in the context of external financing with the participation of public funds" (Miszczak, 2017). The aim of the research was to determine the impact of external financing with the use of public funds on the flexibility and performance of micro and small Polish enterprises. The survey was conducted using the method of computer-assisted direct telephone interviews (CATI), by means of a questionnaire form, with the owners or co-owners of enterprises or their general managers.

law companies (5.5%). The industry structure of the sample was very diverse: services dominated (56.0% of the enterprises), followed by trade (28.6% of the enterprises) and manufacturing (15.4% of the enterprises). In the opinion of the enterprises surveyed, the industry in which they operate is characterised by a relatively high rate of change (44% of the enterprises), which means instability and a high risk for companies operating in the industry. 27.5% of the enterprises operated in high risk industries and 26.4% of the enterprises functioned in low risk industries.

4. Discussion and results

4.1. External financing and business performance

All the surveyed enterprises (91 entities) benefited in the years 2015-2017 from the use of various sources of external financing for their development activities. The sporadic (once in the period of three years – 2015-2017) use of external financing (61.5% of the enterprises) prevails, as only 38.5% of the enterprises used external financing more than once. Banking services (approx. 55% of the enterprises) and leasing (approx. 50% of the enterprises) were used to the greatest extent. 29% of the enterprises used financing from EU funds, and other funding sources played only a minor role.

The analysis divided the sources of external financing into solely commercial sources (bank loans, leasing, venture capital and factoring/ forfaiting) and solely public funds (EU funds, loan funds and credit guarantees, as well as resources from the labour office and PEFRON). Solely commercial sources are dominant (70.3% of the enterprises), as only 18.7% of the enterprises indicated solely public sources as their sources of external financing. However, 11% of the enterprises indicated mixed sources.

The importance of external financing for the achievement of the intended development goals was assessed inconsistently. In the opinion of 47.3% of the surveyed managers, external financing has a positive impact. However, 31.9% of the managers assessed this impact as negative, due to numerous difficulties related to the complicated procedures of obtaining the funds and their settlement, as well as a lack of possibility to change the set direction of a given project. For 20.9% of the managers, external financing is of neutral importance (Table. 1). The impact of external financing on the achievement of the intended development goals of the enterprises surveyed is diversified in terms of individual sources of financing. A positive impact is most noticeable in the case of solely public financing (70.6% of the enterprises). In the case of commercial and mixed financing, negative impacts are similar (40-42.2% of the enterprises).

Table 1. The impact of external financing on performance outcomes of enterprises

Sources of financing	Impact on performance outcomes		
	Negative impact	No change	Positive impact
Commercial	37.5	20.3	42.2
Public	5.9	23.5	70.6
Mixed	40.0	20.0	40.0
Total	**31.9**	**20.9**	**47.3**

Note: data for 91 enterprises.

4.2. Flexibility

In the opinion of the business managers surveyed, flexibility of operation is of great importance for managing enterprises and achieving the set development goals (65.9% of the enterprises). Only for 34.1% of the managers is flexibility of lesser importance.

According to the assessment (made on a 1-5 point scale, where 1 point meant no impact and 5 points a very significant impact on flexibility) of 7 selected determinants of flexibility made by the managers, matching the product/service to market needs (4.3 points) and their employees' qualifications (4.2 points) are considered as the most important. Flexibility of enterprises is, relatively, the least affected by the organisation's goals (3.3 points). The impact of financial resources on the flexibility of enterprises was assessed as high (the average rating was 3.9 points) (Table 2).

Table 2. Determinants of enterprise flexibility

Determinants of flexibility	Average rating*
Matching the product/service to market needs	4.3
Employees' qualifications	4.2
Information resources	3.9
Financial resources	3.9
Material resources	3.6
Technology adaptation	3.5
Goals of the organisation	3.3

Note: * point rating system; data for 91 enterprises.

The paper attempts to estimate the direction of the impact of external financing on the flexibility of enterprises (measured on the basis of the surveyed managers' assessment expressed on a 1-5 point scale where: 1-2 points

indicate a very negative or mostly negative impact on flexibility, and 3 points mean no impact, while 4-5 points indicate a positive or very positive impact on flexibility). On the basis of the analysed index, the enterprises were divided into three categories: i.e. enterprises experiencing a negative impact (reduced flexibility), enterprises experiencing no impact (no change) and enterprises experiencing a positive impact (improved flexibility). The breakdown of the enterprises according to the assessment of the impact of external financing on their flexibility is presented in Table 3. A group of enterprises experiencing a positive impact on improving their flexibility of operation (39.6% of all the enterprises) and a group of enterprises experiencing no impact on their flexibility (37.4% of all the enterprises) dominate, while a negative effect was noted by 23.1% of all the enterprises.

Table 3. The impact of external financing on the flexibility of enterprises

Sources of financing	Impact on flexibility		
	Negative impact	No change	Positive impact
Commercial	26.6	37.7	35.9
Public	11.8	35.3	52.9
Mixed	20.0	40.0	40.0
Total	**23.1**	**37.4**	**39.6**

Note: data for 91 enterprises.

The impact of external financing on the flexibility of enterprises varies considerably depending on individual sources of financing. A positive impact is the most noticeable in the case of solely public financing (52.9% of the enterprises surveyed) and mixed financing (40.0% of the enterprises). On the other hand, a negative impact was noted in the case of solely commercial financing (26.6% of the enterprises) and mixed financing (20.0% of the enterprises). The lack of changes in flexibility was diversified to a small degree and affected from 35.3% of the enterprises surveyed (public financing) to 40.0% of the enterprises (mixed sources of funding).

The impact of selected characteristics of the enterprises surveyed, affecting the relationship between external financing and flexibility, is presented in Table 4. They include: the scale of operations and the age of enterprises, the level of business knowledge of their managers, and the planning system used in enterprises. The relatively most favourable conditions for a positive impact of external financing on the improvement of the flexibility of the enterprises surveyed occurred in entities with a smaller scale of business activity, over 3 years of age, with a business plan and a greater level of business knowledge of the managers. These entities indicate the higher attractiveness of external financing, in particular with the participation of public funds, for the

implementation of their development goals, as well as the need to improve flexibility, which is connected with the choice of external financing sources.

Table 4. The impact of external financing on flexibility and selected characteristics (%)

Characteristics	Impact on flexibility		
	Negative impact	No change	Positive impact
Scale of enterprises			
1-9 persons	22.8	34.2	43.0
10-49 persons	25.0	58.3	16.7
Age of enterprises			
up to 3 years	0.0	100.0	0.0
4-10 years	29.0	22.6	48.4
more than10 years	15.6	40.6	43.8
*Level of managers' business knowledge**			
low	23.9	39.1	37.0
high	22.2	35.6	42.2
Planning			
formal or informal	21.6	35.1	43.2
no planning	29.4	47.1	23.5

Note: data for 91 enterprises; * measured on a 1-5 point scale, low level (1-3 points), high (4-5 points).

4.3. Dependencies

In order to determine the impact of changes on flexibility, caused by external financing on the performance of the enterprises surveyed, Spearman's rank correlation coefficient was applied. The analysis shows that this relationship is statistically significant (Table 5). This applies to the impact of both total external financing as well as solely commercial and solely public financing. Only in the case of mixed sources of funding was such a relationship not found. For total external financing, this relationship was moderate (the coefficient amounted to 0.380). As far as individual sources of external financing are concerned, changes in the flexibility of the enterprises surveyed have the greatest impact on their performance in the case of financing derived solely from public sources (the coefficient was high and amounted to 0.468) compared to financing derived solely from commercial sources (the coefficient was moderate and amounted to 0.291).

The above-presented results seem to indicate that, in the sample of micro and small enterprises, an improvement in flexibility as a result of external

financing was accompanied by an improvement in the implementation of development goals (market goals, the implementation of innovations or the improvement of employee competencies), while a deterioration of flexibility of operation had a negative impact on achieving the development plans of the enterprises surveyed.

Table 5. Dependencies (measured by Spearman's rank correlation coefficient)

Sources of funding	Coefficient	Threshold significance level
Total external financing	0.380	0.000
Solely commercial financing	0.291	0.020
Solely public financing	0.468	0.058
Mixed financing	0.536	0.110

Note: Data for 91 enterprises.

5. Conclusions

The analysis of the research results confirms the hypothesis about a positive impact of external financing on the surveyed micro and small enterprises' performance and a positive impact of external financing on the improvement of the enterprises' flexibility. However, the impact of external financing on the achievement of the surveyed enterprises' development plans was diversified depending on the individual sources of financing. A positive impact of external financing was the most noticeable in the case of solely public financing. The impact of external financing on the flexibility of the surveyed enterprises was also diversified depending on the individual sources of financing. A positive impact is the most evident in the case of solely public financing and mixed sources of financing, while the most negative impact can be seen in the case of solely commercial and mixed sources of financing. The research has also confirmed the hypothesis about the dependence of the achievement of enterprises' development goals on changes in their flexibility caused by external financing. An improvement of flexibility as a result of external financing was accompanied by an improvement in the implementation of development plans, while a deterioration of flexibility (rigidity) had a negative impact on achieving the surveyed enterprises' plans. It seems that this means that enterprises' business success requires some improvement in their flexibility.

Among the characteristics that may affect the relationship between external financing and the development plans of enterprises, as well as external financing and enterprise flexibility, are factors related to the enterprise itself as well as its managers. They concern: the scale of operations and the age of

enterprises, the level of business knowledge of their managers, as well as the planning system used in enterprises. The relatively most favourable conditions for the impact of external financing on the improvement of the flexibility of the enterprises surveyed occurred in entities with a smaller scale of activity, over 3 years of age, with a business plan and a greater level of business knowledge of the managers. These entities indicate the higher attractiveness of external financing, in particular with the participation of public funds, for the implementation of their development goals, as well as the need to improve flexibility, which is connected with the choice of external financing sources.

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THE APPLICATION OF EYE TRACKING IN THE OPTIMISATION OF AN IT SYSTEM - SELECTED RESEARCH FINDINGS

Janusz Nesterak[1]

Abstract

Eye tracking is an objective measurement method, whose distinctive feature is the form and the quality of the obtained data. They reflect actual behaviours and reactions of respondents. In 2017 a study was conducted, whose aim was to indicate the directions for the improvement of an ERP class IT system. A team of scientists from Cracow University of Economics assumed improvement in: the shape and process of mapping a business process in the software and the way of building graphical user interfaces adjusted to customers' requirements. The issues were subjected to studies from the User's point of view with the use of eye tracking technology. The aim of the paper is to present the research methodology and indicate selected effects of the conducted works.

Keywords: *eye tracking, ERP, enova365, Soneta.*

1. Introduction

Eye tracking technology has been used worldwide for several dozen years both by contemporary science and by commercial firms. Devices tracking respondents' gaze have developed over that time not only with regard to the precision of the measurement but also in terms of their size. The first systems of this type were mounted on a respondent's head, considerably reducing the respondent's comfort. Today, contemporary eye trackers are devices of a small size enabling their placement opposite the face of a person participating in the study. Such a solution does not confine the movement of the respondent's head and is practically an invisible element of the set used during the measurement.

Eye tracking is a unique method of the objective measurement of the user's attention. The greatest value of eye tracking studies is the form and the quality of the data obtained. They reflect respondents' actual behaviors and

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reactions. It allows us to reduce the field, reduce the role played by declarative data most often used in surveys.

In the period from March to October 2017, a study was conducted whose aim was to indicate the directions for the improvement of the ERP class IT system. The assumption of the improvement in the sphere of two key areas was adopted: (1) the shape and the progression of mapping a business process in the software, which will ensure the highest UX use level and the principles of ergonomics, and (2) the way of building graphical user interfaces which must be adjusted in terms of their usefulness to clients' requirements. The issues were studied from the User's point of view with the use of eye tracking technology.

The aim of the paper is to present the methodology of the research project conducted with the use of an eye tracker and indicate selected effects of the conducted works.

2. Eye tracking in a research process

Eye tracking devices are used in thousands of leading research laboratories worldwide in numerous scientific disciplines. For example, researchers from Osaka University have developed a quantitative method of the identification of people with autism by analyzing spatiotemporal patterns of gazes, which can help experts in the early diagnosis of the disease (NToru et al., 2016). Also, scientists from Clemson University, with the use of Tobii Pro glasses, analyzed consumer shopping habits and their reactions to packaging design in order to understand their purchasing decisions better (Gomes et al., 2010). Eye tracking has become popular in the research into the ergonomics of interfaces of computer programmes (Poole & Ball, 2005; Goldberg & Kotval, 1999) and the research devoted to utility aspects of websites (Nielsen & Pernice, 2010; Bojko, 2006; Cowen et al., 2002). One of the basic advantages of eye tracking studies is obtaining a great number of data and flexible possibilities of their processing and aggregation, in spite of a low representative sample (see more in Pernice, 2009, pp.19-52). To a great extent, the research aims at the identification and analysis of the patterns of focusing sight by the user during the performance of the assigned task.

The most frequently used device to measure the movements of eyeballs is a measuring instrument called an eye tracker. There are two techniques of monitoring the movement of eyeballs, which measure the position of the eye in relation to the head and the orientation of the eye in the space (Young & Sheena, 1975). The quality of the research carried out with an eye tracker can be measured from the point of view of accuracy, precision and the repeatability of measurement. Accuracy is the average angular difference between the reference direction of gaze and the direction set by the instrument.

Precision is understood as the capability of recording the identical direction of gaze during the observation of a given point of reference. The repeatability of measurement concerns the correct work (measurement) of an eye tracker for given individuals (arising from the differences in eye anatomy and individual psychophysical predispositions). Factors which affect the quality of measurement are as follows: characteristics and technical parameters of an eye tracker, calibration of the device and the application of simplified models of setting fixations. Figure 1 shows an exemplary movement of eyeballs examined by an eye tracker. The analysis of individual elements enables us to achieve knowledge on how human sight follows and analyzes a studied text. It is one of numerous methods of presenting the results of eye tracking.

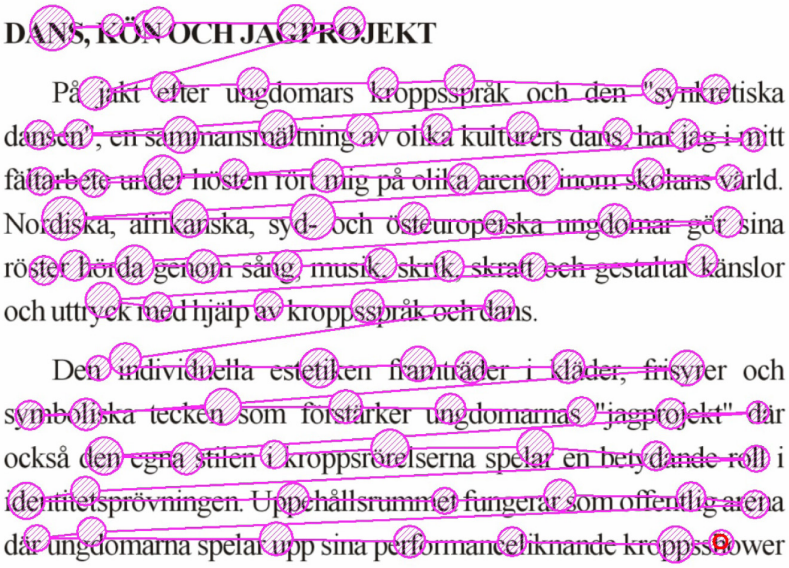

Figure 1. An exemplary movement of eyeballs while reading a text by a human being

Source: Shen (2005).

Due to the application of an eye tracker, indicators are obtained which enable us to measure time in which the studied element was noticed by the user and time from discovering the element to a click or marking it on the graphical user interface. There is also a possibility to access the fixation map, namely the distribution of the user's attention during the search for a given element. Additionally, data visualization can be presented by means of a heat map which shows the time a user was focusing on a given element.

Eye trackers occur nowadays in the form of mobile or electrical, magnetoelectric, mechanical and video devices. At present, the most modern eye trackers are photoelectric devices, using infrared radiation technology. They enable the movement of eyeballs to be recorded through changes in the reflection of light rays on the cornea of human eye. It is recorded by a specialist camera or other optical sensors, and the obtained data are sent to a computer and analyzed in order to specify changes which took place in the signal during eye movement. A vital advantage of this solution is the lack of direct physical contact with the respondent's eyes as the whole equipment is focused around the screen. Due to this technology, it is possible to carry out studies in a non-invasive and contactless way, which considerably increases the range of vertical and horizontal movements. The most popular photoelectric eye trackers include mobile eye trackers (a miniature camera is placed on glasses or smartphone/tablet pads) or stationary ones (in the form of a thin strip with a camera under the laptop display or software integrated with the computer screen). In 2016, a prototype of an application called GazeCapture was created, which operates in a similar way to dedicated software to operate the eye tracker, but it does not require additional devices to be installed (Krafka et al., 2016).

The global value of the eye tracking market till 2023 is estimated to be 1,376.5 million USD, and its growth until then, measured with CAGR (*Compound Annual Growth Rate*) will be 27.4%. The major entities on this market now are: Tobii AB (Sweden), SensoMotoric Instruments (Germany), SR Research Ltd (Canada), Eye Tracking Inc. (USA), Seeing Machines (Australia), Applied Science Laboratories (USA), LC technologies Inc. (USA), EyeTribe (Denmark), Mirametrix Inc. (Canada), SmartEye (Sweden), IMotions (USA), and EyeTech Digital Systems, Inc. (USA) (Eye Tracking Market, 2015).

3. The aim of the research project

The main aim of the research and development project was to achieve knowledge of the principles and mechanisms which the software producer, Soneta sp. z o.o. in Krakow, can use in its production department. Changes should make the IT application interface, enova 365, become intuitive enough to reduce the time of the implementation of a client's IT system and enable the shortening of the implementation time of selected processes by users.

The acceleration of the implementation of an ERP class IT system in a firm can be achieved in many ways. In the case of the described process, it was assumed that a change in the attitude to the graphical interface can enable the employees' training time to be considerably shortened. Training, which aims at the preparation of the ERP system operators to work with the application, is a problem enterprises have to face not only during the implementation of

a new integrated system. It is a problem which occurs much more often now and is connected with the increased turnover of workforce observed in many industries. For a newly-hired worker to achieve the assumed optimum efficiency at the workstand the skills related to the operation of IT tools are also required. Every new worker requires training, which increases the costs of the functioning of firms. The more complicated the IT system is, the higher the cost of training is. We should also add losses arising from lower than assumed operator's productivity during the implementation of tasks at a new workstand.

Moreover, here we can put forward a thesis which was verified during the conducted research project: "*an appropriately designed and created graphical interface of the ERP system can contribute to the elimination of the stage of training on the software functionality*." The thesis was put forward based on the analysis of the software which at present is the biggest part of all programmes sold worldwide. Applications for mobile phones and tablets are downloaded and installed on mobile devices hundreds of thousands of times every day. Two important remarks appear. Firstly, no-one who installs one of the millions of mobile applications offered on the market uses the user's manual of this application. Secondly, users of these programmes do not have any training on them. If the software producer has built too complicated an application, the customer's reaction is to remove it.

The aim of the conducted research was to answer the question whether the contemporary ERP system can have the same intuitive graphical interface as is characteristic for mobile applications. The other aims were to prepare a list of detailed errors in the enova365 product, to develop recommendations concerning corrections in the form of design guidelines for IT specialists and develop detailed quantitative data indicating efficiency, effectiveness and satisfaction from using enova365.

4. Selection of the research group and the progression of the study

The Management Board of Soneta Sp. z o.o. based in Krakow, the producer of enova365 ERP, made a decision about cooperating with scientists representing Cracow University of Economics (Nesterak et al., 2017). Enova365 ERP system is a mature and modern product in terms of technology. However, the graphical interface of the application, just like in the case of the majority of ERP systems, was not considered that element of the product which would allow them to achieve a competitive advantage. The Management Board of Soneta Sp. z o.o. in Krakow decided to break the stereotype and commence research into its product with the use of eye tracking technology. The research project was implemented in the period from January to September 2017 and involved a large group of scientists who executed the individual stages of

the project. The article presents the most important elements making up the project, which made it unique. Figure 2 presents individual stages of works within the implemented project.

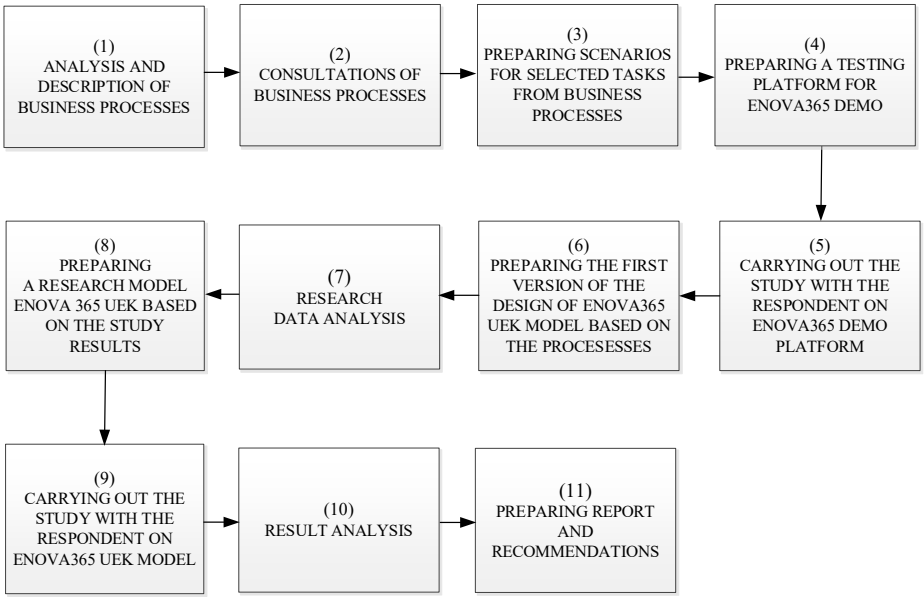

Figure 2. The flow chart of the research process of enova365

The studies carried out were based on both groups of respondents having the same progression and were made of the same stages. The chart for each study was identical. Both groups worked on the same IT system, enova365, but group 1 performed tasks on the production-based version of enova365 DEMO, and group 2 operated enova365 UEK model (Figure 3). The main assumptions of the new IT model were: reducing the areas of focus of sight to the working areas, shortening the time of the execution of the task set, shortening the adaptation time and eliminating the need for training of the IT system operator.

The group of respondents participating in the study was recruited so that there were people in it who had some experience of working with an ERP system and also those who had never worked on such systems. Such a choice of the group of respondents was connected with checking the level of the intuitiveness of the studied system (Table 1).

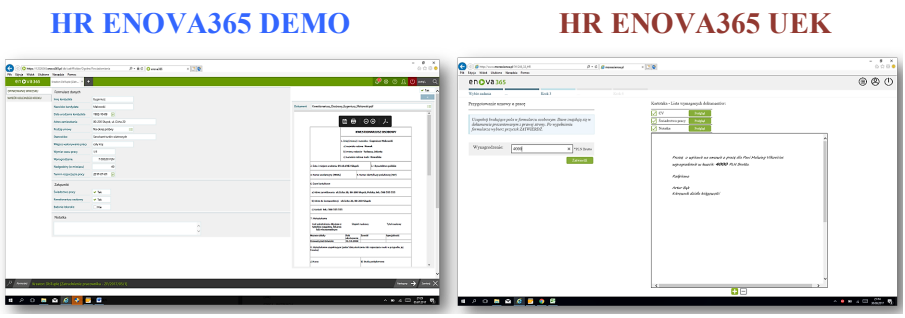

Figure 3. Comparison of the appearance of the HR module in enova365 DEMO and enova365 UEK systems

Each respondent participated in subsequent stages of the study, which are presented in Figure 4.

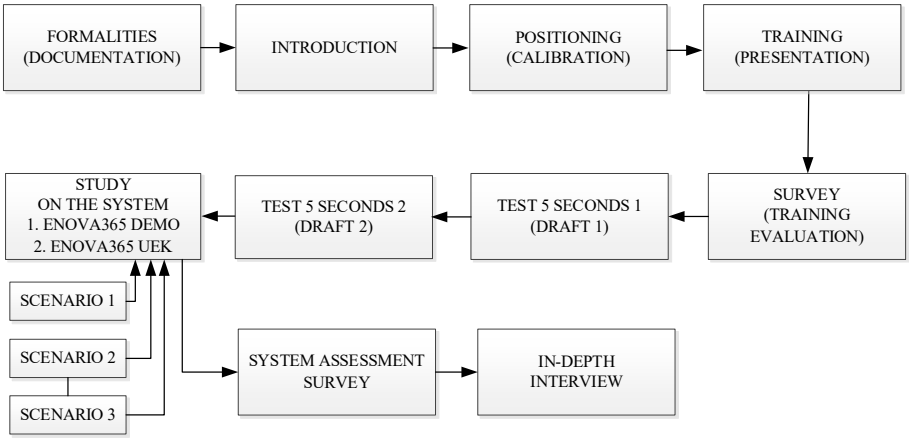

Figure 4. The flow chart of the progression of the eye-tracking study

Table 1. Characteristics of the selected research sample

	Gender		Experience with ERP		Age			
	Women	Men	YES	NO	20-24	25-34	35-45	>45
Test 1	61%	39%	65%	35%	30%	39%	26%	4%
Test 2	56%	44%	76%	24%	32%	44%	24%	0%

Before the commencement of work on the IT system, the study participant went through a short training on the business process and scenarios of the task prepared for the implementation. One of the study elements was recording the spots of focus of the respondent's sight on individual areas of the application's graphical interface during the execution of the task. The obtained results were analyzed with the use of the analytical tool prepared by the team. On the graphical interface of the application, some working areas were isolated, namely those which were connected with the progression of the executed task. The working areas are, among others, the fields of the form the respondent should complete and all the buttons which required an action from the respondent.

5. Conclusions from the study

Having compared the analysis results, it was found that both the sight focus time on the working areas and the time of the execution of the tasks themselves in the case of the ERP system model were on average 50% shorter than in the case of tasks executed in the existing enova365 DEMO system. Obtaining such an effect was possible owing to the use of the knowledge acquired in the first stage of the study. On that basis, the percentage of time of respondents' sight focus was increased on the working areas. Subjecting the process of creating the ERP system model to the assumptions arising from the proper functioning of the communication process, enabled a reduction in the time to execute the tasks (Figure 5).

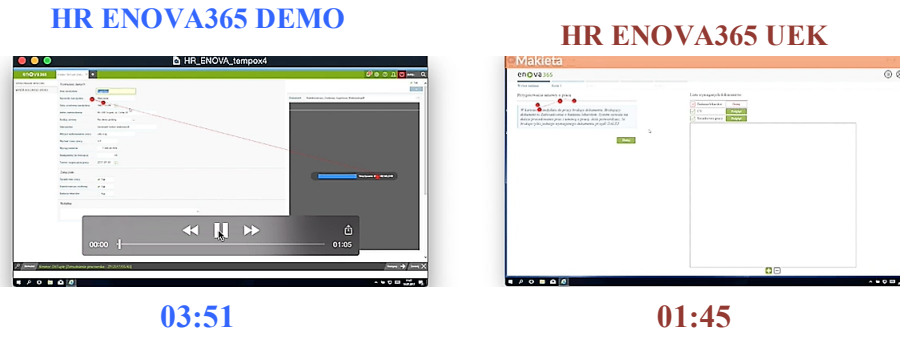

Figure 5. Comparison of task execution time in the HR module of enova365 DEMO system and enova365 UEK

As a result of the collected data analysis it turned out that in the case of some of the tasks executed based on the enova365 system, the percentage of the sight concentration on the working areas was not higher than 60% of the

whole time in which the respondent had eye contact. Such a result means that for 40% of the time, the respondent's sight concentrated on other elements of the interface than those which concerned the task. The respondent, a message receiver in this case, devoted 40% of his time to decoding information which was not the substantial content passed by the business process. It can be considered wasted time. Such a result was a confirmation of the thesis that a graphical interface may be a reason for the low effectiveness of the performed tasks with the use of an ERP system (Figure 6).

Approaching the problem presented above constructively, the obtained result can be interpreted as a confirmation of the thesis that changes introduced in the graphical interface, thus in the method of communication between the business process and its operator, may be a method of raising the effectiveness of the tasks performed.

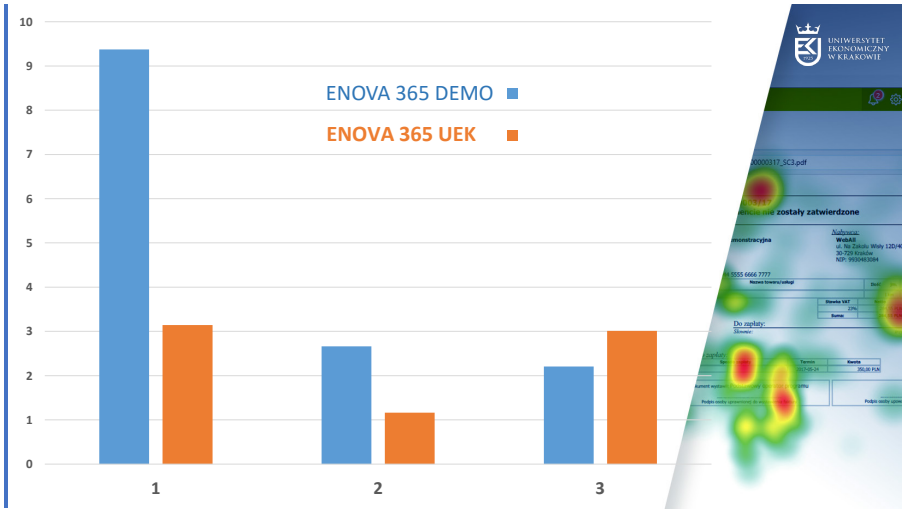

Figure 6. Average concentration time in minutes on tasks (1-2-3) in the HR module of enova365 DEMO and enova365 UEK

Thus, to sum up, we can conclude that *the application of UX rules and the control of communication process is the key requirement when creating contemporary workstands.*

6. Conclusions

The obtained results of the conducted study confirmed the usefulness of eye-tracking technology in research projects related to the search for the areas enabling the improvement of the progression of business processes.

The work of the research team ended with a precise report which contained three groups of recommendations for the authors of individual elements of the system. They indicated the need to introduce the following perspectives:

- short-term, consisting in a simple graphical modification of enova365 system and not requiring the re-construction of the application;
- medium-term, which require changes in the software but do not require changes in the structure of the IT product;
- long-term, which enforce significant changes in the structure of the IT product.

The implementation of the changes recommended in each of the mentioned groups will bring measurable benefits to the firm and its customers. The speed of learning the system by users will rise only after the introduction of the medium-term changes. However, a decrease in the implementation time of tasks can be achieved as early as upon the introduction of the modifications recommended to be implemented to the system in the short term.

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Biographical note

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COMPETENCES DYNAMISING THE CREATION OF BUSINESS MODELS: EXPLORATORY RESEARCH

Bogdan Nogalski[1], Przemysław Niewiadomski[2]

Abstract

The main purpose of the article is to identify the competences dynamizing the creation of business models based on exploratory research. The implementation of such a formulated objective requires the development of a method for their measurement. The conduct of a conceptual study of the method will be preceded by an extensive analysis and systematization of the current achievements of management studies. The conducted research was of both a diagnostic and verification nature. In the first stage of the research, the authors applied a method of literature studies supported by a creative discussion. On this basis, a catalog of competences, which was verified by experts invited onto the research, was prepared. As a result of this research, a list of key competences, which add dynamics to the creation of business models, was drawn up. In this way, a tool aimed at proper testing was prepared, and it was within this framework that interviews were conducted among deliberately selected representatives of manufacturing companies operating in the agricultural machinery sector. The research for management practitioners that has a theoretical background – presented in the publication – can be the basis for diagnosing and inspiration for developing own competence assessment methods. Such an approach confirms the sense and desirability of the "useful" studies carried out by the authors in the business practice.

Keywords: *competences, business model, agricultural machines sector, expert assessment.*

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1. Introduction

Activity of enterprises results from the accumulation of impacts of many factors, among which the ability to contrive a business model should be mentioned. This issue is the subject of interest to both management theoreticians and practitioners. Due to its interdisciplinary nature, the problem area of contriving business models combines the theory and practice of management of competences, a suitable configuration of which fosters the creation of more and more effective business models[3].

The present and future competitive position of the company depends on the ability to explore changes, counteract hazards, take advantage of opportunities, gain knowledge, store knowledge and distribute it efficiently in the organization. Meeting market challenges, thanks to the obtained competitive advantage, requires changes in the elements and factors which determine this advantage. What matters here are mainly new ways of observing and analyzing markets, different relations with customers, the introduction of new, innovative products, reasonable selection and use of resources as well as the application of processes and management systems being different to before. In connection with the respective actions, it is competences that determine the shape of the strategy and the related business models (Brzóska, 2009, p. 6).

In connection with the above, business owners and the managers employed in them must be permanently open to: new trends in the operation of enterprises resulting first of all from globalization challenges, working in networks, innovations and flexibility as well as constant learning and the need to frequently change the form of business being conducted. Enterprises' business environment has been changing. In particular, relations between the manufacturer and the customer change. The customer has many more possible choices; the offer options prepared for him or her are available fast and more clearly. Therefore, companies must be increasingly customer-focused, systematically verifying the values delivered (value propositions). All these elements result in new problems, but above all make requirements concerning competences of the managerial staff more challenging.

Referring to the problem outlined, the main objective of this work is to identify the competences dynamizing the business models, based on the exploratory research[4]. Implementation of this formulated purpose requires an attempt to compile a method of assessment of the competences implying a specific business model. Conduction of the conceptual study of the method

3 Improvement in effectiveness can be concluded on the basis of reducing time consumption, material consumption, total costs of implementing tasks or profitability growth (Nalepka, 2001, pp. 259-262).

4 The development refers to manufacturing companies associated with agricultural machinery manufacture. They are the subjects of the current and future research by the authors. In the opinion of the authors – the companies representing the analysed sector – through their structure and management process, in order to generate values for the client, can quickly and smoothly activate their resources and competences.

shall be preceded by an extensive analysis and systematization of past achievements, including:
[Z-1] in the theoretical perspective – an analysis of literature remaining in direct relations with the subject of the research will be performed; this will find its reflection in a set of the competences identified in the subject literature that add dynamics to the creation of business models;
[Z-2] in the design perspective – it is reasonable to prepare a set of key – from the point of view of experts invited onto the research – competences that add dynamics to the creation of the selected business models;
[Z-3] in the empirical perspective –determination of the effect of the selected competences on the type of the implemented business model is crucial, including an answer to the question, which of the mentioned and on what level – aiming to create a specific business model– the manufacturer should dispose of and which they dispose of at the moment (self-assessment).

The interdisciplinary nature of management sciences creates problems in selecting the research methods with which one intends to describe a given problem. Research methods and tools verified in other research are often used in empirical research (directly or with certain modifications). A similar approach is followed by the authors of the paper, but the method and the tools are selected according to the adopted methodological concept. The conducted research is both diagnostic and verifying in nature. They apply to relationships between variables describing competences and requirements implying the ability to create the adopted business model.

2. Business model determination – starting point

According to Nogalski and Szpitter (2009), the business model describes what the company offers to its customers, how it reaches them, how it maintains contact with them, with which resources, activities and using which partners. Similarly, the business model is defined by Romanowska (2005), assuming that it is the way of acquiring customers and their service adopted for the given sector. The customer, as a party of market exchange, is also emphasized in their definition by Cyfert and Krzakiewicz (2011). They pay attention to the logic of linkages created among resources being at the disposal of the company and actions creating value for broadly understood customers. The aspect of unique configuration of elements constituting the business model is stressed in their definition by Ehiraj, Guler, and Singh (2000). According to the authors, the configuration – composed of the organization's goals, strategy, processes, technologies and structure – creates value for customers, in this way allowing the company to effectively compete on the given market. It makes it possible to arrange information about the given product, permits it to be structured into

the whole, and to better describe the given implementation process. As a result, the models assist in decision making, namely, make management easier. Thanks to writing down and grouping information about the given process, business models help to better understand and more effectively manage it. A specific business model should clearly specify where the company takes money from, what it sells, to whom it sells, and when it acknowledges that it has been successful. The company's business model may be treated as one of the two (next to the environment) direct factors (determinants), affecting business performance (see more in Afuah & Tucci, 2003, p. 19). The authors emphasize that, on the other hand, these determinants are affected by the so-called change factor, which indirectly, but significantly affects the company's effectiveness. They believe that business effectiveness can be aptly defined on the basis of such indicators as: profit in accounting terms, economic value added, shares' market value, sales profitability, return on assets or return on equity. According to the adopted definition, the business model is the method to increase and use resources adopted by the organization, in order to present the customers with an offer of products and services, whose value exceeds the offer of competitors and which at the same time ensures profitability for the company. In spite of the internal diversity of the definition, we may distinguish the following business model properties: it results from a specific choice, always applies to someone or something, has a specified area and level, involves direction of the company's development, is dynamic and temporary, develops over time, is growing or is interrupted, is based on experience, is connected with future expectations, is the foundation for conducting changes, making their ordered implementation possible, exists in an environment of uncertainty and risk, and is a positive notion in nature.

At this stage, the analysis has applied to the currently fullest list of business models, being the key factor in the success of contemporary business (Nogalski, Szpitter, & Jabłoński, 2016), supplemented by Polish proposals (Nogalski, Szpitter, & Brzóska 2017; Falencikowski, 2013; Brzóska, 2015; Jabłoński, 2013; Niemczyk, 2010) and foreign ones (Baden-Fuller & Morgan, 2010; Achtenhagen, Melin, & Naldi, 2013; Amit & Zott, 2010; Amit & Zott, 2012; Aspara, Lamberg, Laukia, & Tikkanen, 2013; Giesen, Berman, Bell, & Blitz, 2007; Koen, Bertels, & Elsum, 2011; Langdon, 2008; Osterwalder & Pigneur, 2010; Teece, 2010)[5].

In the context of the completed literature review and on the basis of the authors' practical experience, the following business models have been selected for further research:

5 63 business models were subjected to analysis.

- related to the product, its implementation possibilities; provided that the product is perceived by the manufacturer as a revenue stream (Mitchell & Coles, 2003; Weill & Vitale, 2001);
- based on the customer (Vankatraman & Henderson, 1998; Hamel, 2000; Sandberg, 2002, Yip, 2004) and the value bundle delivered to him/her (Morris, Schindehutte, & Allen, 2005; Rappa, 2004) as well as the companies' abilities to effectively use the held technological, financial, knowledge and relations resources (Cyfert & Krzakiewicz, 2011; Eyring, Johnson, & Nair, 2012).
- closely correlated with competences, the acquisition of which implies the possibility of their use in practice (Wikström, Artto, Kujala, & Söderlund, 2010; Demil & Lecocoq, 2010)[6].

The contemporary manager must be characterized by competences necessary to implement tasks related to the adopted business model. Creating the business model is, to a far greater degree than many practitioners would admit, an important intellectual challenge for managers, rather than only a test of their earlier learned or acquired practical skills. This situation should induce them to permanently improve knowledge, skills, develop personal traits, shape attitudes and behaviors as well as absorb new experiences.

In the context of the selected business models, it should be emphasized that the complexity of the buyers' expectations, constantly changing consumer needs, complexity of production processes, progressive product miniaturization, incredible technological progress are only selected factors making the companies' perception of economic relations in the traditionally understood competitive and rivalry relations lose its initial power, but above all its sense, thereby becoming inconsistent with the economic account. Today enterprises that optimize their production processes, marketing activities, research works or investment processes - by introducing the principles of market-based cooperation with other market participants - gain a substantial advantage. It is determined by a constellation of interrelations being difficult to imitate, under which each of the partners in a significant manner, using their own proprietary core competences, contributes to growth in the added value of the whole cooperation "system". Cooperation and partnership are the reaction to the challenges of the environment, but at the same time the mere cooperation processes lead to civilized market relations, helping to increase the degree of stabilization on different target markets. In the context of the so selected business model, managers' competences should be focused on building long-term relations with the environment, creating, maintaining and

6 In summary, it can be assumed that the selected business models emphasize: focus on loyalty, combination of value-creating resources and competitiveness, completeness of delivery, integration, implementation flexibility, guaranteed product availability, opportunity management, lean management, market niches; unique products model as well as shared innovations. These are the leading thoughts offering the direction for the research being conducted. In connection with the above, the selected business model, subjected to analysis, will be defined as customer-centric.

strengthening partnerships. Crucial are the competences necessary to function properly in relations with other people, competently communicate with them, control the dynamics of interpersonal contacts and create conditions for establishing relations with the customer based on trust.

It is necessary to effectively support the customer in making changes, skillfully organize and perform the sales process. therefore, competences making it possible to properly recognize the clients' and subordinates' needs and potential, and motivate them to take action as well as support in development are important.

3. Material and methods

The research referred to in this part of the paper was conducted in the period from 10 January until 18 January 2018. In the first stage of the research, being the preparatory study, the authors applied the method of literature studies [BL1] and creative discussion[7] [TD2] among six persons directly related to production businesses operating in the agricultural machines sector[8]. Application of the brainstorm method was caused by the opportunity to easily gather a proper group of interlocutors[9]. While selecting the experts, consideration was given first of all to their knowledge, broad, holistic perspective, independence and practical experience in management. In each case these were professionally active persons, actively participating in the management of the organization which they come from and which they work for.

The essence of the brainstorm method is to stimulate the session participants (experts in the case concerned) in order for them to freely express as many ideas as possible, from which it will be possible to select those that are most relevant to the problem in question. In the context of the above, prior to the session, the team was familiarized with its basic principles; it was determined that each person writes down three original ideas on a piece of paper, within 5 minutes. Then, the forms were to be passed on to the next person. The situation was to be repeated, but this time it was indicated that, apart from creating one's own ideas, solutions by others' should be suggested and developed. When the form was returned to the first owner, the session was finished. At this stage evaluation of the obtained results was formulated; immediately after the session the coordinators (the authors of the research) wrote down all the listed competences, confronted them with the selected authors' proposals, grouped similar ideas together, which made it possible to devise the final list of 52 competences.

7 Starting the research, the authors assumed that the 635 method will be used to proceed with the creative thinking process.
8 The brainstorm was attended by owners of manufacturing companies operating in the agricultural machines sector, representing small businesses - 2 persons, medium – 3 persons, large – 1 person.
9 It is assumed that 6 persons are the minimum number required in order to complete brainstorming by the 635 method.

In the next stage of the research [BP3] the accuracy of selecting the competences dynamising the creation of business models was verified; the primary purpose being to reduce their number. Clearly, the introduction of a greater number of variables strongly complicates and prevents the formulation of significant conclusions. The originally prepared list of 52 competences was subjected to discussion among 67 experts representing intentionally selected enterprises – 58 persons (86.57%), research and development institutions – 4 persons (5.97%)[10], scientific environment – 3 persons (4.48%)[11] and business support organizations – 2 persons (2.99%)[12]. The research was conducted on 18-21 January 2018 in Poznań at the International Agricultural Fair POLAGRA-PREMIERY. The experts were asked to indicate the fifteen most important - in their opinion - competences implying the specific business model creation. Significance was marked by ordering them – in a table specially designed for this purpose – in order from the most important to the least important one. The feedback was 61 correctly filled questionnaires, meaning that 91% of the invited persons participated in the study.

As a result of this research, a list of 17 core competences dynamizing the creation of business models (32.69%) was prepared, which was transferred onto a special form. Only competences for which the number of indications was at least twenty qualified for the further stage of the research. The need to reduce the number of competences that were included in the model was caused by the difficulty of running the research for all those listed in the aforementioned survey interview form (resulting from limited duration of the interview as accepted by the interviewees) conducted in the course of direct meetings on 16-18 March 2018 in Kielce during International Agricultural Technology Fair AGROTECH[13].

In this way, a tool was prepared for performing the proper research [BW4], under which interviews were conducted among 66 intentionally selected owners [37][14] and managers [29][15] of manufacturing companies operating

10 The group of interlocutors included persons being members of the Scientific Council of the Industrial Institute of Agricultural Machines and the Institute of Logistics and Warehousing.. Additionally, one of the persons represented a University - the Department of Theory of Agricultural Machines.

11 The experts represented: Faculty of Working Machines and Transport at the Poznań University of Technology – 1 person, European School of Business – 1 person and the Faculty of Economics and Management of the University in Zielona Góra – 1 person.

12 The study was attended by representatives of the Polish Association of Production Management and Business Centre Club expert in management strategy and SME innovation development,

13 Considering communication barriers, persons with whom direct meetings were planned and it was possible to hold a conversation were invited to the research.

14 51.36% of the owners had higher education, 29.73% - secondary education, 18.92% - professional education; 16.22% [6] of the owners was over 50 years old, 45.95% [17] were 40-50 years old, 32.43% [12] of the owners were 30-40, 2 persons [5.4%] were below 30 years old.

15 72.41% of the managers had higher education, 24.14% secondary education, 3.45% professional education; 2 persons [6.9%] were over 50, 15 persons [51.72%] were 40-50 years old, 10 persons [34.48%] 30-40, 2 persons [6,9%] were below 30 years old.

in the agricultural machines sector[16]. The experts represented the following enterprises: micro – 6 persons (9.09%), small – 17 persons (75%), medium – 39 persons (59.10%) and large – 4 persons (6.06%). Small and medium enterprises hold a key position in the agricultural machines sector. Therefore such entities comprised a significant majority (84.84%).

The intentional selection technique, as well as the possibility of conducting research at the time of business meetings, undoubtedly contributed to the high effectiveness and quality of the performed research; the research was attended by all the invited entrepreneurs and managers.

4. Results of the authors' research

The conducted research shows that, from among the prepared competences catalog - in the case of manufacturing companies from the agricultural machines sector - a critical role in creating the specific business model effectively is attributed to the ability to build relations with suppliers and recipients (average score 4.85; 84.8% of the indications for 5 point score). Management of relations with the suppliers focuses, first of all, on building relations between the buyer enterprise and key suppliers in pursuit of identifying opportunities fostering both a deepened development of their relations as well as common improvement and increased benefits for the partners operating in the network business environment. Caring about the level of service, quality of the relations and individual customer approach, companies expand the network of brand ambassadors, namely satisfied customers willing to recommend their products. When building a business model, based on relations with the partners being so key for the company, account should be taken of their individual needs and expectations.

Due to significant market saturation and the rapidly changing environment, one has to know what to produce, how to produce and how and whom to sell this product to. In view of the foregoing, it seems indispensable to make – on the basis of the information available – quick and effective informed decisions. The starting point to building the business model selected in the study is an analysis of engineering (technical) knowledge resources, including knowledge about the product (average score 4.83; 83.3% of the indications

16 When making the decision to select the participants, an important criterion was direct acquaintance of the expert with the researchers, supported by partner cooperation with Zakład Produkcji Części Zamiennych i Maszyn Rolniczych (Agricultural Machines and Spare Parts Production Plant) "Fortschritt" – as the partner of the research. It made it possible to determine whether the representative of a given enterprise performing the assessment is independent in the presented views and issued opinions, and whether they have sufficient expert knowledge in the area discussed, supported by grounded practical experience in the industry. When selecting the consultants, their knowledge and practical professional experience were taken into account above all. In each case, these were the professionally active people, actively involved in the management processes of the company, which they originate from or which they work for. Taking into account the communication barriers, people, whom the authors have direct contact with, were invited to the research. According to the authors' beliefs, it affected the high efficiency and quality of the research implementation.

for 5 point score). Research was made on engineering knowledge resources, which can be divided into – depending on the sources –three groups:
W[1] Knowledge about production processes – applies to the broad area of the company's operations, starting from market information, through production planning, to ready production specifications;
W[2] Knowledge about production systems – analysis of these knowledge resources leads to the characteristics of a company's production capacities and the available manufacturing technologies;
W[3] Product (based) knowledge, concerning:

- product functionality indicating the effectiveness and efficacy in performing the stipulated functions;
- level of market prices of the manufactured product;
- scale of production and its systematic sales;
- safety in product use processes;
- product's environmental hazard;
- ease of use of the product in the operation process;
- product certificates obtained under the qualification procedure;
- aesthetic value of product execution and finishing and packaging;
- manner of delivery of the product and sale to the consumers;
- other information about the product and its properties.

A company based on knowledge is particularly interested in participating in the implementation of operating processes (analysis of markets and customer expectations, product manufacturing, marketing, deliveries and sales) under product management processes and supporting processes (management of innovative and information systems related to products, and implementing environmental programs). These processes let it learn the needs and survey the satisfaction of the consumers as well as being the starting point for improving the adopted business model.

Knowledge of competitors is one of the key problems when running a business or acquiring new target markets. Detailed knowledge about businesses which the company competes with will allow it to anticipate their subsequent moves, to make use of their weaknesses or imitate good standards. In the future, it may generate the effect in the form of achieved competitive advantage. In connection with the above, in the opinion of the examined companies, it is a significant competence concerning the ability to create business models (average score 4.73; 74.2% of the indications for 5 point score).

Apart from the competences mentioned above, a desirable characteristic of a contemporary manager is creativity, innovation, fantasy[17] and the ability

17 Fantasy is more and more often treated by managers as a business model element that may be an important source of created competitive advantage, reflected in high effectiveness obtained by the manufacturer. However, the integration of fantasy with the business model is a domain that is not completely recognized, both theoretically and empirically. For this reason, the context of fantasy becomes more and more significant, but is also an interesting research challenge in the field of strategic management.

to solve problems creatively (average score 4.70; 71.2% of the indications for 5 point score)[18]. In consequence, there is a broad recognition of the importance of creativity and innovation as an element related to the development of business models under the conditions of a variable environment that is difficult to forecast, and this has been appreciated by management sciences[19]. It is thanks to these creative behaviors that an organization can quickly respond to changes in a complex and turbulent environment, in which it is necessary to develop new innovative products, as adequate to the needs.

On the list of the most popular competences – in the light of creating business models – communication competences are stressed significantly (average score 4.67; 69.7% of the indications for 5 point score)[20]. Among the communication competences, the authors distinguish:

- self-control (ability to handle sudden emotions);
- active listening;
- ability to sense development needs and abilities among the employees;
- effective persuasion (logical reasoning, suitable problem presentation, high level of negotiation and mediation skills);
- ability to search for mutual understanding;
- ability to raise enthusiasm in others in order to achieve one's own objectives;
- ability to present a given problem;
- empathy and social sensitivity.

Communication competences must be developed and perfected, so as to ensure that the interactions of the person are as effective and appropriate as possible[21]. Improving communication competences, the manager thereby becomes a conscious and responsible entity, selecting measures and forecasting any effects of their own actions.

Communication competences significantly determine the possibility of transferring and using knowledge regarded as the determining production factor (see more in Zimniewicz, 2003, p. 106). Skillful knowledge management is an instrument opening new horizons for the company. Knowledge is, in turn, a "product" of the learning processes (Bugdol, 2006, p. 127), defined as the process of gaining and collecting experience, rendering development of new forms of behavior and action or modification of earlier acquired behaviors and actions. Since, as a result of learning, the whole system of messages, skills, customs, habits and beliefs is mastered, the respondents subjected to the research significantly indicate this ability (average score 4.59; 60.6%

18 The essence of stimulating employees to work creatively is emphasized in its work by A. Ujwary-Gil (2004, p. 17).

19 Many researchers emphasize the transition and development of knowledge-based organizations towards creative organizations, e.g., Brzeziński (2009); Dyduch (2014).

20 Sometimes, they are called social competences (Dickson & Hargie, 2004).

21 This effectiveness and appropriateness as the collective criteria of communication competences ensure as good a course of interaction as possible for the connection and for the participating persons, with simultaneous pursuit of achieving individual benefit (Morreale, Spitzberg, & Barge, 2007, pp. 65-71).

of the indications for 5 point score). Effectiveness of the learning process depends not only on understanding the essence of the process itself, but also on realizing what factors affect this process. In consequence, it is extremely critical to learn personal preferences concerning learning and appropriately shape any factors having an effect on them.

Knowledge management models are extensively described in the subject literature, including marketing knowledge (see more in, Day 1994, pp. 37-52; Kohli & Jaworski, 1990, pp. 1-18; Narver & Slater, 1990, pp. 20-35). In search of new, more effective sources of competitive advantage, organizations reach deeper and deeper for marketing knowledge resources, seeking it not only within the organization, but also in their market partners, in particular customers, with whom they are linked by privileged relations based on trust and pursuit of cooperation (see more in Prahald & Ramaswamy, 2005, pp. 138-143). In the context of the above, Szymura-Tyc (2006) postulates that we may even speak about the so-called marketing intellectual capital, the resources of which are formed by market and marketing data and information, marketing knowledge as well as businesses' marketing skills, capabilities and competences. These are resources which are created in the marketing process, as a result of marketing activities undertaken by units, groups and the whole organization. According to the examined businesses, the idea of knowledge-based marketing addresses the matters of marketing capabilities and competences from the point of view of their effect on the ability to create a business model (average score 4.59; 60.6% of the indications for 5 point score). Knowledge-based marketing refers to the concept of competences and concentrates on both the operation (sharing and using knowledge) and exploration of marketing knowledge (creating / co-creating knowledge) by context, relations and interactions in order to obtain and maintain competitive advantage.

Every company, wanting to function and develop in a turbulent environment, must model its operations and development. Creating a program for the future is sometimes referred to as creating the company's vision or management by vision. The company's vision of the future should be quite a brief scenario of imagining the future shape and position of the company on the market, that is an idea how in the future – in terms of technology, production, products, markets, customers, customer relations, work organization and management, business and financial performance, cooperation with partners – the company will pursue the business model. A skillful creation of the vision and setting the strategic goals for the company – in the opinion of the surveyed respondents – is a competence which implies such potential (average score 4.56; 62.1% of the indications for 5 point score).

A way to ensure customer satisfaction is proper identification of their needs and provision of solutions which will respond to them. This process is focused

on their full identification as well as diagnosis of the company's implementation potential. This implies the need to make important decisions fast with limited access to the necessary information. Managers with specialized knowledge and long-term experience in decision making - with very good effects - use intuition at this stage[22]. Sense and subconscious assessment of the situation and selecting the optimum solution – in the context of creating the business model – is a key competence in the opinion of the examined companies (average score 4.55; 60.6% of the indications for 5 point score). However, when making decisions on the basis of intuition only, it should be noted that intuition may be fallible and cause adverse effects on the actions taken.

The growing pace of changes being a natural consequence of the globalization processes implies the need for continuous reconfiguration and improvement of all areas of operation of the selected business model[23]. Developing, navigating through and using the business environment requires an entrepreneurial approach, reinforced by planning skills and strategic thinking (average score 4.53; 56,1% of the indications for 5 point score). Such thinking is reflected in novelties and effective allocation and use of the resources. It also manifests itself in implementing a business model which is capable of being adapted and transformed, as the system of competitive forces changes in the environment. Competition in the business environment requires strategic thinking and entrepreneurship to be synchronized (see more in Zahra & Nambisan, 2012, p. 219), as a result of which new knowledge is created supporting entrepreneurial actions and strategic thinking (average score 4.52; 57.6% of the indications for 5 point score).

The ability to move around a complex reality and take many different and variable factors into consideration is undoubtedly made easier by system thinking (average score 4.50; 53.0% of the indications for 5 point score). In the context of the decision to select the appropriate business model, the most important thing is to see the whole organization, linkages and dependencies between the processes taking place in it, and then uncover an area where the change will bring about the biggest benefit.

The ability to build a team is a competence that the majority of the employers treat as a key one (average score 4.50; 54.5% of the indications for 5 point score). A team is a smaller or larger group of persons, and effective cooperation in it assumes, first of all, efficient communication, current access to necessary information, but also mutual respect and sense of responsibility – all these elements are used to achieve the common goal. Hackman (2002) indicated that gathering a group of people in a team does not guarantee that

22 Experience and development enrich open and tacit knowledge resources, thereby make it easier for the person's brain to identify the problem and make decisions intuitively.

23 The ability to manage under the conditions of instability is necessary here, in the opinion of the examined companies (average score 4.55; 60.6% of the indications for 5 point score).

they will operate more effectively. For this reason, the challenge is not the question whether teams and groups offer value, but what makes them effective and efficient. To a great extent, it is the leader who is responsible for this, as he or she, depending on the model of cooperation in the team, either themselves or with the help of the other team members, establishes the binding standards.

Self-esteem is necessary for effective action and mature functioning in relations (average score 4.50; 56.1% of the indications for 5 point score). A manager who is not convinced of his or her strengths cannot appreciate other co-workers; being weak, he or she gets strengthened at the expense of the fellow co-workers. No self-esteem generates a number of pathologies in the organization, and the greater the scope of influence of his or her complexes, the worse. Only understanding his or her own system according to which he or she operates, he or she may co-create consistent systems for people in the organization. In any other case what he or she does is sometimes unpredictable, and sometimes almost incomprehensible for others.

Establishment of objectives is necessary to maintain the direction of planned development. Analyzing the objective, the manager has an opportunity to assess its attractiveness, suitability and the necessary resources, which the company should dispose of to achieve it. Good organization is performing the right tasks at the right time. It is expressed by: the ability to properly plan work, tasks and processes, select appropriate tools to achieve the goal, effectively use time, work systematically, and set priorities. It involves two important elements: planning skill and the ability to effectively implement any plans. These are skills related to work quality and effectiveness. According to the examined owners and managers, these are very important competences, related to the effective implementation of the business model, (average score 4.48; 53.0% of the indications for 5 point score).

The most valuable resource of every organization are people. Their knowledge, qualifications, creativity, persistence in overcoming difficulties, are the company's most important strategic success factors[24]. Human resources create value of contemporary enterprises in the macroeconomic scale (Pawlak, 2011, p. 9). However, having such a resource requires respective management defined as a "strategic, consistent and comprehensive view on the problems related to directing and developing human resources within the company's structure; and each aspect of this process is an important element of managing the organization as a whole. Skillful acquisition of the right persons, proper allocation and creating development and improvement opportunities, the right motivation and gratification for work are, in the opinion of the examined

24 It should also be emphasized that the company's effectiveness does not only depend on the number of the personnel, but at the same time on its quality, i.e. on the characteristics of its composition, namely the structure of employment according to the specific competences.

entrepreneurs, very important competences determining a competitive advantage in the market (average score 4.47; 57.6% of the indications for 5 point score).

In the management sciences literature there are many concepts regarding the desired competence profile of a manager. Particular researchers, relying on theoretical assumptions, research results and their own experience, propose various sets of personality traits, attitudes, skills and types of knowledge and experience. It is important to remember that the desired competence profile for a specific business model, including that selected for the needs of the conducted research, according to the assumptions of the situational approach, depends on many contextual variables, among which we can mention, among others, the specific character of objectives of the organization, its size and history, phase in life cycle, type of organizational structure, level of management, applied technology or adopted organizational structure.

5. Conclusions

Any manager operating in present times, having aspirations for the development and expansion of his or her company, must master completely new skills, or improve those already possessed. The conducted discussion proves the sense and usefulness of building such business models that adopt the perspective of cooperation and partnership as the starting point. Additionally, it is not one of the temporary fashions in management, but a necessity, forced by the specific nature of highly competitive terms prevalent in the agricultural machines market on almost every level – local, national, or international. Hence, the ability to establish relations with widely understood market participants is currently an important development factor of business models. A specific sequence of cause-and-effect dependencies important for their development emerges from the context of the above work. It requires permanent involvement of all the employees. Clearly it can be noticed that the increased competences of a single manager and his or her positive attitude are reflected in the development of the whole organization. Thus, the competences management system should be implemented and it should be ensured that it is used. Such a state, by common strategic debates and common works on the company's development vision, improves the effective creation of business models. It is necessary to set priorities, monitor progress, and solve dilemmas on a current basis.

The authors' developed profile of core competences is the starting point with regard to the implementation of business models. In the context of the research subject, the persons responsible for business development in the particular company are presented with specific expectations, concerning training needs. The paper has presented the procedures and tools ensuring identification of the core competences dynamizing the creation of business

models, whichthe authors believe will partially bridge the knowledge gap in this respect. The authors see the need for further, even more thorough research. Particular competences selected in the course of the conducted research can be the subject of separate works. The presented competences profile has been designed in the way that different competences penetrate and supplement each other. The indicated competences are not fixed categories – the model has been built so as to be modified and supplemented as required by a given organization and the adopted business model. The authors are aware that creating specifications is very difficult, as particular researchers create extensive lists of competences, without ranking them, naming and interpreting them differently. In addition, the division of competences is always a matter of convention and depends on the demands of the researchers or the institutions which it is created for.

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SHIP-SEAPORT RELATIONS IN THE MODULAR PERSPECTIVE

Janusz Rymaniak[1]

Abstract

This article aims at specifying the significance of modularity in the practice of Polish small and medium-sized seaports, using the example of the ship-port relation. It presents the idea of complexity as the contemporary dilemma in management as well as its main constituents, followed by the functional analysis of the seaports and distinguishing the port modules for the ship-port relation. That served as the basis for developing a complexity model in seaports, based on the non-linear constituents: simple rules, modularity and organizational capabilities. The case study method was applied to analyze the complexity in the seaports of Darłowo and Mrzeżyno, Poland. The results have indicated the complementary role of modularity in limiting the complexity of management in small and medium-sized Polish seaports.
Keywords*: system-based approach, process-based approach, resource-based view (RBV), complexity, modularity, seaport.*

1. Introduction

For many years, academics in economics and management have been pointing to complexity issues that in practice hinder effective operation. The research studies that have been done so far have addressed the reasons for the emergence of complexity issues and ways to handle them which have been developed over time. The experiences of Taylor's vertical integration, i.e., standardization, designing various organizational solutions, as well as of Smith's horizontal integration, based on work specialization and simplification, have been applied in order to develop other concepts, such as process- and system-oriented approaches. The approach was predicated on the decomposition of complex activities into smaller parts. Thus, the modular approach emerged, which

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consists in an attempt to identify indispensable kinds of resources and then to arrange them into interconnected sets (see more in Rymaniak, 2013, pp. 57-70).

The problems with counteracting complexity also affect seaports. Global transport tends to be concentrated, as shippers choose mainly the key, major seaports. Other ports look for transport niches and seek to develop other functions such as tourism, sport, serving offshore wind farms, etc. (see more in Kowalczyk, 2009, pp. 128-135). The processes of cargo unitization (containerization, palletization, etc.) lead to ports ecologization, and they meet ship-owners' expectations in terms of rationalization of ship serving time and costs (cost of stay in port). This also includes limiting the congestion (ships queuing for transshipment), no need to model berth assignment, and "opening the ports" to various users, authorities and local communities (Mahfouz & Arisha, 2009). Ports have become "transshipment" places, whereas the other functions are relocated to hubs in the hinterland, which are sometimes hundreds of kilometers away from the port.

The processes lead to a need to minimize the complexity of port management. One of the directions is tapping into zonality and modularity when searching for tools to help rationalize the port utilization and implementation its core functions. Also, there are some concepts stipulating an active role of operators and port authorities (see more in Nowaczyk, 2016, pp. 78-90). Port development also involves improvement of the access from the foreland and hinterland, as well as cooperation with dry ports being constructed as part of TEN-T – the Trans-European Transport Networks in Europe (Newton et al., 2010).

The research problem addressed herein is counteracting the complexity in small and medium-sized Polish seaports. Two research hypotheses were formulated:

H1: The core function and the zoning of the functions, developed so far in the analyzed ports, are decisive for port management efficiency.

H2: Modules are the main kind of overcoming the complexity of ports in the ship-port relations.

The object of the research study is the ship-port relations that reflect the main kind of port operations in the ports of Darłowo and Mrzeżyno being the representatives of small and medium-sized ports, selected by means of the non-hierarchical cluster analysis method (see more in Rymaniak, 2016, pp. 621-631).

2. Complexity as a management category

Complexity is the object of research in numerous academic disciplines. "A distinction should be made between 'complex' and merely 'complicated.' Complicated systems have a large number of components with well-defined relations and roles, which are linear and fixed along time. Complex systems have usually a large number of components with non-linear relations and roles that evolve along time. The science of complexity is a multidisciplinary study, describing and explaining the behavior of complex adaptive systems. It consists of three interrelated blocks building the complexity of science: non-linear dynamics, chaos theory and adaptation/evolution." (Olmedo, 2010, p. 75).

In the management science, there are two major approaches that constitute the organization complexity dilemma. The first is called Ashby's law, and it consists in accepting and sustaining the complexity via shaping the relationship between the organization's internal and external environment. It is deemed that only complexity can handle complexity and the 'amount' of the internal complexity is optimal when it corresponds to (balances) the 'amount' of the external complexity (see more in Pina & Rego, 2010, pp. 85-94).

The second approach is Luhmann's theory of complexity-reducing systems, which assumes a rejection and reduction of complexity. According to this concept, each system has to decrease the environment complexity via selection or diversification. As opposed to Ashby's concept of acceptance and optimization of complexity, Luhmann assumes taking preventive countermeasures or reduction.

Regardless of the complexity dilemma, both theories point to the inverted U-shaped relation between complexity and efficiency of a firm, referred to as 'the complexity curve.' At a specified degree of external complexity, an increase in efficiency as an internal increase in complexity heads to the critical point, and once it has been reached, any excessive complexity decreases the efficiency. This is depicted by an inverted 'U' in the configuration of the curve of statistical research studies results (de Toni & de Zan, 2017).

Also, contemporary assumptions are no less important for the research. The authors assume that in research studies the most fundamental level is one of interactions and relations. Interpretation of Morgan's simple rules becomes even more important: Morgan "points to the order that can emerge from interaction governed by a few simple rules and equates this with his notion of 'minimum specs'; that is, avoiding a grand design and specifying a small number of critical variables to attend to" (Stacey, Griffin, & Shaw, 2001, pp. 142-144). Simultaneously, contradictory results of empirical studies are obtained (Miraglia, 2014), and the diversified level of significance is found in research studies concerning the scope, reasons, manifestations and effects of

complexity (see more in Osbert-Pociecha, 2012b, pp. 89-101). The results of theoretical research done so far as well as the results of empirical studies were used in order to develop a methodology for researching the ship-port relation being the most important aspect of seaports functioning.

3. Research methodology

To make an attempt at defining the ship-port relation from the point of view of the complexity dimensions, first, it is necessary to define the specific nature of seaports organization and management. The research done so far has shown that Polish seaports represent the form of administrative management, based on detailed, mandatory legal regulations and the dominating role of the state, as well as generic and functional multi-subjectivity (see more in Rymaniak & Piotrowski, 2018, pp. 201-212). The port is managed by a managing body, and if there is none – the municipality or the maritime office having jurisdiction over that area. The institution is also responsible for establishing obligatory technical conditions for serving ships, e.g., collecting waste from the ships (see more in Talley, 2009, pp. 159-170).

There is also a functional division of responsibility for individual port areas. The institution responsible for the seaport foreland (the access infrastructure) is the maritime office, a specialized state institution being the local unit of the state administration. Institutions subordinated to the office (harbor master's offices) are also responsible for vessel traffic within the ports. However, responsibility for the port infrastructure and superstructure is borne by, respectively, the port authorities and owners (administrators) of the individual structures and facilities located within the port area (see more in Rymaniak, 2017, pp. 569-590). The quantitative and qualitative scope of the base is only the foundation for performing tasks by various market entities dealing with implementation of diverse kinds of ship-port relations, such as transshipment operations, transshipment quays and passenger terminals, renovation services, shipbuilding (shipyards), etc. Thus, there is no other possibility of the port functioning but by using the functional mechanisms and coupling the tangible and/or institutional modules, singled out to implement tasks or processes carried out in the ports by various organizations.

The presented specific nature of a seaport shows that its functioning consists in establishing the functional areas and sequences (processes) of different durations. The object of the research is the 'ship in port' relationship, as an element that specifies the sense and the *raison d'ętre* of a seaport. For the purposes of simplification and presentation clarity, the scope of research was narrowed down to direct, physical relations between the ship and the port elements.

However, until now the complexity and modularity issues have not been studied in the context of seaports. In this situation, methodological guidance used in designing modules and processes was applied (see more in Seol, Kim, Lee, & Park, 2007, pp. 175-185). Based on the methodology proposed therein, the problem was operationalized, and the basic assumption focused on the kinds of overcoming the complexity by applying the following research methods:

- specification of the kinds of ship-port relations in the modular approach as identification of types of actions;
- specification of the kinds of port modules – the complexity dimension of MODULARITY;
- separating the kinds of functions and their spatial locations in the examined ports – the complexity dimension of SIMPLE ORGANISATIONAL RULES;
- analysis of selected parameters of capacities and their use – the complexity dimension of ORGANISATIONAL CAPABILITIES.

The individual stages were implemented by applying appropriate research methods. To specify the kinds of port modules, an expert analysis was performed, with the participation of practitioners representing the port authorities and maritime administration. Simple organizational principles are the outcome of the cartographic analysis of port areas, using the maps obtained from the Maritime Offices in Szczecin and Słupsk[2]. The dimension of the organizational capabilities, in turn, was computed by means of selected statistical metrics regarding the port efficiency (see more in Mahfouz & Arisha, 2009, p. 15).

The reason for choosing the ports of Darłowo and Mrzeżyno as case studies was the outcome of an analysis of Polish seaports performed by means of the non-hierarchical cluster analysis method in the years 2004, 2009 and 2013. The research studies have revealed that the above-mentioned ports were characterized by indicators that were the closest to a cluster center (Mrzeżyno), or showing a result that described the port location as a duocentric cluster point, as in the case of Darłowo (see more in Rymaniak, 2016, pp. 621-631). Thus, they are the most representative as small and medium-sized ports for the purposes of a description of the researched phenomena.

The statistical data used in calculating the parameters were computed on the basis of the statistical data published in statistical yearbooks kept for the maritime economy, the records and regulations of the Maritime Offices, the Ministry of Agriculture (fisheries monitoring), port authorities, as well as tabulated data regarding berthing in Polish ports as from 05 November 2003, presented on the Maritime Vortal website.

2 Map no. POL56/INT 1340 for the port of Darłowo – to the scale 1:15 000 and POL57/INT 1341 for the port of Mrzeżyno – to the scale of 1:7 500. The maritime administration uses the reports of the Navy Hydrographic Bureau – see Katalog Map Morskich i Nautycznych [Catalogue of Maritime and Nautical Maps] BHMW, No. 552, Gdynia 2017.

4. Discussion

4.1. Seaports in the functioning context

The first stage of the research study was to separate the core function of the ports and specify their areas as well as the scope and specificity of their modularity. Analyzing the activities, the particular functions performed in the port of Mrzeżyno (Figure 1) and the medium-sized seaport of Darłowo (Figure 2) were sectioned off. The cartograms (diagram maps) show the extent to which the particular functions were dominating in the years 2013-2014, i.e., in the period when both ports were upgraded.

The characteristic feature of the functional distribution is the spatial positioning of the core function at the far end of the port. The fishery functions, which are of primary importance in the port of Mrzeżyno, are located at the end of the port basin, in front of the bridge that links the port with the inland waterway of the Rega river. The production functions in Darłowo are located at the end of the port canal, nearby the main access roads to the port and the currently closed railway station, linking the Darłowo terminal loading station with the node in Sławno located on the Szczecin – Gdańsk route.

Another characteristic feature is the distinct function zoning in the ports. In Mrzeżyno it is possible to distinguish (starting from the bridge) the following zones: fishery, yachting, passenger traffic, port operations, and leisure/ catering zones, followed by unused zones. Based on the computations of the land and water areas of the port, used by the individual functions, the fishery function is dominating by far. This function is located along the east-west axis, including the building used for the direct sale of fish along with a warehouse, cold storage facility and ice generator, the basin and the mooring quay with (base) berths as well as unloading docks – a port repair basin along with a workshop building and a slipway to handle the fishing vessels based in the port, (see arrows and blue-marked areas in Figure 1). The port also features the marina zone (colored red), as it is adapted to serve ca. 40 yachts at the same time. The part of the quay located further on in the direction of the port exit is intended for serving the coastal pleasure boats and the marine border crossing (customs and border clearance). The port also includes the statutorily required facilities such as facilities for collection of oily and wastewater from fishing vessels. Also, the port area includes recently upgraded internal roads, yards, sanitary sewage system, stormwater draining system, electric power and water supply networks, which helped to increase the capabilities of organizing events for tourists on the port premises.

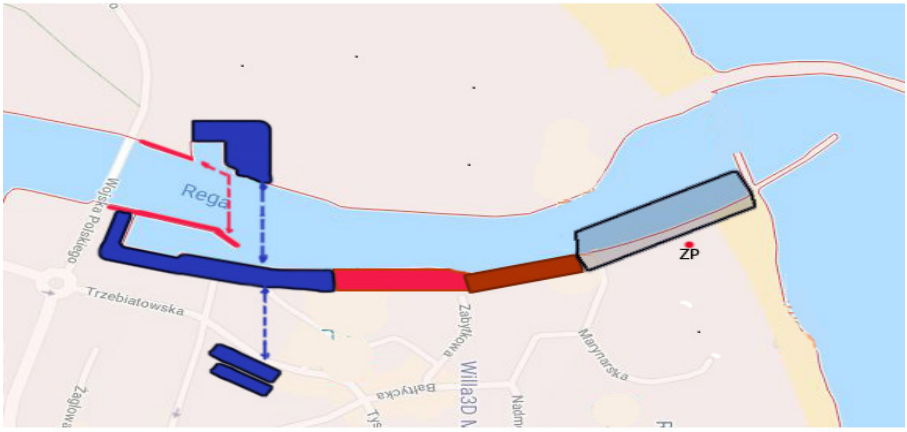

Figure 1. The function zones of Mrzeżyno fishing port

Function color coding: green – production; blue – fishery; brown – passenger traffic; red – yachting; grey – berthing; yellow – other. **TS** – Train Station

Figure 2. The function zones of the medium seaport of Darłowo

However, there are some restrictions about the implementation of the port tasks, resulting from the configuration of the breakwaters and sea currents. There are two navigation obstacles, i.e., two rocks at the western breakwater.

At the eastern breakwater, in turn, a sandy river bar develops periodically, leading to the emergence of considerable shallows reaching the fairway (the area marked grey, which narrows the port exit, in Figure 1). Therefore, the Maritime Office has recommended that the fairway be used at a distance of ca. 10 m off the internal wall of the western breakwater and that some parts of the quay be excluded from use. The need to assure a safe entrance and exit to/from the port has contributed to decreasing the capabilities of the platform creation by 20%, apart from the western quay blocked by the narrowed entrance fairway. As a result of the above-mentioned phenomena, the functional structure of the port has been dominated by the fishery, followed by the supplementary functions of yachting and tourist boat trips.

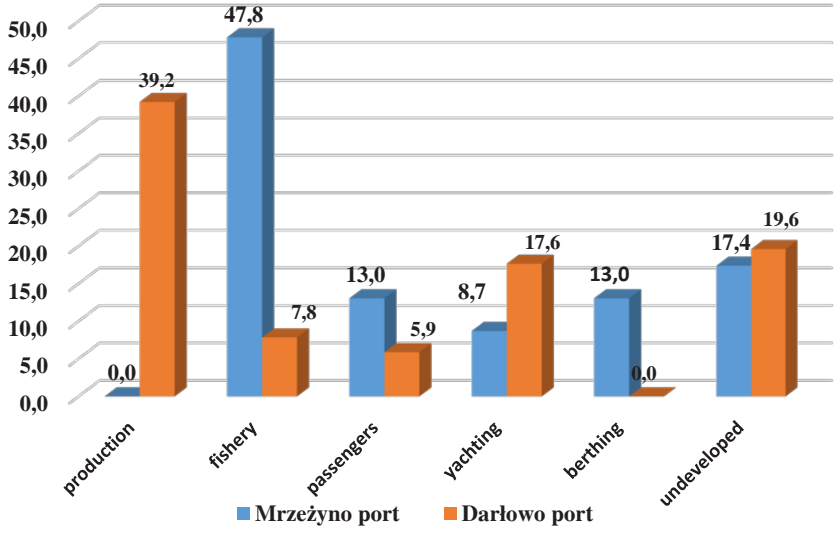

Figure 3. The functional structure of the examined ports

The port of Darłowo features a specific function zoning. The production activities are carried out mainly by two major operators at the far end of the port and at the quay next to the port authority office where, among others, there is a shipyard dealing mainly with renovation tasks (colored green in Figure 2). The berthing functions are also concentrated at the far end, mainly for vessels that winter in the port, and at the port exit, in view of any vessels that need to take shelter in case of rapid weather changes (colored grey in Figure 2). The marina for 18 medium-sized yachts is located at the Park Quay – colored red. A well-developed fishery zone is located closer to the port exit on the western side (colored blue), whereas the hospitality service zone is found opposite,

at the sliding bridge. The hinterland may be served using both road and rail transport, provided that the train station (marked TS) is restored to service.

Based on the computations of the land and water areas of the port, used by the individual functions, the port of Mrzeżyno is dominated by the fishery function (Figure 3). In Darłowo, the production function (in terms of effects – the goods transshipment function) is the structurally dominating one, and its scope and area definitely outrank the fishery, passenger traffic or yachting capacities. This is a typical feature of transshipment ports (see more in Cetin & Ceri, 2010, pp. 195-219). However, both ports have relatively large reserves in terms of the area of their premises. Summing up the results of the functional analysis, it may be stated that the data verify Hypothesis I: the core function and the zoning of the functions developed so far in the analyzed ports, are decisive for the port management efficiency

4.2. Port modules and port-ship relations

Another major element of the study is the analysis of the 'ship' module relationship to other modules found in seaports. In this study, we identify the modules connected directly with the junction of land and water, i.e., transshipment. In this configuration, the basic role is played by the aquatic areas of the port and the places connected with serving the ships, as the basic module of the exchange. Table 1 shows the potential forms of organizing the operations connected with securing the ships' stay in port.

The presented kinds of activities show considerable capacities for modular actions. Entering a port by ship and all the processes connected with its stay in port are connected with the creation of platforms (Table 1). They arise as a result of connecting a ship (being a module with its own internal block structure) with other modules, such as other ships (e.g., a tugboat), wharves equipped with various kinds of utilities necessary for the ship to sustain its operability (networks, drainage/sewage systems, communication facilities, etc.). These are the effects of the administrative allocation of the ship's stay in port, even in the case when it is necessary to recombine (exchange) the port modules. Therefore, the local search variants postulated in the literature (Ethiraj & Levinthal, 2003) do not exist. The platform system also requires following the rule of minimization of ship traffic in the port, to enable safe traffic in port canals and minimize the risk of collisions and accidents. The only exceptions include redeployment of a vessel to another platform, which is necessary in the case of repairs and renovations (slipways, ship repair facilities, etc.) and loading operations requiring collection of cargo from various places (in general due to organizational reasons).

Table 1. Forms of organizing the operations connected with serving ships in port

Type Activities/ ***MODULE TYPE***	**Form of activity**			**Seaport**	
	modular	**integral**	**mixed**	**Darłowo**	**Mrzeżyno**
Entrance to / Exit from the port ***PROCESS ORGANIZATION***	ship vs tugboat	independent/ navigator		possibly independently with a navigator	
Berthing ***PRODUCT***	ship (cutter) vs. quay			platform	platform
Unloading ***PROCESS PRODUCT ORGANIZATION***	ship/ quay/ suprastructure/ operator		variants of unloading organization	platform/ operator	platform/ buying station/ recipients
Loading ***PROCESS PRODUCT ORGANIZATION***	ship/ quay/ suprastructure/ operator			platform/ operator	
Replenishing ***PROCESS PRODUCT ORGANIZATION***	ship/ quay/ suppliers	single deliveries	ship/ quay/ suppliers	platform/ suppliers	platform/ suppliers
Inspections/ repairs ***PROCESS PRODUCT***	cutter vs slipway		ship/ quay/ firms	internal	platform
Collection of oily and wastewater ***PROCESS PRODUCT***	ship/ quay/ recipients		own transport	platform/ recipients	

The verified cases of such operations concerned organization of load units and they consisted in sequential loading of wood onto a ship from two different quays in the port of Darłowo. Thus, it could be qualified as exchanging the quay modules.

The modular forms are also identified in the case of using tugboats and preparing loading and unloading processes by the port operators. In these cases, a relation of interconnected physical modules is observed, where the modules are partially institutional, e.g., a cutter representing a *maszoperia* (i.e., fishermen association), a tugboat representing a company, etc. Other situations reflect cooperation relations, when a module is a part of another company, e.g., a quay belonging to the port, superstructure belonging to the operator,

delivery trucks belonging to the supplier, etc. The overlapping of the physical and institutional relations is a typical situation observed for clusters such as seaports, as ports carry out only the tasks under the Act on seaports and they may not perform other functions such as for example, operator, transshipment, repair or broker services. Single tasks may be carried out sporadically by the operators in an integral manner (using their technical means such as delivery trucks), but more often a mixed method is used. This method is applied especially when a deadline for a task is compromised as a result of delayed deliveries or insufficient volumes held in the warehouses. Thus, it pertains mainly to sustaining the ship's operability or keeping the scheduled time of the ship's stay in port (port fees and/or the risk of cost accumulation as well as the risk of incurring any further losses by the ship-owner as a result of exceeding subsequent deadlines). However, connecting the physical elements requires attending to safety issues. Therefore, a dependent series of connections are applied sequentially, thus minimizing the risk, e.g., in the course of bunkering, especially the one done vessel-to-vessel (i.e., via a bunkering ship), no repair works are carried out.

4.3. The analysis of complexity in the port-ship relations

The third phase is the analysis of the complexity dimensions of the port-ship relation, studied within the area of internal complexity. The objects of the analysis were the three separated dimensions of complexity: simple rules, modularity and organizational capabilities (De Toni & De Zan, 2017). Besides, it was assumed that each of the dimensions is represented by three metrics (Figure. 4).

The structure of the ***SIMPLE RULES*** dimension is one of the leading elements of the sociotechnical trend and complexity studies. It is manifested as an intra-organizational imperative in applying the concept of the so-called simple rules which include: "how-to rules, boundary rules, priority rules, timing rules and exit rules" (Obłój, 2007, p. 151). The concept is also applied to intra-organizational levels. For instance, in team building in the leadership context, the following rules are specified: "understand what your people do; reinforce integrators; increase the total quantity of power; increase reciprocity; extend the shadow of the future and reward those who cooperate." Applying them helps one to avoid "the complicatedness trap" (Morieux & Tollman, 2014). Other researchers have also stressed that "Simplicity may thus diminish the organization's peripheral vision and favor exploitation over exploration. Core competencies may turn into core rigidities when organizations enter a spiral to simplicity" (Pina e Cunha & Rego, 2010, p. 86). Nevertheless, striving for simplification of complexity is one of the current trends in organizations (see

more in Osbert-Pociecha, 2012a, pp. 350-360). This research study has adopted the port traffic-related parameters regarding ships in ports in normative and productive perspectives (see more in Rymaniak, 2014, pp. 203-213) and ships based in a port.

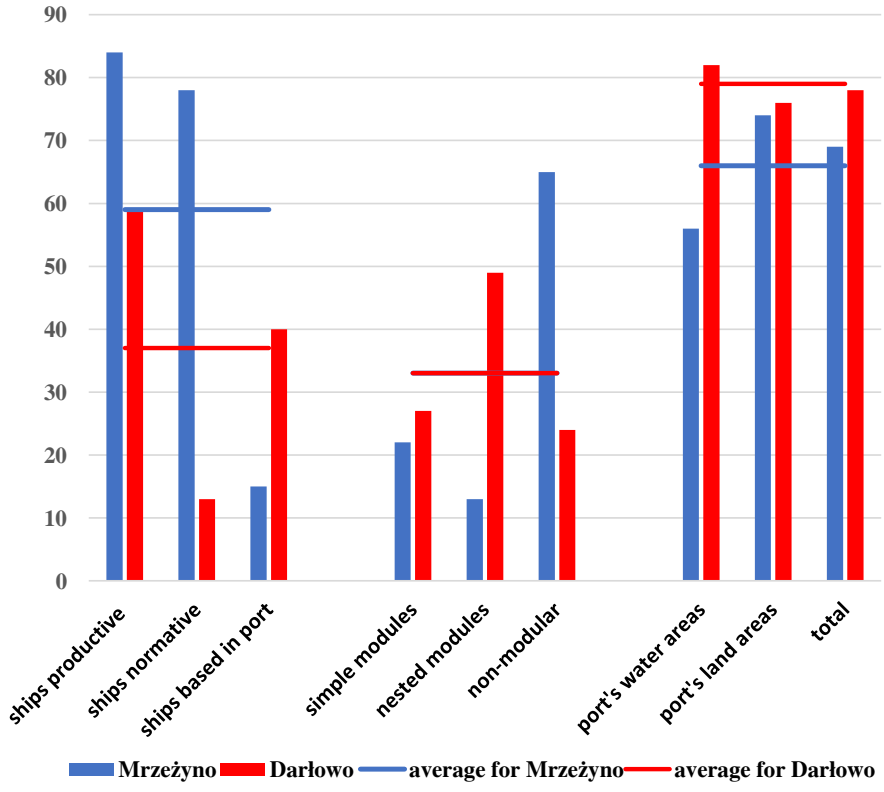

Figure 4. Results of the analysis of the ship-port relation complexity

A significant element of the research is the specification of the ***MODULES*** dimension. Some academics have pointed to the need to take into account relationality and, thus, to account for all three constituents of modularity; i.e., the architecture (possible kinds of modules), the interfaces that affect the flows between the elements, and the standards regarding compliance with the principles of design and efficiency. Thus, the visible parameters constitute the basis, as the concealed information is contained in the modules (see more in Langlois, 2002, pp. 22-23), and to be more precise, in the so-called drivers (see more in Persson, 2004, pp. 55-60). If the flows determine the sense of modularity, then the modular structures have to be open systems (Olmedo, 2010, p. 75). Taking

into account the above-mentioned reservations, three kinds of elements were distinguished for the research purposes, applying the expert method.

1) **SIMPLE** – made of two or three integrally and functionally joined elements, such as the water-borne modules (fishing cutters, yachts, port-based vessels), shoreside power facilities (also for tourist boats) waste collection facilities, warehouses (storage halls, silos, fish collection center);
2) **NESTED (a set of constituent modules) –** cargo and passenger ships, production facilities, processing facilities, marina quays and specialized transshipment quays;
3) **NON-MODULAR ELEMENTS –** berthing wharves and wharves for the port-based vessels, undeveloped (reserve) areas of the port.

These categories were distinguished on the basis of the analysis of the functional system and they constitute the parameters of the "Modularity" block.

The ***ORGANISATIONAL CAPABILITIES*** dimension is made up of four major features distinguished on the basis of empirical studies results: These are redundancy, interconnection, sharing and reconfiguration (De Toni & De Zan, 2017). In research studies, this horizontal dimension of the port's water and land areas availability is considered as fundamental for creating the studied relations.

Analyzing the results of the research on how to counteract complexity in serving ships in port, in the case of small and medium-sized ports the decisive factor is CAPABILITIES followed by SIMPLE RULES (ship traffic) and MODULARITY. It is interesting to note that in both studied seaports the modularity levels are similar and on average amount to 33%. The synthetic results refute Hypothesis II: modules are the main kind of overcoming the complexity.

Counteracting the complexity depends on the kind of port. In a **fishing port,** the dominating share is held by CAPABILITIES (average efficiency of 66% with regard to technical and spatial access to canals, basins, wharves and port areas), along with a significant share of SIMPLE RULES (average efficiency of 59% with regard to the quantity of vessels and laytime) and MODULARITY (average efficiency of 33% when having 22% simple modules and 13% nested modules). In a **transshipment port,** the decisive role is played by CAPABILITIES with the average efficiency of 79%, whereas TRAFFIC (37% efficiency) and MODULARITY, (average efficiency of 33%) are of a complementary nature, when having 27% simple modules and 49% nested modules.

5. Conclusions

The presented proposals for studying the relations between the ship and the port, applying a modular approach, are an outcome of both the literature review as well as an attempt at operationalization of the researched phenomenon to the specific type of enterprise such as seaports. The presentation of some theoretical findings indicates that the researched issues involve definitional ambiguity of modules (see more in Salvador, 2007, pp. 219-240). The use of a large number of various concepts and methods impedes thorough study of diverse modules, showing the totality of complexity of relations and modularity in the product, production and organization design (see more in Campagnolo & Camuffo, 2010, pp. 259-283). Therefore, a decision was made to take up studies focused exclusively on the main module for the port: the ship. It was already at this level that the importance of platform creation was confirmed, even though it is not possible to verify the importance of their architecture at that point (see more in Brax, Bask, Hsuan, & Voss, 2017, pp. 686-702). Despite their simple, predominantly bimodular form, the idea that the intermodular relations determine the dynamics of the phenomenon has been substantiated in research studies (Rymaniak, 2013, pp. 59-70).

It was found that three basic tools for complexities simplification were applied by ports, namely: spatial positioning of the core function in the far end area of the port, the port area zoning, and flexible, universal use of its wharves being the modular blocks. The positioning imposes that the port traffic be assigned to the basic modules (ships in Darłowo and cutters in Mrzeżyno). From this perspective, in terms of management processes, the zoning grants priority to the foreland (sea-port) tasks, which results in totally diverse time schedules for operators and port authorities to build their relations with the hinterland (the land-side suppliers and recipients use mainly road transport). The completed studies have verified Hypothesis I: the core function and the zoning of the functions, developed so far in the analyzed ports, are decisive for the port management efficiency;

The analysis of the 'ship' module makes it possible to formulate a conclusion that with relatively low traffic, not exceeding 60% of the port modules capacity, there are no significant problems in connection with the port management. The considerable flexibility in making use of the wharves in Darłowo in 2013 is a proof that the port was able to solve any problems with traffic congestion preparing bulky merchandise to be loaded (wood) and problems connected with being the base for cutters or with yacht wintering. Returning to the modular specialization means implementation of the port upgrading process, including the construction of the port basin. It also involves preparations to increase the role of non-transshipment functions such as extension of the yachting or sports

base, which prospectively means structural changes to the port functions. On the other hand, in view of the current modernization, the port of Mrzeżyno is implementing a concept of fishing and tourist port which puts emphasis on yachting, tourism, and tourist fishing trips.

The research studies have not found a significant role of modules in Polish small and medium-sized seaports, and that is because they are at the stage of the first, transshipment generation, with a small extent of cargo unitization (see more in Kaliszewski, 2017, p. 95). Thus, Hypothesis II, i.e., modules are the main kind of overcoming the complexity, was refuted. Therefore, it is necessary to search for solutions that are more connected with material effectiveness rather than, e.g. with profitable centers proposed for Croatian ports (see more in Munitić & Jugović, 2017, pp. 810-822).

Nevertheless, the presented material constitutes an inducement to take up further studies on theoretical aspects of modularity in order to extend the proposal regarding the modular perspective in project management, including companies. Adopting the profile of empirical studies is yet another hindrance, as it is much easier to create theoretical models based on simplified assumptions and without going into details of the actual conditions. Still, even at the presented, preliminary stage, it is possible to notice the possibilities of overcoming the complexity, which is a long-time dilemma in the theory and practice of management. It should also be noted that development of ports means an increasing number of vessels and traffic congestion in ports. Consequently, modularity will be one of the main instruments to neutralize the effects of complexity. Nevertheless, there is still a long way to go to implement the vision outlined by some authors who propose coordination of actions via 'an information structure' instead of a managing body or a hierarchy (see more in Sanchez & Mahoney, 2003, pp. 362-379).

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Biographical note

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III.
BUSINESS AND NON-PROFIT ORGANIZATIONS IN A MARKET ECONOMY

CORPORATE SOCIAL RESPONSIBILITY TOWARDS EMPLOYEES WITH CARING RESPONSIBILITIES - PRELIMINARY FINDINGS IN SELECTED POLISH AND PORTUGUESE COMPANIES

Justyna Berniak-Woźny[1], Daniela C. Wilks[2]

Abstract

This paper seeks to cast a fresh eye on internal CSR by focusing on the social responsibility of organizations towards employees with caring responsibilities. An expanding body of literature analyses different topics related to internal CSR initiatives. However, the bulk of the literature to date has by and large not engaged with employees who have caring responsibilities. The share of these employees is set to increase due to a combination of factors. We argue that employees with caring responsibilities are an issue for internal CSR that requires an integrative framework drawing on interdisciplinary research. The paper aims to encourage CSR in this area and to spur research into employees with caring responsibilities in order to advance practical recommendations.

The methodology used in the empirical part of this paper was a content analysis of websites and company reports on internal CSR. Specifically, the focus was on CSR policies and practices related to employees who have caring responsibilities. The nature of the study is descriptive and based solely on information from secondary data sources in the analyzed companies. The sample companies include the 20 biggest Polish enterprises listed on the WIG 20 index of the Warsaw Stock Exchange and the 20 biggest Portuguese enterprises listed on the PIS 20 index. Altogether, 40 companies were analyzed and, based on the findings, recommendations for organizations have been formulated.

Keywords*: corporate social responsibility, internal CSR, carers, caring responsibilities, family-friendly workplace.*

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1. Introduction

The last two decades have seen different socio-economic, demographic and cultural changes that have had a huge impact on work-life balance. Life expectancy is longer than ever and, due to a combination of factors, there is a need to raise the retirement age. In this context, the number of people who try to reconcile paid work with unpaid caring responsibilities is increasing (Yeandle & Buckner, 2017). The legal system has not kept pace with the changes and fails to support employees with caring responsibilities. We argue in this paper that organizations and businesses should include these employees in their CSR agendas and strategies. Furthermore, we argue that in doing so would benefit both employees and organizations.

The current study addresses what appears to be an obvious void in the literature. It aims to identify existing organizational policies and practices towards assisting employees with caring responsibilities in Polish and Portuguese listed companies. Specifically, the goal is to identify good practices and advance practical recommendations for establishing organizational policies and practices regarding assistance to this group of employees.

2. Literature background

Research on Corporate Social Responsibility (CSR) is well-established. Literature offers many definitions of the concept, some of them developed by academics, others by practitioners. The consensus is that socially responsible companies are those that go further than what is required by law and undertake initiatives that benefit the societies in which they operate. Most of the existing literature has focused on external CSR and its effectiveness in building a good organizational image, and developing good relationships with stakeholders. Employees are increasingly thought to be one of the most important groups of stakeholders, and both researchers and practitioners agree that a crucial factor for the success of any organization is its responsibility to employees (e.g., Bhattacharya, Sen, & Korschun, 2008). Furthermore, CSR has been found to be associated with positive attitudes and work behaviors (e.g., Brammer, He, & Mellahi, 2015).

Internal CSR can be defined as the policies and practices of an organization related to the psychological and physical well-being of its employees (Shen & Jiuhua Zhu, 2011; Turker, 2009). These include (FOB, 2013):

- dialogue with employees;
- employee participation;
- parent-friendly firm;
- work-life balance;

- employee health;
- employee training and development;
- recruitment and adaptation;
- integration of employees;
- employee support;
- corporate volunteering.

As highlighted by Cavazotte and Chang (2017), the CSR literature discusses internal CSR issues at the institutional, organizational and individual levels of analyses. Institutional initiatives focus on the social dialogue and labor relations, such as unions and professional representative bodies, and address normative and regulative issues. Internal CSR initiatives focus on the work context and cover broad policies aiming to improve the physical environment for employees, including workplace health and safety, and design jobs in ways that promote involvement and participation. At the individual level, internal CSR initiatives concentrate more directly on employees, and address their specific needs, namely professional development, benefits and health services. This paper focuses on the individual level of internal CSR.

CSR has been considered as a competitive advantage to attract, motivate and retain employees. Thus, as employer branding strategy, it focuses mostly on young generations (Y and Z), which are believed to be very demanding and difficult in what concerns organizational loyalty and engagement. Consequently, internal CSR initiatives have so far focused mostly on implementing attractive strategies for young employees with talent development programmes, facilitating employee good health by taking preventative measures in health-related issues (like health screening initiatives and sport facilities/activities), or creating innovative and attractive workplace designs (due to changing work styles and mobile technology).

Nevertheless, the aging of the population and the need to raise the retirement age and extend working lives, has led to an increase in the employment rate of older workers, a trend which is set to continue (Phillipson & Smith, 2005). The age group of the baby boomers now aged between 50-54 years old is the fastest increasing portion of the population, followed by the 45-49-year-olds (Calo, 2008). Moreover, the prevalence of older people in the workplace has already been considered the dominant social issue of the 21st century (Pitt-Catsouphes, Matz-Costa, & Brown, 2007).

As older workers become a dominant demographic group in the workplace, organizations need to tackle a variety of issues associated with "old age" (Calo, 2008; Hirsch, 2005; Midtsundstad, 2011). Some authors (e.g., Ilmarinen, 2012) go further and argue that age-related factors ought to be considered in daily management. Organizational response to their older

workers' needs can reduce costs and improve retention, and thus benefit both employees and organizations.

To consider the specific needs associated with the older generation in the workplace is an issue of the social responsibility of business. As Hirsch (2005, p. 3) puts it: "Older workers are not a separate group within society; later working life is a stage that most of us will pass through." However, this is an area that has not been given much attention in the workplace literature. Admittedly, there is a growing body of literature on topics related to an aging workforce. For instance, ageism in the workplace (e.g., Ng & Feldman, 2008), safety and health management issues (e.g., Ilmarinen, 2012; Kuperus, Stoykova, & Rode, 2011), measures to improve workplace ergonomics, and work-life balance to encourage senior workers to continue working (Ilmarinen, 2012; Richert-Kaźmierska & Stankiewicz, 2016) are just some of the topics.

However, despite the increased attention to issues associated with "old age" in the workplace, we know less than we should about care responsibilities that are associated with older age, such as working when a loved one is terminally ill or caring for someone who is terminally ill. Undeniably, the difficulties of employees with caring responsibilities have been studied (see Tammy & Martin, 2017 for a retrospective overview of work-family research). However, the larger part of the literature on the subject tends to focus on working parents and their responsibility for children. Relatively few studies have been conducted on caregivers providing end-of-life care or caring for a dying relative, or those assisting someone with Alzheimer or disabilities. It is also important to note that the GRI Sustainability Reporting Standards, which were designed to be used by organizations to report about their impacts on the economy, the environment, and/or society, do not touch on this subject.

For the purpose of this article carers are defined as employees with significant caring responsibilities that have a substantial impact on their working life. An employee is a carer if he/she is responsible for the care and support of:

- elderly, sick or disabled spouse/partner;
- own/adopted/step/foster child;
- elderly, sick or disabled parent or parent-in-law;
- relative or friend who is unable to care for themselves;
- other dependent on the employee.

The activities that employees with caring responsibilities undertake include, but are not limited to the following:

- help with personal care;
- help with mobility;
- managing medication;
- practical household tasks;
- emotional support;
- help with financial matters or paperwork (The University of Sheffield).

Demographic and socio-economic drivers make the caring responsibilities of employees a serious matter that must be considered by all organizations. Several factors create much more work-life tension than what is revealed in the work-life balance programmes offered by contemporary organizations. Staying longer on the job, the increase of women's activity in the labor market (particularly in countries where their participation was previously low), and the growing number of single-parent families who are facing the time-related challenges of having to do paid work and raise children are some examples of factors that challenge the work-life balance. Add to this, the advances in healthcare allow the elderly, chronically ill and those with disabilities to live longer than ever. Hence, the number of people with a family member or friends requiring care, especially in midlife, has increased. Moreover, it is not easy to combine care with career.

All of the aforementioned have a direct impact on contemporary employees, with a growing number of those in need to take on caring responsibilities. Caring responsibilities are not, of course, correlated with age. Any employee can become a carer at any time during his/her career – if a relative or a close friend has an accident or develops an illness or disability, or if an aging parent becomes frail, or due to mental health problems or addiction is unable to cope without support. In spite of the paramount importance of attending to the carer' needs in the workplace, they are rarely protected by legal regulations. Therefore, this issue should be addressed at an organizational level.

As the official analysis of the *Survey of carers in households 2009–10* reveals, among carers in the UK aged 45–54 and 55–64, 65% and 72% respectively cared for someone in a separate household, and about one fifth of carers of this age care regularly for two or more people. Among these carers, most of them reported having a fairly regular pattern of caring, but 30% of those aged 45–54, and 25% of those aged 55–64 said that their care varied from day to day or from week to week. In the opinion of almost half of the respondents, caring affected their personal relationships, social life and leisure (47% of those aged 45–54; 43% of those aged 55–64) (HSCIC, 2011). According to Pickard (2015), the situation is developing in a very dangerous direction. For instance, it is likely that in England, between 2007 and 2032, there will be an increase of 18% and 50% respectively in the number of people aged 45–64 and 65–74 caring for older parents for 20 and more hours per week.

As the proportion of carers in the workplace increases, there is a need for employers to change how they operate and implement carer-friendly programmes allowing employees to combine work and care. Such initiatives and programmes can develop the capacity of employers to attract skilled workers, retain experienced employees (and thus save on costs and prevent

the disruption of replacing these employees), and foster a productive, efficient and effective workforce (Work & Care, 2014).

The workplace is where people spend most of their time and work plays an important role in people´s life. Research on employee-organization relationship is based on the theories of social exchange and inducement – contribution (Coyle-Shapiro & Kessler, 2002), and the consensus is that employees are likely to reciprocate the benefits they receive. When employees perceive that the organization cares for their well-being and supports them, they feel inclined to reciprocate by being more committed (Rhoades & Eisenberger, 2002). Employers supporting carers in their workforce may also benefit from reduced absenteeism, improved productivity and job satisfaction. In a 2012 survey of 223 UK employers (Carers UK for Employers for Carers, 2013), the majority considered that supporting carers in their workforce had either a major, or some, benefit to the following:

- increased staff morale and loyalty (93%);
- staff retention (92%);
- reduced sick leave and absenteeism (88%);
- improved staff engagement (85%);
- improved people management (80%);
- made team working more effective (75%);
- improved service delivery (72%);
- increased productivity (69%);
- reduced recruitment and training costs (65%);
- improved the ability to attract (61%);
- produced cost savings (55%).

On the contrary, if employees experience a serious imbalance in their work-life balance, the employer faces additional costs due to absenteeism, staff turnover, poorer quality work, accidents at work and, more indirectly, costs arising from employee dissatisfaction, lower commitment to work/ business, among others (Knaflic, Nabergoj, & Pahor, 2010). Combining work and care can be challenging and have a negative impact on the physical and mental health of employees. Frequently the working carers experience high levels of strain, lack of concentration, lethargy and exhaustion (Duxbury et al., 2009; Pyper, 2006; Schroeder, MacDonald, & Shamian, 2012).

It should be highlighted that most working carers are employees ‘in their prime employment years’ with ‘valuable skills and experience’ and that the one million people who give up (or reduce) their paid work each year represent an annual ‘loss’ for employers as well as for families (Carers UK & Ipsos MORI, 2009). Studies have also found that those who leave paid work often wish they had stayed in their jobs. What is more, many of those who combine work and care need additional support to make their caring responsibilities possible, and that carers who left a job because of their caring responsibilities often say

they would like to return to work when their caring responsibilities diminish or end, but in their opinion it is difficult to do so (DH, 2008; HCWPC, 2008; Yeandle et al., 2007).

The benefits of work and family flexibility can be achieved in every workplace, regardless of the business size, by developing and implementing family-friendly workplace policies. It should be noted. However, that good practices are usually represented by the big business organizations.

One good example is the BT Group - a British multinational telecommunications services company with more than 102,000 employees, among which 75,000 work flexible hours. The company found that the average increase in productivity for these workers was 21%, which was worth at least Ł5–6 million. Annual staff turnover was also below 4% compared to the sector average (17%), and sickness absence among home workers averages below three days per annum. BT also found that stress-related absence was reduced by 26% through flexible working arrangements only (see more in *Employers for Carers,* 2012 p. 4)

Another good example is Centrica/British Gas which has been a leader in innovative family-friendly and flexible working practices, establishing a carers' network in 2004. In 2009 over 60% of its 29,000 UK-based employees had some form of flexible working arrangements in place, with 8,500 engineers all home workers using laptop and wireless technology to deliver service to customers. The company reported about Ł10 million a year of business benefits from its innovative, flexible working programme. In 2013, British Gas was granted a top national award for its support for carers in the 'best for carers and eldercare' category at the 2013 Working Families' Best Practice Awards (see more in *Employers for Carers,* 2012, p. 3).

It is also possible to find good examples of carer-friendly work arrangements in smaller companies, like Listawood - a manufacturer with a workforce of around 150 people. According to the management, the staff turnover at the company is remarkably low – 1% per annum. This is believed to be attributable to the organizational culture of flexibility and support to those who need to balance their home and work lives, often at short notice (see more in *Employers for Carers*, 2012, p. 3).

Public institutions may also benefit from carer-friendly initiatives. In order to help staff to define themselves as carers and identify carer issues, the UK Metropolitan Police circulated a leaflet with payslips and published an article in the institution's internal newsletter. A questionnaire about caring was subsequently sent out with the set of payslips, and the responses were delivered to *Carers UK* so that employees might be sure that confidentiality was guaranteed. From all the information gathered, a report was produced by Carers UK and, in this way, the UK Metropolitan Police learned about

the needs of their employees with caring responsibilities. On the basis of this report, a policy was developed and publicly launched, with information and advice for referral to *Carers UK* posted on the UK Metropolitan Police intranet (see more in *Employers for Carers,* 2012 p. 8).

3. Research approach and methods

The aim of the current research is to analyze specific CSR initiatives dedicated to employees with caring responsibilities mentioned in CSR reports of Polish and Portuguese organizations. The practices of these two European Union countries are presented and discussed. Portugal and Poland are the product of different histories, but share similarities, in particular, the religious background - both are Catholic countries with a set of beliefs regarding the role of the family and how business is approached. It is also relevant that both countries have adopted CSR initiatives later than northern European countries. One of the factors determining the choice of these two countries was that companies disclose non-financial information in various formats and not all companies publish their CSR reports or annual reports in English. The knowledge of both languages was, therefore, an important factor in conducting the study. Furthermore, the knowledge of the business environment and its context is very important to carry out research on CSR practices.

The nature of the study is descriptive and based solely on information from secondary data sources of the companies. The sample companies include the 20 biggest Polish enterprises listed on the WIG 20 index of the Warsaw Stock Exchange and the 20 biggest Portuguese enterprises listed on the PIS 20 index. Altogether 40 companies were analyzed.

The methodology used in the empirical part of this paper is based on the content analysis, which is "the research method that is most commonly used to assess organizations' social and environmental disclosures" (Milne & Adler, 1999, p. 237). The main sources of information were annual reports, CSR reports and the webpages of companies listed on WIG 20 and PSI 20 indices. The authors independently analyzed the data several times until they were confident that all CSR initiatives had been examined and could be classified as pro-carer initiatives according to the categories previously established. After that, all themes were listed. A summary of the findings is presented in the tables below.

4. Results and discussion

All of the reviewed CSR reports and websites provided some sort of information on CSR practices. The practices disclosed in the CSR or annual reports of the Wig 20 and PSI 20 companies revealed that none of the 40 analyzed companies explicitly reported a programme or initiative dedicated to employees with caring responsibilities.

However, some companies had initiatives that can be considered as a good starting point for creating a carer-friendly workplace. These initiatives that could be classified as family-friendly workplace initiatives are mostly offered by Polish companies (Table 1). A good example of such an initiative is the 'Family-Friendly Employer' programme implemented by the ORLEN Group offering benefits, such as an additional two days off to care for a child, a nursery school, an additional hour for breastfeeding, medical care during pregnancy, baby-feeding rooms, gifts for new-born children of employees, and sending company updates to employees on parental/childcare leave. Other companies focus mostly on young parents and parents of school-age children and mainly offer financial benefits, although they also offer flexible work arrangements and additional leaves. It is very common in Polish companies to organize a breastfeeding space for young mothers that want to come back to work but want to continue breastfeeding their children. The above initiatives can easily be extended to the carers by, for example, offering a refund or partial refund on the daycare costs of the employees' dependents.

Even though there are no special working arrangements for employees with caring responsibilities, some companies offer flexible work arrangements, mainly because that is expected by young employees without caring responsibilities and because there is a trend for eco-friendly work arrangements, such as home working, which is believed to reduce the greenhouse gas emission resulting from private and public transport. Obviously, these arrangements can be extended to other carers, but it would be much more efficient to ask the carers which forms of flexibility they prefer. A one-size fits all approach is doomed to fail.

In the case of the Portuguese companies, the majority of them provide some sort of support for their employees, in particular for parents with young children. Like their Polish counterparts they do not explicitly mention any support given to employees providing end-of-life care or caring for a dying relative, or assisting someone with Alzheimer or any other serious disability.

Table 1. Initiatives of the WIG 20 companies potentially supporting employees with caring responsibilities

Organisation	Sector/ Industry	Mission/ Values	Section in CSR report	Initiatives potentially supporting employees with caring responsibilities
Alior Bank SA – about 8,419 employees	Banking	Values: honesty, entrepreneurship, innovativeness, simplicity	Upgrading working environment	"Smartphonization" - equipping managers with modern smartphones allowing them to work out of the office
			Benefits – sport and health, family, help	Financial help for employees and children of employees who died
BZWBK (Santander Group)– about 11,921 employees	Banking	Values: Customer satisfaction, Innovativeness, Strength, Leadership, Engagement, Ethics	Working conditions and benefits	Refunds of children caring responsibilities (for example the costs of kindergarten or kids-clubs, costs of winter and summer holidays, etc.) For "young" parents: additional 3 weeks of maternity leave, reduction of work time, adaptations of working responsibilities Financial aid for employees in difficult situation (including those connected with caring responsibilities)
CCC about 13,000 employees	Garment and Footwear	Values: -Development by action, -Action supported by flexibility -Flexibility leading to efficiency -Efficiency through engagement -Engagement in development	Support for working mothers	Women are offered teleworking much more often than men. The infrastructure covers the space for breastfeeding. Production lines are stopped for 4 week in summertime to give mothers a chance to look after children without school activities
Eurocash SA – about 9,000 employees	Articles of everyday use	Values: responsibility, solidity, teamwork, transparency, profit sharing, customer-centrism, job satisfaction, entrepreneurship	Motivation and integration	Eurocash SA offers a financial aid for employees in difficult situations

Organisation	Sector/ Industry	Mission/ Values	Section in CSR report	Initiatives potentially supporting employees with caring responsibilities
Jastrzębska Spółka Węglowa SA – about 26,000 employees	Coal mining	Values: -The highest working conditions, -Customer relations -Ecological awareness -Effective management -Corporate governance -Transparency-based relations -Public sector units relations	Employees	JSW provides comprehensive medical care far in excess of what it is required to provide. This includes access to specialist health programmes or to psychological assistance in accidents and other crisis situations
Polski Koncern Naftowy Orlen SA– about 5,000 employees	Gas and oil	Values: responsibility, development, people, energy, reliability	Responsible employer	As a company implementing modern-day solutions aimed at maintaining the balance between work and family life, PKN ORLEN carried out the 'Family-Friendly Employer' project, offering such benefits as an additional two days off to care for a child under three years old, a nursery school for the children of ORLEN Group employees, one additional hour for breastfeeding, medical care during pregnancy, baby feeding rooms, gifts for newborn children of our employees, and sending Company updates to employees on parental/ childcare leave

Although they offer various benefits, they focus mostly on supporting employees and their families in financial difficulties and problematic social or family situations. An example of this kind of support is the "Social Emergency Fund" provided by Jerónimo Martins that also covers employees with caring responsibilities. Another example of good practice that should be highlighted is CTT with regard to the identification and prevention of situations of socioeconomic destitution or vulnerability, and their subsequent response in order to address the identified problems. The initiative is essentially aimed at the elderly, children and youth with disabilities and/or chronic diseases, which could easily be extended to those with caring responsibilities and become a flagship employee-oriented programme of CCT.

Table 2. Initiatives potentially supporting employees with caring responsibilities of the PSI 20 companies

Organisation	Sector/ Industry	Mission/ Values	Section in CSR report	Initiatives potentially supporting employees with caring responsibilities
Banco Comercial Portugues/ Millenium bcp About 7,000 employees	Banking	Values: Agile Modern Personal Simple Sustainable	Internal Community – Credit for Employees	The credit is granted in accordance with the principles of a credit risk assessment established by the Bank's regulations. The employees may also ask for credit for social purposes that, among other, are addressed to situations of need for funding to meet education, health, house benefits in own or rented homes, or other goods and services of exceptional nature. Health insurance for all employees.
Jeronimo Martins About 96,000 employees	Food Retail	Respect and decent treatment of each person during the recruitment and selection processes, and professional development; forbiddance of any type of direct or indirect discrimination and promotion of a culture of fairness and merit.	Internal Social Responsibility Family Well--Being	In Portugal, the "Social Emergency Fund" established since 2011, aims at helping employees with proven financial difficulties or those who are living in an at-risk social or family situation. The work carried out with employees and their families is supported by social workers who ensure an effective, fast and professional response.
CTT About 10 000 employees	Post and other services	Values -Customer oriented -Enthusiasm -Trust -Excellence -Innovation	Promoting Internal Well--Being – Social action	The intervention among the beneficiaries involves diagnosis, prevention of situations of socioeconomic destitution or vulnerability, their subsequent identification and measures to address the identified gaps and promote autonomy and capacity building. These actions are essentially aimed at the most fragile beneficiaries - the elderly, children and youth with disabilities and/or chronic diseases.

Organisation	Sector/ Industry	Mission/ Values	Section in CSR report	Initiatives potentially supporting employees with caring responsibilities
CTT About 10 000 employees	Post and other services	Values -Customer oriented -Enthusiasm -Trust -Excellence -Innovation	Promoting Internal Well--Being – Social action	The elderly represent the area which, recurrently, presents the highest number of requests, both in terms of frequency of the use of services, and the attribution of economic support directed essentially as supplements for the payment of homes and/or internment in health institutions. Particular attention is given to the follow-up provided to children and young people with chronic diseases or severe disabilities. The support involves the attribution of supplementary benefits to families and diverse economic assistance to foster inclusion and improved quality of life.

5. Conclusions

One main broad conclusion can be drawn from the findings: internal CSR and in particular employees with caring responsibilities (other than children) have not yet received the attention they deserve. In terms of CSR policy and practice, our findings imply that, although companies are heading in the right direction, they need to go a step further and include their employees with caring responsibilities in their CSR agendas**.**

Family-friendly work-life policies and practices benefit not only carers but also other groups of employees. A successful carer-friendly workplace initiative should reconcile the employees' flexible work requirements with the business needs. There is a wide variety of initiatives that an organization can introduce as part of a carer-friendly programme. We have previously mentioned some good examples in the UK and below we present some suggestions:

- to ensure that employees and potential employees are well informed of available carer-friendly working arrangements and opportunities to combine work and care;
- to cover a palette of leave arrangements that are welcomed by the employees with caring responsibilities;
- to implement flexible working arrangements appreciated by the employees with caring responsibilities;
- to include financial support for carers in the enterprise's benefit system;
- to organize staff meetings when employees with caring responsibilities can attend;

- to organize professional development and training programmes taking into account the contingencies of employees with caring responsibilities;
- to ensure that employees with care responsibilities are kept up to date about what is going on in the workplace including any changes that might occur;
- to grant the possibility of taking time off for compassionate reasons or for caring for a loved one nearing the end of life;
- to build an organizational supportive culture, encouraging an understanding of how to help those who need support.

Flexible working arrangements can make it possible for employees to combine work and caring responsibilities and to continue working rather than having to leave work. Examples of flexible working arrangements (Work & Care, 2014) include:

- flexi-time - flexible starting and finishing times, adjusting the working day to the carer' needs;
- home-working or tele-working – working at home environment or any other place using technology;
- annualised working hours - completed contracted hours, but making adjustments to allow for shorter or longer days or weeks across the period of a year;
- job rotation - moving from one job to another for a specific period to reduce work commitments during a period of care;
- term-time working - working contracted hours but within school term times;
- self- rostering - team voluntarily agree shift patterns for managers to approve;
- job sharing - two or more people fulfilling the requirements of a single post option of having a job share register within a company;
- split shifts - arranged with a period of time in the middle of the day or afternoon;
- compressed working hours - the carer may start and finish the job and have breaks at different times from other workers;
- staggered hours - working full-time hours but over fewer days;
- flexible combination - ability to pick and choose, e.g., increasing/ decreasing annual or unpaid leave for a particular working pattern;
- 'day extender' - working predominantly in the office but also carrying out additional work at home in the evening;
- phased retirement - reducing hours progressively over a certain period rather than ceasing work completely. often this involves a cross-over period where the retiring employee helps to train their replacement.

When flexible working arrangements are not enough to support carers with their responsibilities, the flexible leave arrangements may also offered, for example (Work & Care, 2014):

- carers' emergency leave - for unforeseeable emergency incidents involving a dependent, when leave is needed for a short period of time. if more time is needed, then absence usually becomes planned leave;
- carers' planned leave - leave needed for a foreseeable event lasting for a defined period. if more time is needed, absence usually becomes a career break, or a review of working pattern/hours can be undertaken;
- career break or sabbatical - used when a carer has to take a longer period out of the workplace, but wishes to return to their former job. not necessarily exclusive for carers. minimum period usually 3 months – 2 years;
- unpaid leave - usually used when all other paid leave options are exhausted. not necessarily exclusively for carers;
- salary sacrifice - to build up a bank of leave to be used for caring;
- matched leave - an additional period of leave offered by an employer to 'match' annual leave an employee has to take to provide care – often used to cover a period following hospital discharge;
- compassionate leave - used mostly following bereavement;
- employer-covered cost of dependent care - to enable a carer to attend training, or perform work duties requested by the organization – at a time when they would normally have caring responsibilities;

By drawing attention to the needs of employees with caring responsibilities and by examining the 20 biggest Polish and Portuguese companies CSR reports, this study contributes to the literature on internal CSR. However, two main limitations should be acknowledged. The first one is that the study was limited to a review of company websites and employee-related CSR reports. Subsequent studies should analyze other sources. The second one is that the study covered only the biggest companies listed on WIG 20 and PIS 20 indices. However, CSR is being practiced in medium and small companies as well and this group of companies could be the next object of research. In closing, two main conclusions emerge from this study. Firstly, there is a need to consider the needs of employees with caring responsibilities and identify them as an issue for internal CSR. Secondly, the analyzed listed Polish and Portuguese companies have not yet approached this subject. Some companies are on the right path, but should go further and embrace policies concerning the caring responsibilities of this group of employees, and their needs and expectations. Only then can effective internal CSR programmes and initiatives have a chance to be well developed and implemented. Consequently, future studies should focus on answering two questions, namely what are the factors affecting the organizational propensity to undertake care-friendly workplace initiatives (constraining factors and favoring ones) and which initiatives are the most welcomed by employees with caring responsibilities.

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RESPONSIBLE MARKET OFFER AS AN ELEMENT OF CUSTOMER CAPITAL CREATION. A THEORETICAL AND EMPIRICAL STUDY

***Wiesława Caputa*[1]**

Abstract

The main goal of the article is to indicate the place and importance of the CSR concept in building customer capital, with a particular emphasis on the brewing sector. The considerations are focused on proving the thesis assuming the necessity of basing the business strategy on the foundation of corporate social responsibility. In the perspective of enterprises in the brewing sector, this is connected with the necessity to change the structure of the market offer in favor of the products enabling the reduction of social costs, resulting from an excessive consumption and taking actions aimed at creating a pattern of behavior that will be perceived by the customers as authentic and consistent.

On the basis of literature studies, results of own surveys, analyses of industry materials, including the reports on the social responsibility of the leaders of the brewing market in Poland, this thesis has been proved. The business model of the leaders of the brewing market is based on the CSR foundation. However, the basic problem of the industry is its effective market communication. The actions resulting in the change of the market offer in favor of low-alcohol products and creating a responsible culture of consumption from the perspective of customers are perceived as typical business activities. The condition for achieving above-average benefits is to create and offer distinctive values on the market, which requires focusing activities not only on improving communication with customers, but also building relationships based on trust.

Keywords: *customer capital, reputation, CSR, resource potential, trust.*

1. Introduction

An unquestionable consequence of changes taking place in the environment of modern enterprises is the growing barrier of demand, which in business

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relationships results in strengthening the customer bargaining position. As a result, on the increasingly open, unpredictable and competitive market, the premise of all decisions of enterprises, related to: the choice of products, production methods, sales methods, communication with the market or conducting market research, stops being the internal technological and organizational conditions, but arises from customer expectations and preferences (Dobiegała-Korona, 2002). They remain in relation with the functional and emotional tasks that the customer puts to be solved by the product offered on the market and its producer (Ulwick, 2009).

In an environment where acute turbulence is a standard and competition takes place in a flat world (Kotler & Caslione, 2009; Fung, Fung, & Wind, 2008) the following also changes: hierarchy of customer needs, ways and means of satisfying them, as well as criteria for making choices (Skorupska, 2016). As a consequence, the contemporary customer becomes:

- not only a passive participant in the exchange but an active player in the market game for whom and with whom the company creates value,
- a subject that is becoming more and more conscious and educated, able not only to participate in the process of creating value but also pays attention to the way of its production, delivery and communication,
- a partner and co-founder of values, demanding more and more often "fair" division of it (Prahaland & Ramaswamy, 2000; Blattberg, Getz, & Thomas, 2004; Rudawska, 2008; Caputa, 2015).

It should be remembered that the customer, understood as an entity purchasing or using the product offered by the company, appears on the market in various roles. As a consequence, he can evaluate the company, not only through the relationships that are directly related to the process of purchasing and using the product offered, but also through the prism of satisfying other needs and experiences resulting from the multiple relationships (contacts) that he makes with the company, in a direct and indirect way. Any disturbances in the course of these relationships may negatively affect not only the efficiency and effectiveness of the process of establishing and developing the customer relationships (customer capital), but also collective assessment of the company's ability to provide "valuable results to many stakeholders" in the future (reputation), which also translates into the value of generated capital supply in both the short and long-term (Fombrum & Rindova, 1996). As a result, the value of the enterprise remains in relation to its global utility, which is assessed through the prism of the enterprise's readiness and ability to create value for many stakeholders in a way that preserves the value of natural resources for the future (Adamczyk, 2016). Such a way of creating value, if it is to lead to a sustainable capital supply for an enterprise, must be embedded not only on sustainable development, but also on a mutually beneficial exchange

of values, which is synonymous with the need to balance the business goals with the objectives of stakeholders, including society as a whole (Supekova, 2015). This results in the need to base the business model on the concept of permanent and sustainable development and corporate social responsibility.

This is a particular challenge especially for those entities that, by supplying the products desired by the customers and generating significant fiscal benefits for the state budget, may contribute to a reduction of potential, feeding the economy in the future, as well as to the generation of substantial social costs. For this reason, the actions taken by them may be perceived by the stakeholders as inconsistent or inauthentic, which may negatively affect their reputation, and thus the capital supply.

The key objective of the paper is to indicate the place and importance of the CSR concept in building customer capital, with a particular emphasis on the brewing sector. The considerations conducted focus on proving the thesis that there is a need to base the business strategies on the foundation of corporate social responsibility, which is connected with a change in the structure of the market offer in favor of the products that reduce social costs, resulting from excessive consumption, and taking actions aimed at creating a behavior pattern that will be perceived by the customers as authentic and consistent.

The verification of the thesis was based on literature studies, results of surveys, national and international reports on the brewing market, analysis of industry materials, including the reports on the social responsibility of the brewing market leaders in Poland in the years 2006-2017. In the analysis of the collected data, apart from the critical analysis of literature, ANOVA analysis was used too.

2. Customer value as the foundation of the customer capital concept

The concept of customer capital is not uniformly defined. However, this does not change the fact that this concept usually comes down to the value of the relationship established and developed between the company and the customer, understood as the entity purchasing and paying for the product. At the basis of this relationship lies customer value, which is defined in two dimensions (Figure 1). From the perspective of:

- enterprise (customer capital), through the prism of the customer's net contribution to the implementation of multidimensional company goals (Blatberg & Deighton, 2011; Rudolf-Sipötz, 2003; Weber & Lissautzki, 2004);
- customer, through the prism of the customer value, and hence the ability of the product offered on the market to carry out the multidimensional tasks remaining in a relation with satisfying his

needs (customer value) (Friederichs-Schmidt,2003; Vogel, 2006; Kazarkiewicz, 2007).

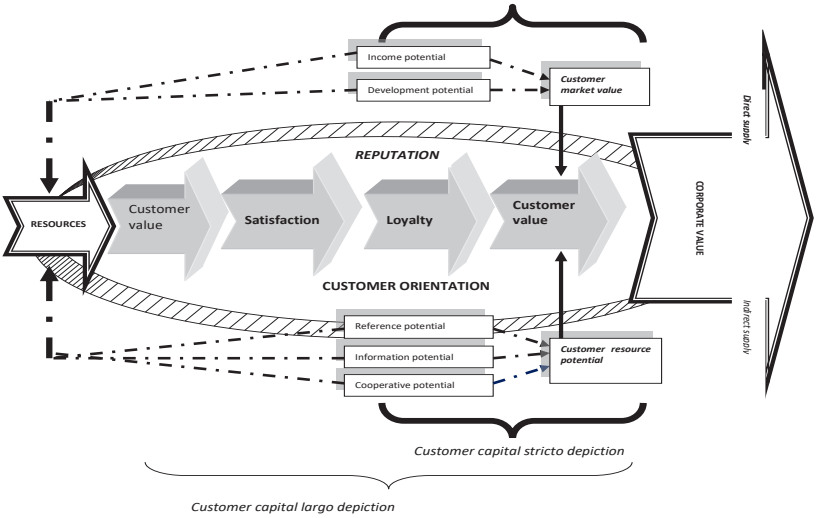

Figure 1. The process of building customer capital

In the first of these perspectives, we deal with the so-called business customer value, which is often identified by customer capital in the narrow sense of the word. This capital is a derivative of direct and indirect capital supply, of which the "supplier is the customer." Direct supply is a consequence of establishing the transactional contacts with the customer. It remains therefore in connection with the sale of the value offered on the market. On the other hand, indirect supply is the effect of launching by the customer such an information transfer that supports the achievement of the company's goals. This message can take place both in the customer space, which involves the use of their reference potential, as well as between the enterprise and the customer, which in turn is related to the information and cooperative potential of the customer (Tomczak & Rudolf-Sipötz, 2003; Schneider, 2007). However, it is worth emphasizing that one of the key effects of launching the customer's reference potential is to create a positive or negative attitude in the recipients of information on a given subject (product) and / or entity (company), which affects the market perception of its resources, and thus its value. In turn, the mutual exchange of information allows the customer to be involved in the process of creating value, which may translate into an increase in his involvement and trust in the company, and as a result, a higher resistance to the actions of competitive entities (Storbacka, Stradvik, & Grönroos, 1994; Oliver, 1999; Bruhn, 2001; West, Ford, & Ibrahim, 2006; Caputa, 2015).

The duration of the company is connected with the need to secure the financing of short-term goals. Therefore, in practice, the business customer value is identified with the cash flow derived from the quantity, price and frequency of purchases. However, the development of an enterprise requires generating the reserves and maintaining the company's ability to raise financial resources in the future. This means the necessity to acquire and retain the customer, what is tantamount to creating not only profitable but also permanent customer relationships.

Undoubtedly, the starting point for building such relationships is customer value. As a consequence, the financial effect of establishing and retaining a customer relationship depends on whether the company can offer such value that induces the customer to deplete its own capital resources in exchange for promises of benefits, and whether it can do so in a way that secures its interests.

Not every customer expects the same value; not everyone has the market and resource potential desired from the perspective of achieving the company's goals. In effect, the customer base that the enterprise possesses is not homogeneous. Thus, in a broad sense, customer capital can be defined as a set of intangible assets in the current and potential customer base, the value of which reflects the stream of future cash flows generated by the company, in connection with the provision of value to the customer throughout the whole potential period of customer relationship retention.

3. The place and importance of the CSR concept in creating customer value

As it results from the above, it is fundamental to build customer capital to find an answer to the question: what is the customer expecting? Customer value is not only a subjective category but also a dynamic one. Therefore, it must be identified not only through the prism of changing customer needs, but also in connection with the current conditions in which the exchange takes place and the anticipated directions of changes in the future. Taking into account a number of studies focused on the identification of new trends in customer behavior (Lambkin, Foxall, Raaji, & Heilbrum, 2001; Bywalec, 2007; Wright, 2006), one can point out a number of features characterizing a modern customer. It is an entity that: wants and can actively participate in the process of creating value, is involved in a network of relationships by means of which it acquires and transmits information, uses many sources of knowledge, expects a product whose method of: production, use and liquidation takes place with respect to the natural environment, is sensitive to social and impulsive needs, values time and wants to meet needs in real time anywhere, and is looking for a distinctive value. Therefore, one can deal with a person who evaluates the enterprise in a multi-dimensional manner. The subject of the evaluation is not

only individual but also social and environmental usefulness of the enterprise, which is defined by "many entities." As a consequence, the customer's attitude and purchasing behavior, driving the capital-related supply of the enterprise, determines the subjective evaluation of the effects of its activity and responsibility in many areas, as well as opinions formulated by various groups of inter-parents, which is directly related to the corporate reputation (Szwajca, 2014; Caputa, Krawczyk-Sokołowska, & Paździor, 2017).

Also, one should pay attention to the fact that in a modern hyper-competitive market, the value offered must stand out on the market, and if it is to secure a sustainable inflow of capital, it must be unique. Undoubtedly, the state of customer satisfaction is connected with this value. However, this is a necessary condition, but not sufficient to obtain and maintain capital supply in the long run. In a flat world where the place of production has nothing to do with the place of consumption, and a multidimensional relationship with the customer is more and more often focused on the information transfer: man-machine, machine - man, and even machine - machine, establishing the personal, emotionally based relationships becomes impossible. However, this does not change the fact that the unique customer value must be compliant with the customer's problems occurring at a given time, and even at the moment when the customer makes a purchasing decision. All of this means that accurately defining and effectively creating a distinctive value for the customer requires not only a systematic acquisition of information and knowledge from the customer, and building on this basis own competence resources, but also the inclusion of the customer and other stakeholders in the process of creating value (West, Ford, & Ibrahim, 2006; Caputa, 2015). Such activities allow the development of modern technologies, but the customer's involvement in the process of creating value should be combined with the remuneration for the contribution. Of course, it can be defined in the social discourse, and thus by indicating that through active participation in the process of creating value, the customer provides himself with a "better product." However, the problem of a "fair" division of the generated value is increasingly being raised (Kreft, 2016). As a result, the customer wants to be not only a co-creator of the value but also its co-owner, who has the right to derive adequate benefits from it. The fair share of values requires not only serving the role of the customer but also the employee, supplier, business partner and member of society. Thanks to that the subject of the assessment also becomes the willingness of the company to share the generated value.

Meeting these expectations reduces the benefits of the capital owner in the short term, which, given increasing price pressure, does not constitute an incentive for the company. However, in the conditions of the constantly increasing bargaining position of the customer, if the company does not do

it alone, it will be forced to do so, including in the way of changes in legal regulations, which are increasingly initiated by the stakeholders themselves. Nevertheless, such changes will be of a general and not unique nature, and as a result, will not allow the company to achieve above average benefits, and these are not a guarantee of future capital supply either. If a modern customer evaluates the company from the perspective of global usability, it must be created and communicated by value, so that it can lead to building the company's unique reputation. This value should, therefore, feed the roots of reputation, so in essence, it must be: visible, distinctive, authentic, transparent and consistent (Fombrun & van Riel, 2004). Reputation is a hybrid of the quality of specific company attributes and publicity perceived by the stakeholders, that is, the collective consciousness and recognition that the company secured in its environment (Rindova, Williamson, Petkova, & Sever, 2005).

Modern CSR refers to this way of proceeding (Figure 2), which is embedded in two pillars:

- permanent and sustainable development, which in practice is connected with the need to resolve conflicts between ecology, economy and society, in a way that secures building value for current and future users;
- responsibility, which is reflected in specific, conscious and organized actions taken to implement it (Visser, 2010).

Therefore, if the customer evaluates the company not only through the prism of the direct transactional relationships and the company can not achieve its goals without a customer that evaluates its utility in a multidimensional manner, it is undisputed that the business model, and what follows it, the strategy of creating customer capital, should be grounded on the foundation of permanent and sustainable development and social responsibility.

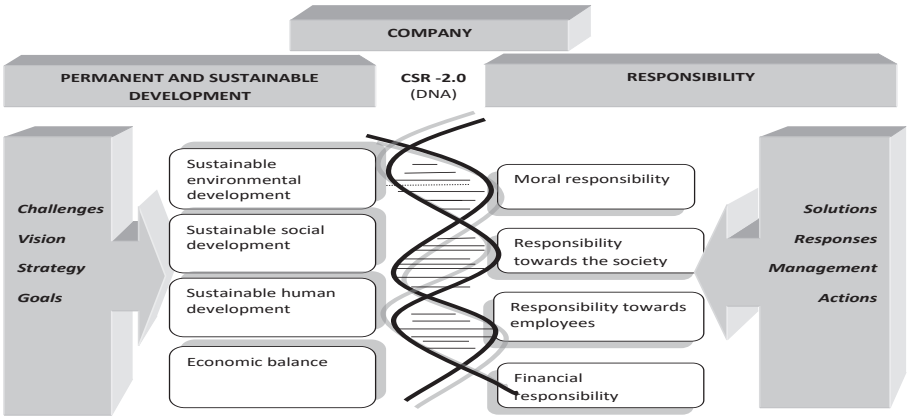

Figure 2. The model of modern CSR – DNA CSR 2.0

Source: own work based on Visser (2010).

4. Research methodology

The empirical verification of the main thesis of the paper was based on research focused on: analysis of changes in brewing market behavior and their impact on purchasing behavior of producers, identification of the place and importance of the CSR concept in creating a business model and strategy of beer market leaders in Poland, consumer perception of targeted activities for creating responsible consumption.

The research was based on:

1) Analysis of: industry materials, statistical data on the brewing market published in national and international annals as well as reports on social responsibility of beer market leaders in Poland in 2006-2017.
2) The results of own surveys focused on identifying the strategy of the brewing market leaders and factors determining the consumer purchasing attitudes and behavior.
3) Results of pilot studies, aimed at identifying the perception of activities undertaken by the above-mentioned enterprises in the area of creating responsible production and consumption from the consumers' perspective.

The elaboration of the collected data consisted of statistical analysis, among others. A comparative analysis of three or more independent groups with a distribution other than normal was made using the Kruskal-Wallis ANOVA test, while in cases of non-uniformity of variance for the variables with a normal distribution, the tests were performed with an independent estimation of variance. The significance of the differences between the structural indexes was examined by the Chi-squared test. The calculations were made using the Statistica program.

5. CSR as a foundation of the business model and strategy of customer capital creation in the brewing sector enterprises

In general, the company's business model is a representation of how the enterprise creates value and how it is delivered to the customer (Johnson, 2010). Basing this model on the concept of CSR means the need to create corporate responsibility in many areas. This is a priority task, especially for the companies that on the one hand offer the products desirable by the customers, meeting not only their needs but on the other hand, their excessive consumption carries the risk of creating high social costs or limiting the development potential of the society. This problem concerns, among others, the enterprises from the brewing sector.

The choice and implementation of the business model, reflected in the strategy, is the company's response to changes in the environment. As a result,

by proving the need to base the business model on the CSR foundation, it is worth paying attention to the development of the brewing market in Poland and the operational strategies of the leading manufacturers.

The brewing sector in Poland belongs to one of the most modern and dynamically developing sectors of the economy, which since 2006 has been in a phase of continuous strategic market reorganization. This is the phase that begins after introducing a free market and concentration of the brewing market, which results in the domination of the brewing market by three brewing companies: Żywiec Group, Kompania Piwowarska and Carlsberg Polska Group. The indicated entities have such production capacities that can satisfy the domestic demand. The main problem, however, is their effective use, even more than the sale of beer has been weakening since 2009, and what is more its growth observed in the subsequent years 2010-2011 did not translate into an adequate increase in company revenues and profits (Figure 3).

As a result, in 2011 the production volume is still growing, but the average retail price of beer is falling (Beer statistics, 2016). There is also an increase in the share of economic beers in the volume of production and sales, while the sales of beer in the gastronomy channel decreased (The Contribution Made by Beer to European Economy, 2012). All capital groups focused on minimizing the cost of customer satisfaction.

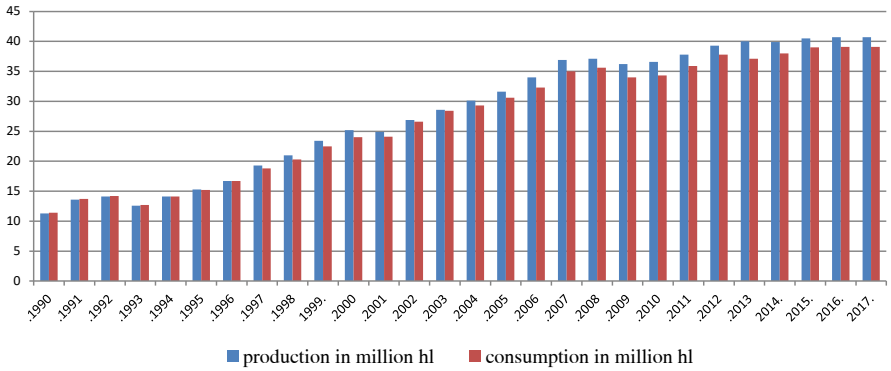

Figure 3. Beer sales and production 1990-2016

Source: own work based on Rocznik Statystyczny Przemysłu (2011); Monitoring branżowy, analizy sektorowe (2017).

These activities were mainly aimed at improving the cost structure and effectiveness of asset utilization, including through outsourcing, employment reduction, restructuring of distribution channels, freezing and even reduction of wages. At the same time, the growing significance of prices as determinants

of customer decision-making choices increasingly forced the bidders to use financial incentives to activate sales, all the more so because this sale is increasingly taking place through supermarket chains.

Regardless of the profitability strategy, the leaders of the brewing market also implemented sales growth strategies, which consisted not only in offering new products, managing market gaps, but also in creating social and structural relationships as well as a positive image of the company (Kaplan & Norton, 2011). A number of circumstances supported the adoption of such measures, including: an increase in the number of small bidders, a clear offer gap for the segment of women and older people preferring flavored beers, an increase in the share of not only beers but also more expensive beers, especially Premium and Superpremium, growing interest in organic beers, as well as increased pressure to limit the availability of products and a complete ban on their advertisement.

However, similar directions did not mean that the strategies of the brewing market leaders were the same. These groups differently defined their key business goals, which was in direct relation with the potential of their customer base. This was shown in our survey conducted in 2011 on a randomly selected sample of 800 adult Poles aged from 18 to 70 years. Żywiec Group and Kompania Piwowarska had the customers with a higher income potential. The low-earning consumers most often used the product offer of the Carslsberg Group (Caputa, 2015). As a consequence, in a period of rising unemployment and at the same time a decline in real household incomes, this company decided to implement an aggressive market strategy, and thus to take over the market by providing cheap products, also available in supermarket networks.

The strategies of other leaders, though also assumed the retention of the economic beers segment, focused on retaining their market share in those customer segments that have a higher income potential, but are more demanding, looking for new, non-standard and exceptional products. As a result, in the set of factors determining their purchasing choices, confidence went up high in the ranking. As can be seen from table 1, the average rank attributed to this factor in making purchasing decisions by consumers, using the Kompania Piwowarska and Grupa Żywiec offers, differed significantly from Carlsberg's customers. However, this does not change the fact that also for the consumers of this company the indicated factor was of significant decision-making importance. Confidence "*is a bet on the subject of uncertain future actions of other people"* (Sztompka, 2005, p. 70). This bet is made with a conviction based on the knowledge or belief that these activities will lead to the desired effects from the perspective of the evaluating entity. Bearing in mind that the ongoing relationship between the company and the customer is based on a mutually beneficial exchange of values, it should be assumed that building trust, which translates into the value of customer capital, is the way to create a safe vision

of the shared world. This is a special challenge that the leaders of the brewing market respond to, with the assumption that the implementation of their business goals, and what follows it, the business model and strategy, are based on the foundation of social responsibility (Figure 4).

The consequence of this is a series of initiatives that remain in relation not only to environmental protection, but also to the creation of relationships based on cooperation and commitment with employees and business partners, or the preservation of ethics in business. These activities are reported and described in the strategies of sustainable development. One can point here, for example, to Kompania Piwowarska's sustainable development strategy *"Ten Priorities One Future,"* started in 2006. In the strategy alongside such priorities as: increasing beer production using less water, reducing energy consumption and carbon dioxide emissions, recycling of packaging waste, optimization of the waste management process, development of entrepreneurship and management of the sustainable value chain, acting for the benefit of the community, reduction of the effects of HIV and AIDS, respect for human rights, transparency of information on the progress of actions in the field of sustainable development and ethics, it was also pointed to counteracting an irresponsible alcohol consumption. Similar strategies are pursued by other leaders (report on the social responsibility of Żywiec Group for the years 2006-2011).

Table 1. Differentiation of factors determining purchasing behavior of customers

Factor	Total	ŻYWIEC GROUP	KOMPANIA PIWOWARSKA	CARLSBERG POLSKA	The level of differences' significance between the average for the particular impact factors (Anova)			
					ANOVA	ŻG -vs- KP	ŻG -vs- CP	KP -vs- CP
Flavor	4.74	4.71	4.80	4.70	NS	0.1411	0.8953	0.1925
Personal satisfaction	3.94	3.87	4.02	3.85	NS	0.2698	0.9573	0.4264
Confidence in producer	3.29	3.39	3.40	3.03	0.0233	0.8352	0.0101	0.0159
Availability	3.26	3.26	3.38	3.15	NS	0.1859	0.4751	0.0989
Place of beer consumption	3.26	3.28	3.28	3.17	NS	0.9998	0.5482	0.5739
Price	3.21	3.23	3.23	3.21	NS	0.9568	0.8157	0.7700
Discounts	2.72	2.83	2.72	2.74	NS	0.4148	0.5624	0.9035
Friends' suggestions	2.71	2.72	2.68	2.69	NS	0.7225	0.7298	0.9649
Packaging	2.46	2.53	2.50	2.27	NS	0.9983	0.0410	0.0514
Advertisement	2.21	2.28	2.21	2.23	NS	0.7730	0.6755	0.8369
Local patriotism	2.17	2.30	2.14	1.81	0.0023	0.1655	0.0005	0.0351
Seller's suggestions	1.89	1.93	1.85	1.90	NS	0.6874	0.8415	0.6065

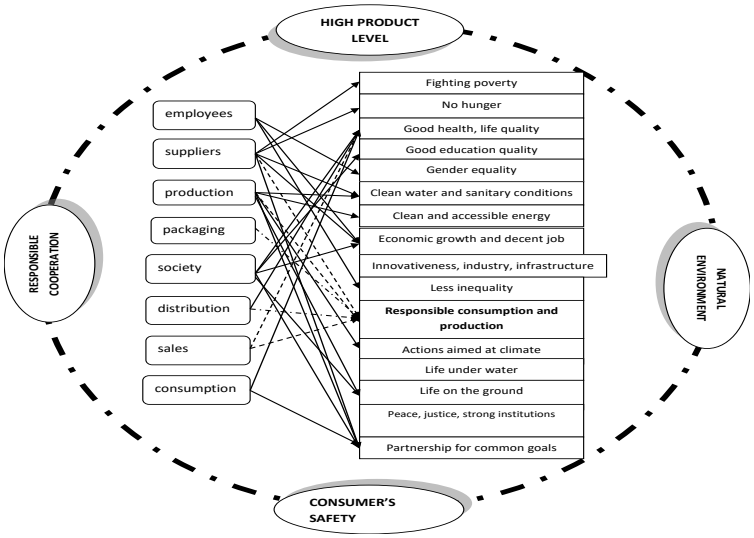

Figure 4. CSR in the business model of Żywiec Group

Source: own work based on Warzymy lepszy świat (2016).

From the perspective of creating customer capital, in the set of appointed activities, those which are "visible" to the client and "visible" to other entities of the environment are of special importance, as they assess customer behavior as a result of consumption of the products offered on the market as well as the seller itself. In this context, attention should be paid to the constantly raised problem of the increase in alcohol dependence, which results in the growing pressure to limit the availability of beer and to the introduction of a total ban on its advertising. This is not the only pressure. The brewing industry is also subject to excise duty, the rate of which increases, which in turn reduces the income of producers. Creating responsible consumption is not only a voluntary initiative but a requirement that can be stopped for some time by unfavorable legal solutions that will prevent the use of one of the most effective ways of communicating with the consumer. It is therefore hardly surprising that creating responsible production and consumption becomes a key and consistently implemented strategy in the entire industry. This strategy focuses not only on: undertaking the initiatives focused on creating a culture of consumption, producing high-quality products that were made while respecting natural resources, but also on the product innovations which, focusing on the introduction of products with low alcohol or non-alcohol content, are supposed to reinforce a positive pattern of consuming alcoholic

beverages, i.e., their responsible consumption. The effect of this strategy in the next years is the opportunity to offer a product for a "new customer" that will not only allow the more efficient use of production capacity, but will encourage Żywiec Group to build new production lines. It should also be emphasized that, contrary to the opinion of the representatives of the beer industry, the restrictions on beer advertising introduced in previous years have not negatively affected beer consumption. However, they certainly intensified the industry's activities, not only to support the fight against alcoholism and create responsible consumption, but also to search for a product that reduces the negative effects of its consumption.

After the EURO 2012 Football Cup, the beer market in Poland stabilized, and consumer preferences were shifting towards low-alcohol beers and flavored beers. As a result, in 2016, compared to the previous year, the amount of sales of beers with an alcohol content of up to 0.5% increased by 58% and the sales volume by 64% (Monitoring Branżowy, 2017). Consumers are also increasingly willing to reach for non-alcoholic beers. Consequently, over the last few years, the average alcohol content in beer has fallen from 5.5% up to 5.3% (Coraz mniej alkoholu, 2017). The chances of maintaining a dynamic development may be to provide such products on the market that maintain the taste of beer, but reduce or eliminate alcohol content, all the more so as the pressure increases to introduce a complete ban on beer advertising and to limit radically the alcohol sales places.

Such a change in the structure of consumption would not be possible if the producers did not engage in the initiatives aimed at changing the structure of consumption of alcoholic beverages and did not take such initiatives themselves. It should be emphasized, however, that the innovative potential of these enterprises has been used to create the products whose sales enable generating bonuses securing inflows to the budget too, without causing or significantly reducing the negative social consequences of their excessive consumption.

In the background of the previously mentioned changes taking place on the brewing market, the question arises whether the actions of brewing companies, especially those related to creating a culture of consumption and production of low-alcohol products, are perceived by the customers as an expression of corporate social responsibility or only as profit-oriented activities. In this context, it is worth quoting the results of our author's pilot survey, which in February 2018 was carried out on a sample of 165 full-time, part-time, post-graduate and MBE students. The respondents in the five-point Likert scale assessed the relevance of the five statements indicated in Figure 5, awarding 1 point for statements with which they completely disagree with and 5 points for statements with which they completely agree with.

The results presented indicate that almost every third respondent could not unequivocally assess the relevance of the statements given. Noteworthy is the particularly high percentage of the indications "I totally agree" and "I rather agree" for the statements:

- "The expansion of the range of non-alcoholic and flavored beers is not an expression of CSR, but only a response to the changes in customer demand" (54%);
- "If it had not been for the increase in consumption of non-alcoholic and flavored beers, beer producers would not have extended their market offer with such products" (49.8%), and an equally high percentage for the indications "I completely disagree" and "I rather disagree" for the statements;
- "Initiatives undertaken by beer producers to create responsible alcohol consumption have a positive impact on consumer behavior and are an expression of the effective implementation of CSR" (58.7%);
- "Beer producers, offering alcohol products, cannot implement the CSR concept" (33%).

Most respondents link the structure of the market offer favoring low-alcohol products with typical business activities, and thus not as responsible but profitable. They also put a low evaluation on the effectiveness of brewing company initiatives aimed at the consumption culture and do not link them to the CSR concept. At the same time, more than 37% admit that "beer producers, conducting campaigns aimed at creating beer consumption culture, significantly contributed to the increase in the demand for non-alcoholic and flavored beers." It is also symptomatic that some activities undertaken within the frames of responsible consumption are perceived not as socially responsible activities but are forced by the situation which the sellers are facing. As a consequence, in an open question: "Corporate Social Responsibility (CSR) means to you" almost 67% indicate: a way to improve the producer's image.

As it results from the above, most of the respondents do not believe in the responsibility of the producers. Therefore, there is a certain crisis of trust that translates negatively into the effective communication as well as cooperation between people (Corvey, 1986), which should be assessed negatively from the perspective of creating customer capital, in particular, resource capital. This does not change the fact that the companies have managed not only to develop the market gap in the segment of flavored and non-alcohol beers in a way that limits the social effects of consumption but also to create a customer who wants to use such an offer. The observed increase in the share of sales of the flavored and non-alcohol beers segment shows the high market potential of the customer, which should translate positively into the value of the capital supply obtained from the customer. Utilizing the reference and information

potential should motivate the producers to look for new, more effective ways of communicating with the market.

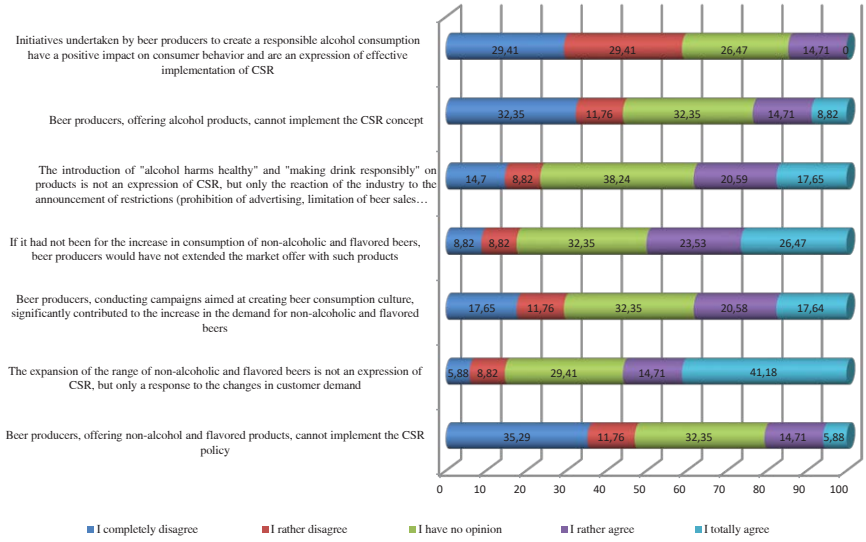

Figure 5. Evaluation of relevance of statements – the percentage of indications

6. Conclusion

The presented considerations show that modern enterprises while operating in the conditions of a growing barrier of demand and customer awareness, face the necessity to develop a long-lasting and profitable customer relationship. This is tantamount to the necessity of offering such value to the customer, which not only translates into his satisfaction but also creates confidence in the company. This confidence remains in relation with the multidimensional responsibility of the producer, the consequence of which is the necessity to base the business model on the concept of corporate social responsibility. This model, describing how to create value for the stakeholders and for themselves, is, in essence, a sketch of a strategy that is the company's response to the changes in the environment and the expectations of entities interested in its existence (Herman, 2006). These entities expect and force a multidimensional responsibility on the enterprise. In the case of enterprises from the brewing sector, this responsibility is reflected in the change in the structure of the market offer in favor of the products with low alcohol content, as well as in a consistent implementation of the strategy of creating a responsible consumption and consumption culture. However, it should be emphasized that the companies striving to achieve and

maintain a sustainable, competitive advantage must offer a distinctive value that should be desired by "many," in order to build a reputation of the company that provides it with a permanent capital supply. This is possible only when "many" believe in its responsible actions.

In the light of the presented research, the majority of customers of the change in the market offer, as well as of the initiatives undertaken by the brewing companies as a part of creating a responsible consumption, do not perceive them in terms of corporate social responsibility. In their opinion, these are typical business activities, which means that the company is responsible for its own results, and the responsibility for the process of creating value in line with the environmental requirements and social expectations is only an additional effect of this responsibility. Thus, it can be concluded that we deal with a crisis of trust. Its causes, apart from the knowledge gap of the customers themselves, can be seen, on the one hand, in the firmly rooted company's goal of profit identification in the customer's mentality. As a result, in the customer's assessment, the company takes action only when it sees the possibility of covering its costs in future financial flows. In this case, the concept of CSR is basically identified with the initiatives having a philanthropic character. On the other hand, in violation of the "roots of fame" by the company itself, which results in, among others: lack of conformity between the declared values of the company and its actual activities perceived by the customer, lack of transparent information flow and dialogue with the stakeholders or lack of consistency in the external communication, between the internal and external communication or between the communication and the corporate activities. Such a way of perceiving the activities undertaken by enterprises does not distinguish the bidder, all the more so as they are of a general nature, and as a result, they cannot fully use the customer market and resource potential. Therefore, in order to take full advantage of CSR concepts in building customer capital, the enterprises face the necessity of not only strengthening communication with the customers, which should also fruit in filling the knowledge gap but of including the customer in the process of creating value. If the company's activities are really: authentic, transparent and consistent, then the customer who is the employee of the company will find it easier to believe that the leaders of the brewing market really *"Brew the world better."*

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MEASURING PERFORMANCE OF A SOCIAL ENTERPRISE: A THREE- DIMENSIONAL MODEL

Tomasz Kafel[1], Bernard Ziębicki[2]

Abstract

The goal of the paper is to present a multi-dimensional model for measuring the results of social enterprises. Decision on the need to prepare such a tool resulted, first of all, from the assumption that one of the basic features of a professional social enterprise is the ability to measure their actions, and from the fact that in this respect Polish social enterprises have still much to do. The model presented by the authors should help stakeholders to understand the value created in social enterprises and find a balance between financial and social matters. As a result, it should contribute to the reduction of tension and conflicts between social enterprises and stakeholders.

In designing the model, the authors applied similar solutions to those implemented in public institutions and non-governmental organizations for measuring results. On the basis of several theoretical studies, the authors presented the view that the model of social enterprise performance measurement should include three basic perspectives: scope of reference, level of execution (action/implementation) and the level of impact (effectiveness/success).

The presented model may enrich both theory and practice of the process of management of social enterprises, giving managers a new instrument for measuring the results. The proposed model allows us to focus on what is particularly significant in the process of measuring the results of social enterprises.

The outcomes of the application of utilitarian measures of assessments – not only moral, but also organizational and economic – will enable the mechanisms of success and failures of social enterprises to be learned, thus contributing to the professionalization of managers' actions.

Keywords: *performance/results, efficacy, effectiveness, efficiency, social enterprise.*

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1. Introduction

According to Defourny and Nyssens (2012), there are three dominant approaches that influence a conceptual definition of social enterprise. They are the 'earned income' school of thought, the 'social innovation' school of thought and the EMES 'classical' school of thought. Unfortunately, a common definition of social enterprise in Poland has not, to date, been established. The term was introduced in tandem with discussions concerning the nature of social enterprise that have been taking place in Western Europe. Therefore, a part of the ambiguity of the term was introduced from outside (Ciepielewska-Kowalik, Pieliński, Starnawska, & Szymańska, 2015).

Definition of a social enterprise prepared by the European Research Network EMES (the most popular in Poland) contains nine criteria (including five social and four economic ones) for recognizing an enterprise as a social one (Baczko & Ogrocka, 2008). Thus, among the economic criteria distinguished are: running in a continuous, regular manner, operations on the basis of economic instruments, independence, sovereignty of institutions in relation to public institutions, sustaining economic risk, employing volunteers. On the other hand, the social criteria are explicit focus on a socially useful objective, bottom-up, civil nature of the initiative, specific, democratic management system, community-based character of operation, limited distribution of profits. In Poland, apart from the above-mentioned criteria, attention is additionally paid to the local character of social entrepreneurship, understood both as its creation by the local community forces as well as the focus of social entrepreneurship in support of local development.

As opposed to commercial companies, the goal of social enterprises is to provide services and goods for some community (also a local one), with the dominance of human capital over financial capital, a management system independent of the public sector and democratic functioning (Vivet & Thiry, 2000). The most important functions which can be performed by social enterprises include social integration and activities on the labor market, delivery of public services, activities of mutual nature, offering services on an open market, delivery of public goods and development of local communities, commercial and production activities (Herbst, 2006).

In Poland, growing importance of business organizations can be noted, classified as so-called social enterprises, which include "*private, autonomous organizations, delivering products or services for a broader community where the scope of material benefits is subject to limitations. Their founder or manager is a group of citizens who attach great attention to autonomy and are ready to assume the economic risk related to the conducted socio-economic operations*" (Herbst, 2006, p.7).

In the opinion of Ciepielewska-Kowalik et al. (2015, p. 4) "there were a considerable number of organizations possessing the features of a social enterprise in Poland, and consequently, there is no settled agreement as to which of those organizations should be called a social enterprise." Despite this, many typologies of social enterprises in Poland have been presented. Herbst (2006) has classified types of organizations (Table 1) as social enterprises both within the traditional and the new social economy in Poland (developing since 1989).

Table 1. Social enterprises in Poland

Types of organizations classified as social enterprises under the traditional social economy (before 1989)	Types of organizations classified as social enterprises under the new social economy (after 1989)
associations and foundations, business self-government organizations, co-operatives, mutual insurance companies,	social co-operatives, professional activity plants, social integration centres and clubs.

Source: Herbst (2006, p. 7).

Ciepielewska-Kowalik et al. (2015) have expanded on the current discussion on social enterprise in Poland by proposing three social enterprise models:

- model 1 - co-operatives (with a sub-model 1a *traditional co-operatives* and sub-model 1b *social co-operatives*);
- model 2 - entrepreneurial non-profit organizations;
- model 3 - work and social integration social enterprises.

It is estimated that in Poland the number of organizations that can be identified as social enterprises is approximately 4000 entities, namely 10% of all non-governmental organizations (Herbst, 2006). The prospects for the development of social enterprises in Poland are quite good. It is estimated that by 2020 this sector will have created ca. 35,000 new jobs (Politańska, 2017).

Despite the fact that world research in the field of social entrepreneurship has been conducted for more than 30 years, it is still in an embryonic phase (Starnawska & Brzozowska, 2018). The study of the literature in question indicates that the number of theoretical (conceptual) publications is significantly higher than publications devoted to empirical studies, and the latter ones often lack formal hypotheses or strict (exact) research methods (Short, Moss, & Lumpkin, 2009).

More and more often, there are empirical studies resulting from the authors' own research on social companies in publications concerning the social enterprise management process (also in Poland). For example, Wronka-Pośpiech (2015) attempted to identify the interrelations between the entrepreneurial orientation and the success of social enterprises. It should be noted that research concerning the problem of measuring the results of social

enterprises' activities and the associated publications are becoming more and more visible in Poland (Kafel & Ziębicki, 2009; Kafel, 2011; Kafel, 2012; Kafel, 2014). Also, Pacut (2015), analyzing the potential research areas for social entrepreneurship development (Table 2) indicates the area: "effects of development" as one of the key research fields.

Table 2. Potential research areas for social entrepreneurship development

Field of analysis	Research questions
Essence (subject) of development	What is social entrepreneurship? What are the characteristics of a social enterprise? What is the role of a social entrepreneur?
Development factors and conditions	What factors and conditions determine the formation of social entrepreneurship initiatives (organizations)? What factors affect the entrepreneurial process?
Development trajectory	How the entrepreneurial process proceeds in social entrepreneurship initiatives (organizations)? What are the stages of social entrepreneurship development in Poland?
Development effects	What results are generated by social entrepreneurship initiatives? How to measure the impact of social enterprises? How to augment the social impact of social enterprises?

Source: prepared by the author on the basis of Pacut (2015, p. 16).

The authors of this article acknowledge that one of the reasons inhibiting the development of the social entrepreneurship sector is the poorly recognized problem of measuring performance of social enterprises and the low quality of the indicators or measures of this performance. These problems make it difficult for the stakeholders to understand the value created in social enterprises and find a balance between financial and social matters, causing tension and conflicts between social enterprises and stakeholders (Bull & Crompton, 2006, Marks & Hunter, 2007, Nicholls, 2010).

2. Approaches used in measuring the performance of social enterprises

Performance measurement of social enterprises, which is becoming an increasingly rigorous requirement, especially on the part of donors or the generally understood community (taxpayers), and also because of limited capital, requires the determination of specific measures, both quantitative and qualitative, used for monitoring the achieved goals. Commercial enterprises are usually focused on results (*result-driven*), have developed their own profitability models, forecast the scale and the area of demand, examined

the risks, used model solutions (*benchmarking*) and rarely begin operations without prior calculation of how many they can gain, and how much they can lose. On the other hand, social enterprises focus on action (*action-driven*) and the action is, most often, the object of measurement. In the opinion of Juraszek-Kopacz, Sienicka & Zagrodzka, results should take an equivalent place in relation to the actions themselves, as "*qualitative, quantitative and financial results are very important, though not the only elements of the actions undertaken by organizations, proving its effectiveness. […] only as a result of a complementary analysis of the conducted actions, their direct results and effect on long-term social transformations, decisions should be made regarding the development, modification or resignation from the actions*" (Juraszek-Kopacz, Sienicka, & Zagrodzka, 2008, p.15). According to Arena, Azzone, Bengo and Calderini (2015) in the performance measurement of social enterprises we can distinguish three approaches:

- **synthetic approach**, in which assessment is based on synthetic indicators, used to measure created social value (e.g., SROI, Local Multiplier 3, Gamma Model);
- **process approach**, based on models that focus on the process of creating ("producing") social services/products, presenting analysis of actions of a social enterprise (in the context of inputs and outputs) and its impact;
- **multi-dimensional approach** which incorporates models designed to provide a picture of results of social enterprises in different perspectives/dimensions of their operations, recognized as representative for the operations of the organization.

In the process and multi-dimensional approach, specific types of models used within their scope were noticed, which, along with representatives of particular approaches, are presented in Table 3.

Attempts taken in Poland to develop performance measurement methods of social enterprises should also be noted at this point. Certainly, worth mentioning is the project under the name "Effective and efficient social entrepreneurship," conducted by the Regional Centre of Social Policy of the Silesian Province in partnership with the Institute of Labor and Social Affairs, co-financed by the European Union within the European Social Fund. Its result is the Social Economy Entities Condition Calculator enabling comparative assessment of the functioning of various social economy entities (SEE), and, first of all: social cooperative enterprises, vocational and development training centers, occupational therapy workshops, social integration centers, social integration clubs, non-governmental organizations running business operations.

Table 3. Approaches used in measuring the performance of social enterprises

Synthetic approach	Process approach	Multi-dimensional approach
Sacks (2002) New Economic Foundation (2007) Meadows & Pike (2009) Grabenwarten & Liechtenstein (2011)	Models without indicators: Ebrahim & Rangan (2010)	BCS adaptation: Kaplan (2001b) Bull (2007)
		Stakeholders' perspective: Simmons (2003)
	Models with a set of indicators: Bagnoli & Megali (2011) Hornsby (2012) Arena & others (2014)	Guidelines for designing indicators: McLoughlin & others (2009) Yang & others (2014)
		integration with synthetic measures: Meadows & Pike (2009)

Source: prepared by the author on the basis of Arena et al. (2015).

The Calculator takes account of five dimensions: economic effectiveness, inter-institutional cooperation, competence resources, organizational resources, social utility (*Methodology of social economy entities condition calculator,* 2015). The aforementioned entities differ to a significant extent in their tasks and type of operations; therefore it is impossible to compare different types of entities. For this reason, assessment of different types of SEEs in a given dimension has been based on a different *set of indicators.* On their basis, *position indicators* are calculated. Values of position indicators constitute an *index* assessing the single dimension. Indexes constitute a *collective index*, which is the measure of quality of the social economy entity's comprehensive operations (*Methodology of social economy entities condition calculator,* 2015).

3. Characteristics of dimensions of the proposed model of social enterprise performance measurement

3.1 Research approach

From among many definitions of the term "model," for further discussions, the authors have adopted the proposal of Zieleniewski (1979, p. 274) who explains that "model […] is a theory formulated in such a way that it is possible to operationally manipulate its component variables". The structure of the model (and, in principle, its outline) is a result of examining the problem of social enterprises' performance measurement and selecting significant variables concerning this problem. First of all, "historical" knowledge coming from statistical data and a posteriori rules described in the subject literature have been applied here, observed by practitioners and theoreticians of both public

entities and non-governmental organizations. The model of social enterprise performance measurement proposed by the authors of this study presented in the further, has characteristics typical of a process approach distinguished by Arena et al. (2015).

Assuming that the introduction of utilitarian assessment measures – not only moral, but also organizational and economic – will allow us to learn the mechanism of success and failures of social enterprises, and, as a consequence, to order and rationalize the management of important institutions affecting social life, it is suggested that the model of social enterprise performance measurement (Figure 1) should include three basic perspectives: scope of reference, level of execution (action/implementation) and the level of impact (effectiveness/success).

The first of the proposed perspectives – *scope of reference*– is measured by the degree of meeting the goals of social enterprises with regard to their beneficiaries, target groups and tasks specified in the strategy. It refers to the concept of a multi-dimensional goal of the organization and requires definition and checking as to the degree it fulfills the organization's goals with regard to each of its stakeholder groups. The starting point here is to understand the carriers of values – tangible and intangible – which are supposed to support the building of social enterprises' competences, and are necessary in providing values to all stakeholders.

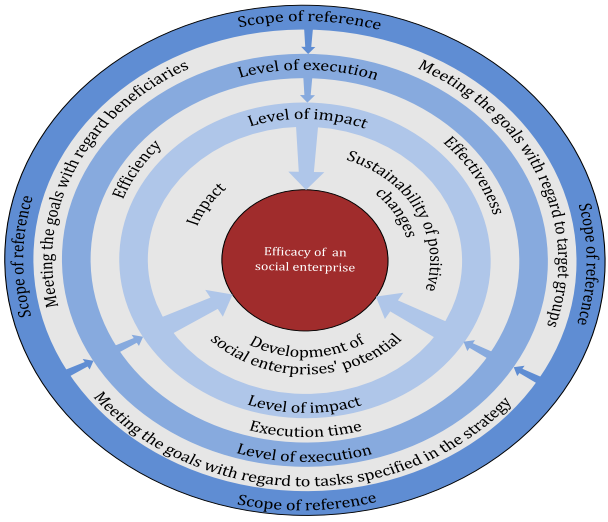

Figure 1. Model of social enterprise performance measurement

The second perspective is used to measure *the level of execution (action implementation)*, namely the progress achieved in the course of implementing social enterprises' actions in relation to the assumed goals. It takes account of three dimensions of this progress: effectiveness (measured by the degree of achieving goals or results), efficiency (measured by optimal transformation of resources into results) and execution time. Attention was paid to the need for examining the effectiveness in this type of organization in a broader perspective, as the so-called organizational effectiveness, which consists of many dimensions. This effectiveness is most often examined by the following dimensions: economic and technical, praxeological (purposeful), institutional, behavioral and systemic. Appropriate social enterprises' effectiveness assessment criteria have been proposed for each of the mentioned dimensions.

The first two of the mentioned perspectives of the proposed model of social enterprise performance measurement, i.e., scope of reference and implementation of organization's operations, seem to determine the third perspective, namely *efficacy of an organization* (which can be identified with social enterprises' *success*). In this case the focus should be on the level of social enterprises' impact that can be determined, using three criteria: impact (evaluation of changes in the environment that were caused by the implementation of social enterprises' actions in relation to the assumed development objectives), sustainability of positive changes obtained as a result of implementing social enterprises' operations and development of social enterprises' potential. A key problem becomes the ability to evaluate this impact, namely changes that a social enterprise has caused in its environment, therefore the problem of measuring social added value and social profit has been developed here. Diverse methods and techniques have been indicated aimed at measuring the effects of social enterprises' social impact.

3.2. Scope of reference

The first perspective of the proposed model refers to the concept of multi-dimensional goal of a non-governmental organization (Iwankiewicz-Cancer, 1997) and requires definition and checking as to the degree it fulfills social enterprises' goals with regard to each of the stakeholder groups. The starting point here is to understand the carriers of values – tangible and intangible – which are supposed to support the building of social enterprises' competences and are necessary in providing values to all stakeholders. The methodology of stakeholders' analysis may be used here, which includes the following stages (Kafel, 1997):

- identification of particular stakeholders groups' expectations;
- defining stakeholders' requirements towards the organization;

- identifying the impact of particular stakeholders on the organization and defining the importance of decisions made towards them;
- identification of the dependency of the organization on the stakeholders;
- identifying methods of impact on stakeholders;
- determination of the capability and degree of achieved compromise with stakeholders;
- defining ways of balancing interests by the organization.

Defining carriers of added value and mastering them at a certain level – become the goals of the organization which will undergo measurement within this perspective.

3.3. Level of execution

The second perspective of social enterprises' operations performance measurement is related to the assessment of effectiveness, efficiency and the execution time in social enterprises.

The complexity of functioning, diversity of forms of social enterprises, force the need for evolution of effectiveness and its examination in a broader aspect, also a non-financial one. In publications of the western researchers, organizational effectiveness has coexisted with economic effectiveness for a long time, reaching beyond the financial prism and covering, among others, such aspects of an organization as: its social, psychological, moral dimension as well as dimension of relations with the environment (Lawrence & Lorsch, 1967; Yuchtman, 1967; Price, 1982; Lawless, 1979; Steers, 1975; Campbell, 1977; Scott, 1981; Quinn & Cameron, 1983; Cameron, 1986; Cameron, Dutton, & Quinn, 2003; Lewin & Minton, 1986). Organizational effectiveness is a conceptual category which is difficult to define. Most often it is expressed in a very general manner as the ability of the organization to achieve and implement its operational goals (Steers, 1975). This is a broader concept than economic effectiveness. Many concepts and criteria of organizational effectiveness evaluation have appeared over the years, being first of all the result of the development of subsequent management theories (Zięb icki, 2008). At present, organizational effectiveness is normally shown in a multi-dimensional way (Price, 1968; Bielski, 1986; Holstein-Beck, 1987).

Trying to make a synthesis of various presentations of the dimensions of organizational effectiveness from the perspective of using it with regard to social enterprises, the following dimensions have been indicated: economic and technical, praxeological (purposeful), institutional, behavioral and systemic.

The technical-economic dimension, similar to the traditional understanding of effectiveness, consists of the evaluation of relations between the effects

and the expenditures expressed materially or by value. The praxeological dimension assesses the enterprise on the established goals it pursues and the degree to which they have been fulfilled.

The behavioral dimension expresses the level of satisfying employees' individual needs. Institutionalization is, on the other hand, a measure defining the level of general social reception and the resulting support that the social enterprise receives from the environment. The systemic dimension, on the other hand, consists of the evaluation of the social enterprise's ability to survive and develop.

The assessment of organizational effectiveness of social enterprises each time requires the selection of separate criteria suitable for a given enterprise. Such collection should make it possible to conduct a multifaceted evaluation in the perspective of the above dimensions, taking account of both the specific nature of social enterprises and their operations. Table 4 presents the exemplary criteria for organizational effectiveness evaluation of social enterprises.

Next to effectiveness and efficiency, execution time is also a basic criterion for the evaluation of operations of social enterprises. This criterion is associated with the assessment of the speed of satisfying the needs of recipients of social enterprises' products and services. This aspect is also an element of perceived quality of delivered goods and services. The main measure in this respect is the length of time between customers expressing a need to satisfying this need.

3.4. Level of impact

The first two of the mentioned perspectives of the proposed model of social enterprise performance measurement – the scope of reference and implementation of the organization's operations – determine the third perspective, namely the organization's efficacy (which can be identified with the social enterprise's success). In this case we focus on the level of the social enterprise's impact which we determine using three criteria: impact (evaluation of changes in the environment that social enterprise's actions have created in relation to the assumed development objectives), sustainability of positive changes obtained as a result of implementing the social enterprise's actions and developing its potential. A key problem is the ability to evaluate this impact, namely the changes which the social enterprise evokes in its environment. Apart from the social goals (these are unquestionably in first place in the hierarchy of goals), social enterprises also pose business objectives.

It causes, of course, the problem of measuring the implementation of the planned goals. Social enterprises, aiming at implementing their business objectives, must take account of the impact that this pursuit will have on their social goals. According to Juraszek-Kopacz, Sienicka and Zagrodzka (2008,

p.16) "*the principle of maximized economic profits is replaced by two other ones in the case of a social enterprise: maximized social profits principle (which can be identified with the earlier described effective impact on the environment) and complexity of the financial result, i.e. recognizing also social and environmental values as its components, rather than only economic ones*".

Among the existing models aimed to describe the social impact of projects, the key positions are occupied by the notions of social added value and social profit. Although both refer to measurable aspects of social impact, the notion of social profit emphasizes measures which can be converted financially. Social added value is a notion with a broader meaning – apart from what can be measured financially, it also applies to these elements of social profit to which it is harder to ascribe pecuniary value. Pursuing their mission, social enterprises often focus on only one social aspect of impact. However, they affect other spheres as well: economic and ecological. This means that the estimation of total social added value requires knowledge of a reliable balance, which includes profits and losses in all three areas. This will allow the expense at which (for the natural environment) the social enterprise achieves success in the social field to be determined, and what will have a greater importance in the future: social achievement or ecological damage (Juraszek-Kopacz & Turowicz, 2008). The issue has recently been the subject of researchers' interest, the results of which are diverse methods and techniques used for measuring social impact effects of organizations.

4. Conclusion

The most important effects of social enterprises' actions are partially immeasurable and, as such, are non-obvious for many social groups (e.g., politicians). Such an approach to social enterprises is typical especially of immature democratic societies where "*the condition of social debate and the education level of the society (and its elites) does not live up to understanding such non-measurable and unobvious problems as the effects of social enterprises' actions or mechanisms of changes in civic attitudes and socio-cultural changes*" (Gliński, 2005, s.169). The essence of human life is non-measurable (uncountable) values such as interpersonal solidarity, altruism, wisdom, generosity, love, etc. Those values become more and more often alternative measures of the standard of living to GDP[3].

3 Defects of GDP as the measure of the standard of living are described in detail by e.g. Stiglitz J.E., Sen A., Fitoussi J.-P, (2013). It is a simplified version of the final report of the Commission for Measurement of Economic Efficiency and Social Progress, chaired by J. Stiglitz, created in 2008 by the former President of France Nicolas Sarkozy to indicate PKB constraints and design better measures of the standard of living. Similar actions have been taken e.g. by the government of David Cameron in the UK.

Table 4. Sample criteria for organizational effectiveness evaluation of social enterprises

Dimensions of effectiveness	Criteria of organizational effectiveness evaluation, adapted to the specific nature of social enterprises
Economic –technical	profitability, operating costs, amount of indebtedness, burdening the property with liabilities, productivity of fixed assets, work efficiency, productivity of wages, productivity of technical equipment, level of technical equipment, cycle of technical equipment modernization,
Praxeological	availability of services and products, no competition between products and services being offered, complementary nature of products and services, quality of products and services, professionalism degree, adjustment to the needs of customers,
Institutional	common trust in the enterprise, socially accepted mission, stability of an organization and ability to strengthen adopted values and standards, continuity of operations, transparency, dependence on public authorities, level of financing from public resources, amount of subvention, response to appeals and requests of the organization, bargaining position of the organization in relation to the environment (monopolistic position),
Behavioral	fluctuation of employees, employees absence, working and salary conditions in relation to other enterprises, scope of employees' self-reliance in decision making, employees integration degree, interpersonal relations, compatibility between employees' behavior and agreed rules, standards, ideology and organizational culture, number of organizational conflicts.
Systemic	number of reported ideas, amount of expenses for research and development, value of investments, number of employees raising qualifications, use of quality management methods, number of organizational interruptions, control of the customer service process, degree of processes automation.

It is worth recording here that in the late 20th century the human development index and happiness index became popular alternatives to GDP as the measure of the standard of living (Black, 2011).
Unfortunately, it happens sometimes that these values are eliminated in the name of a security policy, or the interests of some industries (nanotechnology, robotics). This does not mean, however, that social companies should abandon works leading to finding the optimum instruments used to measure the results of their operations. The authors express hope that the proposed model may become an inspiration to begin such efforts. At this point, it should be remembered that a "model is always a result of compromise between striving for a faithful and exact projection of reality and the pursuit of simplification, and expresses only some satisfactory (to its author) approximation of reality" (Austen, Frączkiewicz-Wronka, & Kulkowska-Pawlak, 2010, p.168). It was created to focus on what is - in the opinion of the authors – the most important and is particularly significant in the process of social enterprise performance measurement. Substantive assessment and diagnosis of this model's significance will thus require its verification in a given economic reality. Only then it may become a useful tool making it easy for decision-makers in a social enterprise to make rational decisions.

The presented model may enrich both theory and practice of the process of management of social enterprises, giving managers another instrument for measuring the results. In the opinion of the authors, excessive standardization of the tools for measuring the results of social enterprises is not recommended. It is vital that these tools provide an opportunity for the development of this type of organization. Multiplicity and diversity in this respect make it easy for social enterprises to select and adjust methods of measurement to suit their needs and their specific nature, while at the same time contributing to the professionalization of their actions.

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THE TYPOLOGY AND COMPONENTS OF ECOSYSTEMS IN BUSINESS

Lilla Knop[1], Monika Odlanicka-Poczobutt[2]

Abstract

The concept of ecosystems has taken root in the economic life of organizations and networks, but despite the steady increase in their importance, they are still poorly recognized. The significant number of publications indicates that the topic of ecosystems in business is experiencing growth. Accordingly, the following objectives were assumed in this article: identification of criteria for the division of ecosystems based on the goal of their activity, and determination of the main components that make them up. A lack of systematization in the area of division and composition of ecosystems was considered a research gap by the authors, and as such, it is intended to be further investigated in future articles. This article focuses on the systematic collection and analysis of data derived from scientific sources (Web of Knowledge). The research was carried out using a qualitative approach, in which the literature review revealed the diversity of the concept of an ecosystem and changes concerning its constituent elements. Based on selected definitions of ecosystems, three criteria were distinguished, which became the basis for defining the types of ecosystems: subjective, objective, and scope-related. In the subsequent stage, the level of interest in the concept of ecosystems was presented using Google Trends analyses. In the third stage, a preliminary bibliometric analysis was carried out based on the analysis of the number of publications (distributed over time) on ecosystems in scientific databases.

The discussion of the research consists of the components of ecosystems. As a result, the infrastructure of the ecosystem becomes a biotope (inanimate, material elements of the system), while the principal actors, their competences and created knowledge, are a biocenosis of the ecosystem, i.e., a "living organism" occurring in a given area, where both the biotope and the biocenosis are mutually engaged in different relationships and a range of

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activities to form a consistent whole. The formation of changing networks of connections in business means that organizations and the environment influence one another, therefore prompting ecosystems to constantly coevolve. The necessity for further research on ecosystems, based on full bibliometric analyses and research productivity, is emphasized in the conclusion of this paper. Said analyses are to allow the determination of guidelines for modeling various types of ecosystems existing in business.
Keywords: *ecosystem, types of ecosystems, business, ecosystem components.*

1. Introduction

Most of the companies on the market are part of ecosystems – networks of suppliers, distributors, subcontractors, manufacturers of related products or services, technology suppliers and a number of other companies which are involved in the creation and delivery of the company's products and which, themselves, are subject to this interaction. The concept of ecosystem has been steadily taking root in the economic life of organizations, economic networks, countries and regions. Although ecosystems are increasingly important in modern business, they are still poorly recognized. Their understanding can be improved by using the analogy between business networks and biological ecosystems, given that a company, just like a species in an ecosystem, shares the fate of the network as a whole.

The definition of the term *ecosystem* first appeared in the early twentieth century and it was initially associated with biological sciences, particularly ecology. It was not until later that this concept was embraced by economic and social sciences. Moore (1993) is considered the original author of the construct of an ecosystem in this area, albeit the term in economic sciences has evolved significantly since then. Nowadays, many types of ecosystems can be distinguished, such as: business, corporate, SME, cluster, innovation, entrepreneurship, startup, global, national, regional or local ecosystems (Adner & Kapoor, 2011; World Economic Forum, 2013; Rong, Hu, Lin, Shi, & Guo, 2015). Consequently, the dynamically developing approach to ecosystems has prompted a number of definitions that outline the type, scope or purpose of a functioning ecosystem. Accordingly, it seems that there is a significant need to systematize different ecosystems and indicate the assumptions for their modeling.

Considering the above, it has become important to stimulate a theoretical discussion in the academic and institutional environment with a view to introducing at least a partial order to the conceptual chaos that governs the term *ecosystem*. Thus, the objectives of this article have become to identify

criteria for the division of ecosystems based on the goal of their activity and determine the main components that make them up. It is assumed in this paper that coevolution – in addition to self-organization, emergence and self-renewal - is an immanent feature of ecosystems. The research was epistemological in nature, with elements of modeling, and it was carried out using a qualitative approach. The systematization of this study was determined by reviewing source literature in search of the context and scope of the concept of ecosystem.

2. The understanding of ecosystems in business

The term *ecosystem* is used to refer to any system consisting of living elements, or living and non-living elements, that remain mutually engaged in various relationships. With such a broad understanding, any ecological system with living organisms, from bacterial colonies on culture medium up to the entire biosphere, can be called an ecosystem (Weiner, 1998; Weiner, 1999). The term was first coined and published by the British ecologist Arthur Tansley in 1935 (Tansley, 1935) as an abbreviation from the English words *ecological system*, developed in the early 1930s by Arthur Roy Clapham (Willis, 1997). In biological sciences, the ecosystem is defined more precisely as "[...] a dynamic ecological system consisting of a set of organisms (*biocenosis*) connected by trophic relationships, together with the environment occupied by it, i.e., *biotope*, in which energy flows and matter circulates". Biotope is an inanimate part of the ecosystem, which consists of climate, substrate and solar energy, while biocenosis, as an animate part, consists of producers, consumers and reducers. According to the assumptions of biological sciences (The New Shorter Oxford English Dictionary, 1993; World Resources, 2000-2001), ecosystems are dynamic, constantly changing, reacting to natural disturbances and competing, also between species. Additionally, the strength of connections between living organisms is emphasized, with their condition depending on other such organisms (Iansiti & Levien, 2004).

In economic sciences, the term *ecosystem* is not so clear, although analogies to the ecosystem in ecology should prove helpful in properly understanding and defining it. The conditions of competition change, and so does its nature. If one were to accept the logic of ecosystems, the processes of competition would then be characterized by the interdependence of entities, while competition itself would take place between ecosystems rather than competitors in atomic terms. An increase in the role of cooperation between competitors can also be observed, which discerns the possibility of maintaining and building a market position, as well as of co-revolutionary change. From a strategic point of view, ecosystem features are self-organization, emergence, and coevolution, which, in combination, enable self-

renewal (Peltoniemi, 2006). Coevolution is assumed to signify, de facto, the generation by the organization of its own surroundings. The organization and the environment influence one another and thus coevolve (Stańczyk-Hugiet, 2015). Coevolution in biology means the coevolution of two or more species, each of which shows a gradual adaptation against the others, based on some kind of feedback (Łabno, 2006). In management, coevolution is supposed to shape changing networks of connections (within and between the biotope and the biocenosis), characterized by greater flexibility, where attention is focused on cooperation and its context (Eisenhardt & Galunic, 2000). Studies show that coevolution in ecosystems is ongoing (Stańczyk-Hugiet, 2015), given that the links between its components force a change in one element whenever a change occurs in another element. This article attempts to present changes in ecosystems existing in business from two perspectives. The first concerns objectives implemented by ecosystems (which also have a major impact on their type) and the other - ecosystem components.

3. Research approach and methods

The research was carried out using a qualitative approach and systematized based on source literature reviewed in search of the context and scope of the concept of an ecosystem. The literature review was aimed at obtaining a better insight into the existing studies in this area, and consequently, to introduce at least a partial order to the conceptual chaos that governs the term *ecosystem*. The process consisted in the systematic collection of data derived from scientific sources (Web of Knowledge), whereas the study itself had certain characteristics of action research (Surdyk, 2006), in that it was a context-related study conducted on a limited scale and the problems were analyzed within a given situation only. In the research proceedings, four stages can be distinguished:

- *Stage I*: *Literature review*. A chronological overview of selected most-referenced ecosystem definitions from the Web of Knowledge database. The criterion for searching for definitions was adopted: business, corporate, SME, cluster, innovation, entrepreneurship, startup, global, national, regional and local ecosystems, as these are the concepts most commonly used in relation to ecosystems described in business.
- *Stage II: Analysis of the popularity of defined ecosystem concepts*. The research was carried out using the Google Trends tool, which analyzes the level of interest for search terms, i.e., it uses data from the Google search engine to display how often a given phrase is searched. The research was limited to the science tab to eliminate random associations. The reference point in assessing the level of interest is the moment when a concept (standalone or compared)

reaches the highest value and assumes the value of 100. As a result, the value 100 means the highest popularity of a search term, while the value 50 means that its popularity was twice smaller. The value 0, meanwhile, indicates that there is not enough data available for a given search term. It should be emphasized that in the case of comparative analyses of the level of popularity of search terms, reference is made to one with the highest value. The research covered the period from 2004 to 2017, i.e., from the moment when Google Trends started running analyses.

- *Stage III: Analysis of the number of scientific papers in which a literal reference to ecosystem is made in the title*. The Web of Knowledge database, Google Scholar and ExLibris Primo were used in the research. The first base is one of the most recognizable academic bases worldwide. The second base is dynamically growing and its use in research is the result of continuity of the study, given that the Google Trends tool used in Stage II relies on the same data. The third base is a database used by the parent university of the authors of this paper and it was introduced to be contrasted against the two large academic databases mentioned previously. The analyses include the characteristics of the number of scientific studies in the examined topics that appear in individual databases and the number of studies that appeared in subsequent years. The research covered the same period as in Stage II.
- *Stage IV: Analysis of ecosystem components*. Based on the assumptions attributed to the biological ecosystem, the components stressed in the definitions of ecosystems used in business were indicated. In this stage, the focus was on the expert indication of key components of ecosystems, relying on the definitions of an ecosystem referred to in Stage I.

The basic limitations of the conducted study are the selection of definitions for research and only partial bibliometrics. In the analysis, the definitions of deliberately chosen ecosystems (most frequently cited) were used, which nevertheless were assumed to refer to different types of ecosystems. In the future, thorough biometrics should be carried out using three databases: Web of Knowledge, Scopus and Google Scholar. In addition, it is worth considering the use of research productivity, although it seems justified only after solving taxonomic problems.

4. The types of ecosystems in business – a literature review

In line with the search criteria adopted at the outset of this paper, the subjects of interest were the following ecosystems: business, corporate, SME, cluster, innovation, entrepreneurship, startup, global, national, regional and local as the most common types of ecosystems identified in business. The analysis

covered 30 selected ecosystem definitions derived from the Web of Knowledge database, published between 1993 and 2018. The most frequently quoted definitions and the one most frequently cited in the Polish literature - i.e., that of Stanczyk-Hugiet from 2015 - were analyzed. An in-depth review made it possible to establish common features, differences, similarities and directions of changes in the context of ecosystems defined in business. When analyzing said definitions, it can be observed that they show certain characteristics of ecosystem concepts, including: components (Adner, 2006; Sternberg, 2007; Mason & Brown, 2014), success factors of ecosystems (Basole & Rouse, 2008), features of ecosystem types (Battistella, Colucci, De Toni, & Nonino, 2013; Wright, 2014; Bart, Wright, Bruneel, & Mahajan, 2014), and features of trends contained in the literature from this area (Acs et al., 2014, Levie et al., 2014, Zhang & Liang, 2014).

As of the late 1990s, ecosystems have often been defined as intentional communities of organizations whose individual activities related to running an activity depend, to a large extent, on the community as a whole. An ecosystem is a construct justifying greater cognitive potential in the process of understanding and explaining strategic management problems (Moore, 1993). In subsequent years, Moore approaches the ecosystem as "an economic community supported by cooperating organizations and private individuals – organisms of the business world" (Moore, 1996). Business organizations are not simply members of a specific sector, but a part of an ecology that incorporates various sectors, in which the driving force is not pure competition, but rather a coevolution.

Ecosystems are coevolving towards continuous development and other goals, a fact which is reflected in later definitions. In economic and social terms, an ecosystem can be considered a complex system of systems, consisting of planned specific elements and connections between them on the one hand (Carayannis, 2001), and its own life, dependent on the activities of existing and new actors, on the other hand.

Distinguishing different types of ecosystems, a *business ecosystem* can be singled out, which in contrast to the traditional value chain offers a dynamic and systemic view, not only taking into account the value chain, but also elements that play more indirect roles (Moore, 1996; Iansiti & Levien, 2004; Li, 2009; Yu, Li, & Zhao, 2011). According to Mathews (2001), each sector is built of ecosystems that require knowledge, technical skills and financial support. Also mentioned is the possibility of competitive interdependence when the goal is to push a competitor out of the system, or when competitors evolve towards different, non-competing niches. These relationships of interdependence change, or may change, under the influence of external factors. Peltoniemi (Peltoniemi, 2006) argues that despite the lack of an unambiguous

definition of the ecosystem, the typical features of the business ecosystem can still be identified, including: (1) the ecosystem consists of a large number of organizations, (2) the ecosystem is characterized by interrelationships and interdependencies and (3) dynamic coevolution is an attribute of the ecosystem. A business ecosystem is marked by the interdependence of entities, which may be either symbiotic or commensal. In recent years, the concept of a business ecosystem has appeared in many studies and is considered to comprise a group of enterprises and other organizations that, while interacting, use relationships of dependence to produce goods, technologies and services in line with customer interest. Such a collective is characterized by mutual, multi-directional connections. The main participants in these ecosystems are enterprises/products and customers, as well as suppliers, competitors, etc. However, the customer always remains at the center of attention (Zahra & Nambisan, 2012). The business ecosystem generally responds to the diverse needs of customers, while in ecosystems, companies integrate their individual ideas into homogeneous solutions with a significant value for the customer (Wright, 2014). As a result, the business ecosystem is a place where enterprises can survive in the presence of competitors geared towards the patronage of the available pool of customers (Mars, Bronstein, & Lusch, 2012).

An *innovation ecosystem* is the next most frequently distinguished type of ecosystem, referring to the creation of ambitious business goals and striving to implement them through innovation (Adner, 2006). According to this definition, the innovation ecosystem is perceived as a business ecosystem aiming to create value from innovative activities (related to technological or business/entrepreneurial innovation) (Adner & Kapoor, 2011). Jackson defines the innovation ecosystem as "complex relationships that have arisen between entities or actors that aim to enable the development of technology and innovation" (Jackson, 2011). A more broadly outlined definition sees innovation ecosystems as a network of connections through which information, talents and financial resources flow through systems, thereby allowing them to co-create sustainable value (Russell et al., 2011). Innovation ecosystems, generally seen as entities consisting of organizations and links between them, have also been defined as human networks that generate extraordinary creativity and results, in a sustainable manner (Hwang & Horowitt, 2012). Additionally, the innovation ecosystem is defined as a set of links between various entities oscillating around a specific challenge, cooperating to work out comprehensive solutions (Kastalli & Neely, 2015). In this meaning, an ecosystem is made up of all organizations whose common goal is growth, achieved through innovation. Such a group of relationships is characterized by symbiosis, not only in terms of available technical and technological resources, including knowledge, but also in the area of responsibility for the implementation of

the processes of development, absorption or commercialization of innovations (Fransman, 2014). Although the number of studies addressing the problems of business ecosystems and innovation ecosystems is on the rise, these are mainly case studies, and this proves that the theory is in the initial stage of development (Zhang & Liang, 2014).

The concept of *entrepreneurship ecosystem* (often combined with that of *innovative ecosystem*) emphasizes that entrepreneurship occurs in a community of interdependent entities (Sternberg, 2007; Ylinenpää, 2009); while in innovation ecosystems it is interdependent companies that create symbiotic relationships with others to create and deliver new (innovative) products and services (Basole & Rouse, 2008). The entrepreneurship ecosystem contains a set of individual elements pertaining to areas such as human capital, entrepreneurial culture and supporting organizations that interact mutually in a complex way. In isolation, each of them contributes to entrepreneurship, but it is insufficient to retain it. Together, however, these elements foster the overall growth and the development of enterprising companies (Isenberg, 2010; Napier & Hansen, 2011; Malecki, 2011, Kantis & Federico, 2012; Feld, 2012). Entrepreneurship and innovation are increasingly recognized as key factors contributing to global economic and social development. University-based entrepreneurship ecosystems (U-BEEs) provide a favorable context in which entrepreneurship and innovation can develop or change in parallel – that is, coevolve. A more thorough analysis of the six leading and very different university-based entrepreneurship ecosystems in North America, Latin America, Europe and Asia help distinguish seven success factors for entrepreneurship ecosystems. These are: (1) leadership vision, engagement and sponsorship; (2) strong program management; (3) continuous commitment for an extended period of time; (4) involvement of significant financial resources; (5) commitment to continuous innovation in the curriculum and programs; (6) proper organizational infrastructure; and (7) involvement in building a large enterprise and achieving critical mass. Based on these factors, authors put forward a number of recommendations for the development of a comprehensive university-based entrepreneurship ecosystem (Fetters, Greene, Rice, & Butler, 2010). Studies concerning these types of ecosystems focus on the role of a largely social context in the development or reduction of entrepreneurship (Acs et al., 2014; Levie et al., 2014). This concept provides a new and distinctive point of view on regional entrepreneurship, although it also links with many demands of the cluster, the innovation system and the theory of industrial districts (Mason & Brown, 2014). Currently, however, the approach to entrepreneurship ecosystems often limits entrepreneurship to "high-growth startups" or "scaling up," arguing that this type of entrepreneurship is an important source of innovation, productivity

growth and employment. Their goal is the innovation of a process or product taking into account the optimization of existing solutions up to 5 years from their founding (World Economic Forum, 2013).

Another approach to ecosystems, namely a *corporate ecosystem*, usually appears in combination with a business or innovation ecosystem, due to the activities of corporations/enterprises, understood as entrepreneurship, which these concepts are closely linked with. Another example is *SME ecosystems* (sometimes referred to as small-business ecosystems), understood as the public sector and the private sector grouping of medium-sized, small and micro enterprises, which mainly use internal sources of innovation, and only to a small extent rely on external scientific and research findings (Łukasik, 2015). A *startup ecosystem*, meanwhile, is considered a system of entities striving to create new products and services under conditions of high uncertainty, using the available resources, functioning in a specific regulatory environment (Startup Genome, 2017). *Cluster ecosystems* are most often associated with innovation ecosystems. In a cluster ecosystem, organizations co-create and develop their potential mainly around new solutions. Together, they work while competing and cooperating, introducing a new generation of innovations (Knop, 2013).

Ecosystems create an environment that supports entrepreneurial activities, but they can also limit the implementation of other activities. The concept of ecosystems in business is an extension of the value chain network theory that extends the value chain to other organizations such as universities, industry organizations and other stakeholders, as well as the interactions between them (Stańczyk-Hugiet, 2015). The criteria that distinguish the innovation ecosystem from any general system are the goals – i.e., an innovation (Oh, Phillips, Park, & Lee, 2016) entrepreneurship or a startup. In an ecosystem, the network of interactions between organizations is characterized by relations of competition and cooperation, and therefore, coopetition (Battistella, Colucci, De Toni, & Nonino, 2013). This phenomenon, based on the theory of ecosystems, is referred to as coevolution. Benefits of the ecosystem are obtained both from competing and from cooperating with other organizations. Well-functioning ecosystems with good health enable organizations to create value that none of them would otherwise be able to generate by acting alone. Consequently, companies cooperate to create and deliver solutions that fully secure value for the customer (Bart, Wright, Bruneel, & Mahajan, 2014).

Most of the provided definitions emphasize the scope of the ecosystem. Most often they refer to either local or regional activities (entrepreneurship, SME, startup, business ecosystems). The national level is attributed to innovation ecosystems, which may also be of regional or local scope.

Having analyzed selected definitions, a conclusion can be drawn that ecosystems are shaped and developed in the context of the purposes for which they arise in the first place. As a result of the conducted overview of the definitions, three criteria for the division of ecosystems in relation to their goals can be distinguished. These are:

- subjective, stressing that the organization or network of organizations is the center of interest. This group of definitions includes business corporate, SME and cluster ecosystems. The key goal of these ecosystems is to understand the nature of the organization's environment or network, i.e., its infrastructure, resources and competences of partners, general partners and supporting entities, their mutual relations and activities. All this is to satisfy customer needs and increase own value (that is, that of the organization or network of organizations);
- objective, meaning that the focus is on a specific problem. Among the distinguished definitions, this focus concerned innovation, entrepreneurship, startups, and partly business. The key goal of these ecosystems is to build support for innovative, entrepreneurial or start-up activities. At the same time, the sustainability of this ecosystem is emphasized from the perspective of the owned and developed infrastructure, resources and competences, relationships and the culture of using and co-creating such an ecosystem. The basis for the assessment is the implementation of specific indicators describing innovation, entrepreneurship or the development of new companies and sectors;
- scope-related, among which global, national, regional or local ecosystems can be distinguished. This criterion indicates the geographical coverage and range of activities in a specific infrastructure, based on specific resources and competences.

5. The research interest in ecosystems in business according to Google Trends

Literature research on the types of ecosystems became the basis for examining the "popularity" of various ecosystems. This assessment was based on the level of interest in a given search term. This stage of research began with analyzing the interest in the ecosystem depending on the approach. The following phrases were used for searches: business ecosystem, corporate ecosystem, SME ecosystem, cluster ecosystem, innovation ecosystem, entrepreneurship ecosystem, startup ecosystem, global ecosystem, national ecosystem, regional ecosystem, local ecosystem. The inclusion of the word *ecosystem* in a specific phrase allowed the research to be narrowed down to specific types of ecosystems existing in definitions. The data for 2004-2017

(i.e., from the time the tool was created) were presented on a monthly basis. In order to clearly present the results, an arithmetic mean value was adopted for each year (not equating the highest value to 100). The research used the science tab, suggesting that the search was limited to scientific papers only. A comparative analysis of trends according to Google Scholar showed that, from among the analyzed concepts, the concept of a national ecosystem enjoyed the greatest interest, followed by local ecosystem, and then business, innovation and entrepreneurship ecosystem, respectively. For other types of ecosystems, the software failed to indicate a trend due to insufficient data.

Unfortunately, the preliminary analysis of the indications showed that a significant part of the studies concerning national and local ecosystems are more related to ecology and biology than to economics and management. Therefore, comparative research was reduced to three concepts that fall within the field of economic sciences and for which trends in the data were available, i.e., to the concepts of business, innovation and entrepreneurship ecosystems. The results of this research are shown in Figure 1.

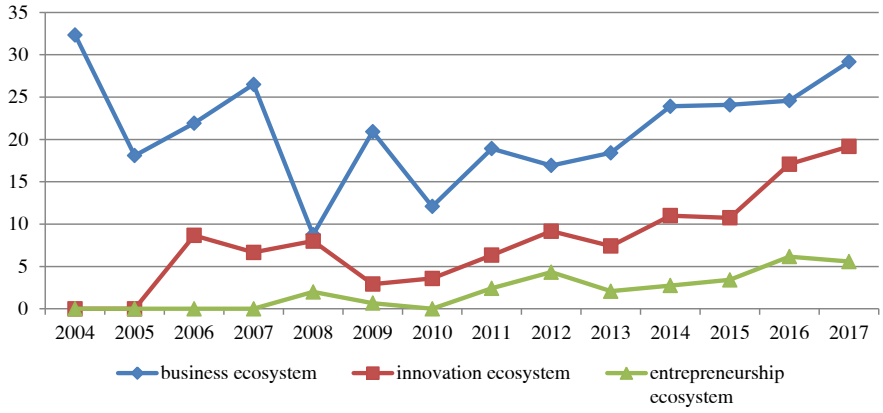

Figure 1. Analysis of selected trends according to Google Scholar

Source: own study based on Google Trends data.

The presented analysis is based on averaged annual values. It means that the value of 100% interest in the concept occurs only in selected months. The average values are the highest in the case of interest in the business ecosystem, which were high in 2004-2007, and then, after tying with the innovation ecosystem in terms of value in 2008, remained more popular than the innovation ecosystem. However, it is important to note that trends of interest increase for the other two concepts of ecosystem: innovation and entrepreneurship. It is

difficult to indicate the reasons for either the increase or decrease in popularity of selected ecosystem types based on these analyses. Nevertheless, key to the two types of ecosystems just mentioned (innovation and entrepreneurship) is the fact that discussions on the innovative and entrepreneurial development of local and regional ecosystems have been on the rise, starting in 2008 and then developing gradually since 2011. At that time, a number of practical studies (e.g., on regional innovation systems or ecosystems of specific places such as Cambridge or Silicon Valley) were conducted, which allowed the scope of research in this area to be expanded.

6. Analysis of the number of publications in a given area in scientific databases

The next stage involved the analysis of the number of scientific publications that include the analyzed concept in their title and keywords. Three available databases were used in the research: Web of Knowledge, Google Scholar and ExLibris Primo. The analysis based on keywords indicated significant discrepancies in the number of search results (from several hundreds to several thousands). Hence, comparisons were made only of those scientific studies that included a specific phrase in the title, e.g., business ecosystem or innovation ecosystem. It was assumed that the placement of a specific phrase in the title suggests a concentration of the study on this issue, among others. In light of the results of previous studies, the research did not include the phrases global, national, regional or local ecosystem. The results of comparative research are shown in Figure 2.

The largest number of registered scientific papers between 2004 and 2017, which distinguished the examined phrases, can be found in the WoK database (2810). In the Google Scholar database, 1028 such instances were recorded, and 305 for PRIMO. However, regardless of the database, the majority of studies were registered for innovation, business and entrepreneurship ecosystems. The results of the analyses confirm the earlier analysis of interests (Stage II). For a more detailed analysis of the number of studies, the number of articles that appeared in the following years was reviewed. WoK and Google Scholar databases were used for analysis (PRIMO was discarded due to the relatively small number of items). According to the WoK database, most scientific studies were conducted for innovation ecosystems (1182) and business ecosystems (1054), with both these trends constantly growing (see Figure 3). In the case of other ecosystems, the number of studies was as follows: corporate ecosystem - 33, SME ecosystem - 29, cluster ecosystem - 47, entrepreneurship ecosystem - 240, and startup ecosystem - 225.

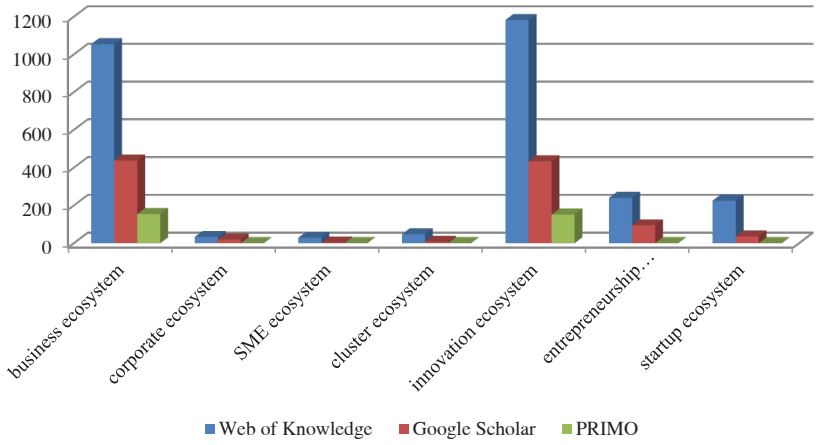

Figure 2. Analysis of the number of publications in selected databases of scientific publications

Source: own study based on Web of Knowledge, Google Scholar, PRIMO.

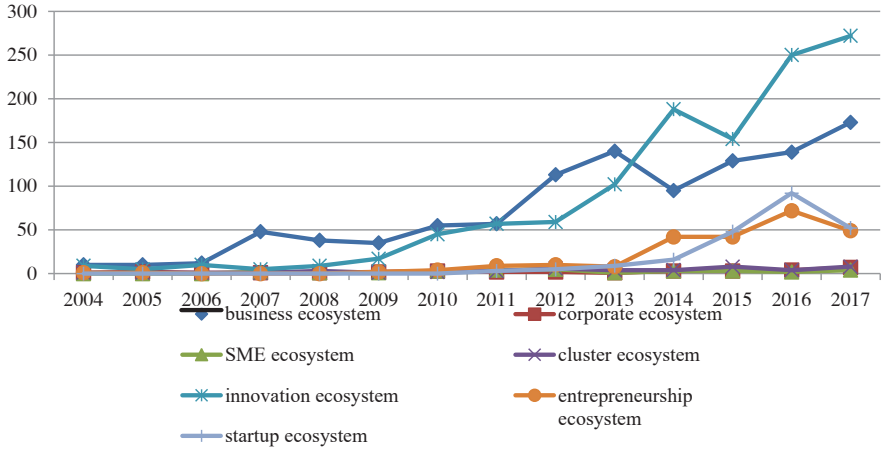

Figure 3. The number of publications on ecosystems in WoK

Source: own study based on WoK data.

A similar trend was observed in the Google Scholar database (see Figure 4), where the number of papers was as follows: business ecosystem - 437, corporate ecosystem - 19, SME ecosystem - 3, cluster ecosystem - 7, innovation ecosystem - 433, entrepreneurship ecosystem - 94, and startup ecosystem - 35.

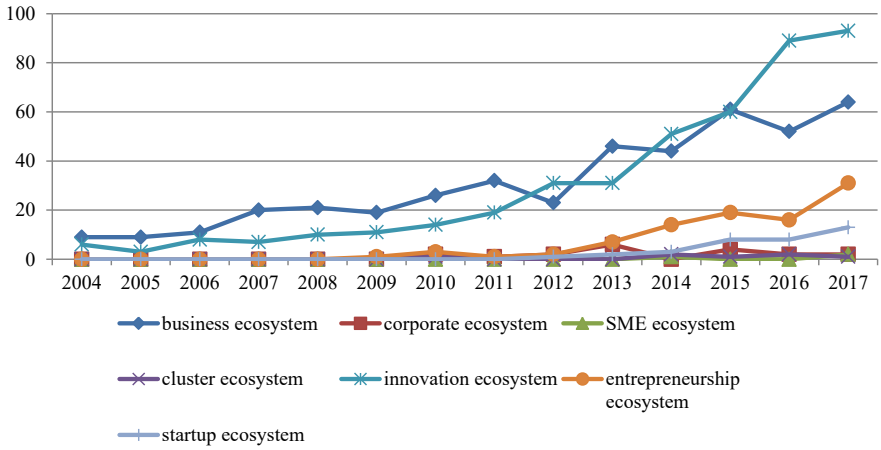

Figure 4. The number of publications on ecosystems in Google Scholar

Source: own study based on Google Scholar data.

According to the research, apart from the ever-growing interest in business, innovation and entrepreneurship ecosystems, the number of publications in the field of startup ecosystems is also increasing. This is another type of ecosystem which is subject to increasing research. In addition to the adopted typology and initial assessment of the level of interest in the research problem (ecosystems identified in business), it is interesting to try and answer the question of what they consist of. Initial considerations on this subject have been presented in the following section of this paper.

6.1. Ecosystem components

In the basic research on ecosystems, the problem of their constituent elements appeared. Based on the key definition of the biological ecosystem, and adapting it to the needs of business, a set of organizations-actors (*biocenosis*) can be distinguished, linked by relationships occurring through infrastructure (*biotope*), among which there are a flow and exchange of knowledge, energy and the circulation of matter. Accordingly, an assumption can be made that the examined ecosystems have an internal structure in which specific relationships exist. Among the actors of the business ecosystem, there are enterprises and other organizations that play an important role (*keystones*) and are responsible for the directions and strategic development of the whole. They form part of the ecosystem, which means that they benefit from it but also they become the driver of change and are responsible for its diffusion within

the ecosystem (Adner & Kapoor, 2011); in doing so, they coevolve. At the same time, decisions about creating and shaping relationships in the business ecosystem (both within the ecosystem and with entities outside the system) have a direct impact on other members of the ecosystem. As a consequence, members of the ecosystem show an increased tendency to cooperate, which strengthens the occurrence of the effect of knowledge transfer between its actors. The factor that integrates the ecosystem is the flow of both tangible assets (e.g., products, funds) and intangible assets (know-how, information). Additionally, organizations perceive the ecosystem as a place or opportunity to gain benefits resulting from economies of scale, range, time, synergy and flexibility. Therefore, the most important thing is locating resources (or creating them), finding the right talents, building appropriate competences, and using them effectively. However, this cannot be done without first shaping appropriate relations within the ecosystem, which, thanks to key actors, will enable the development and effective implementation of joint ventures. As a result (see Figure 5), the created ecosystem infrastructure becomes a biotope (inanimate, material elements of the system) - 13 indications among the analyzed definitions, while the main actors, their competences and knowledge are the ecosystem's biocenosis - 19 indications in the referenced definitions. In holistic terms, this means it is a "living organism" occurring in a given area, interrelated in a whole with various dependencies - 17 indications in the presented definitions, and the scope of activities - 19 indications.

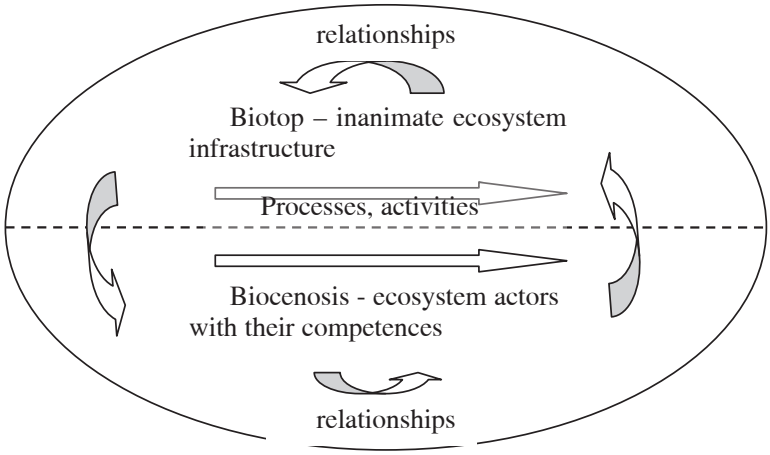

Figure 5. Basic components of ecosystems in business

In an ecosystem, organizations co-create and develop their potential, work together, while competing and cooperating, introducing innovations

of new generation, etc. (Moore, 1993; Moore, 1996). Thanks to planned and emergent processes, standards (technical, technological), norms and know-how are developed within the ecosystem, which is recognized and used by many organizations (Gueguen & Torrčs, 2004; Cygler, 2008). As a result, key skills can be jointly developed, becoming the basis for building a competitive advantage thanks to the learning of the ecosystem. Using these skills, strategic directions for the ecosystem as a whole are determined, based on the principles of coevolution (Moore, 1997).

7. Conclusions

The analyses have shown a certain conceptual chaos, but they also identified development tendencies in different types and components of ecosystems. As usually happens in the growth phase of the life cycle of a sector or product, in the case of ecosystems there are also many types of ecosystems that are still being formed. What sets them apart are the goals for which they are shaped and developed, but they still share the same key components (actors, infrastructure, relationships and joint actions). Ecosystems, in contrast to systems, have "vitality," expressed in their self-protection and self-development, on the basis of which the continuous coevolution of the ecosystem can be identified. The coevolution of ecosystems in business leads to the formation of variable networks of links characterized by greater flexibility, where attention is focused on cooperation and its context. Consequently, the ecosystem is a multilevel, multimodal, multi-node and multi-agent system, which consists of planned specific elements and links between them on the one hand. Whilst, on the other hand, it lives its own life, dependent on the activities of existing and new actors, open to experimenting, creating new ideas and concepts, as well as seeking distinctive areas and values that, with the help of extended relationships, will set apart the ecosystem and its entities.

The analysis of selected definitions and popularity of search terms allowed three criteria to be distinguished that became the basis for defining various types of ecosystems: subjective, objective and scope-related. The presented division is not strict, and the identified criteria are not mutually exclusive, i.e., there can be an innovation ecosystem for SMEs or a global startup ecosystem. Accordingly, different goals and measures of ecosystems can be combined - this is important from the point of view of detailed research or application solutions. The conducted research was summarized by presenting the basic components of the ecosystem. A set of organizations-actors (*biocenosis*) connected by relationships thanks to infrastructure (*biotope*) was distinguished, in between, where there are a flow and exchange of knowledge, energy and the

circulation of matter, implying that the examined ecosystems have an internal structure in which specific relationships and processes occur.

In conclusion, changes in ecosystems are characterized by increasing dynamics. Ecosystems constantly coevolve, and although it is not easy to analyze such a "living" system, the popularity of this research problem is still on the rise. Subsequent research, therefore, is intended to focus on four types of ecosystems (based on the level of their "research" popularity). These are business, innovation, entrepreneurship and startup ecosystems. However, this does not preclude their connection to the problems of SME, cluster or corporate ecosystems, or the scope of their mutual interaction. In future analyses, comprehensive research will be conducted on bibliographic sources, using research productivity. Also, the features of these ecosystems and their detailed components will be indicated, which should help guidelines for modeling various types of ecosystems existing in business.

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THE SOCIAL RESPONSIBILITY OF UNIVERSITIES IN THE STUDENTS' OPINION – RESULTS OF A PILOT RESEARCH

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Abstract

The aim of the article is to identify the needs and expectations of students in relation to a socially responsible higher education institution on the example of two selected higher education institutions, with economic and maritime curricula, and to find answers to the following research questions: 1) How is the awareness of social and environmental problems shaped in both institutions? 2) What are the needs and expectations of students as key internal stakeholders of the universities in such areas as natural environment, human rights, local community, work environment and study conditions? 3) Are there any, and if so, what are the possible differences in the perception of the social responsibility of the university between the students of both higher education institutions? The article consists of five parts: an introduction, SRUrce literature analysis, description of the applied research method, report from the conducted pilot study, and conclusions. Despite some differences in perceiving the role of a socially responsible university, the respondents have similar expectations regarding the importance of the areas of its functioning. The students from both universities state that the main responsibility of the university is education, i.e., providing educational services of appropriate quality, consistent with the needs of the market and society.

Keywords: *higher education institution, university, social responsibility, key stakeholders, social responsibility, university strategy.*

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1. Introduction

Global changes of a social, economic, political and technological nature that we have observed in recent decades have had a significant impact not only on the way businesses and NGOs but also universities operate. Higher education institutions today have to face many challenges, such as changing the demographic structure of the population and the gradual aging of societies, the development of social media and the knowledge-based economy, globalization accompanied by gradual degradation of the social and natural environment. Due to the fact that the functioning of universities exerts a significant impact on the environment, more and more often they are assigned a moral obligation to promote the idea of sustainable development and active participation in solving growing social and environmental problems. Society today expects that universities – just like the commercial sector – will be socially responsible.

The social responsibility of a university (SRU in short) means engaging in dialogue and partnership with various stakeholders, taking actions in the area of employees, education, research and the environment. SRU can be seen as a kind of philosophy of action, ethical policy that engages the local and global community to stimulate social and economic development and the protection of natural resources. A socially responsible university focuses not only on developing professional competences desired by the market but also on shaping the system of values, attitudes and behaviors of people studying towards the development of their individual and social responsibility. A socially responsible university is characterized by readiness, while making decisions and taking actions, to include social and environmental issues and to account for its impact on society and the environment. In practice, this means ethical and transparent behavior, consistent with applicable law and congruent with international standards of conduct.

Socially responsible institutions conduct scientific research on significant social problems, use scientific knowledge to develop new products, technologies and processes that are environmentally friendly, and what is more, they educate in the field of environmental values. They make efforts to facilitate dialogue between academics, students, entrepreneurs, the government, the local community, the media and NGOs in matters related to social responsibility and sustainable development.

A comprehensive analysis of all aspects of the social responsibility of universities, defining long-term objectives and ensuring their implementation requires a proper strategy. However, before such a strategy arises, it is necessary to identify and analyze stakeholders, their needs, expectations and impact. Undoubtedly, students are the key interest group for a higher education institution. Examination of their opinions on the conditions of studying, as

well as various initiatives undertaken for the benefit of the local community and the natural environment, is a *sine qua non* condition for developing an effective strategy of social responsibility of the university.

The aim of the article is to identify the needs and expectations of students in relation to a socially responsible university on the example of two selected higher education institutions, of economic and maritime profile, and to find answers to the following research questions:

1) How is the awareness of social and environmental problems shaped in both universities?
2) What are the needs and expectations of students as key internal stakeholders of the universities in such areas as natural environment, human rights, local community, work environment and study conditions?
3) Are there any, and if so, what are the possible differences in the perception of the social responsibility of the university between the students of both higher education institutions?

To answer the above questions, a pilot survey was carried out from primary sources. A case study was applied as a research approach.

2. Literature background

The essence and components of the social responsibility of universities are often described in the subject literature. Some of the studies focus on the research activities of higher education institutions and the role they have to play for the student, while some present them as organizations involved in relations with various stakeholder groups, both internal and external. Therefore, Leja (2008) points out that universities which carry out teaching and research activities must bear social responsibility. This applies both to the preparation of graduates for the roles of knowledge workers (Grobelna & Marciszewska, 2016), the need to improve the efficiency of spending public funds, as well as to establish close ties with business and local government organizations. In such a mutual cooperation (the so-called "triple helix"), the universities play a special role – a link between particular sectors (business, local government and science) (Spodarczyk & Szelągowska-Rudzka, 2015). As emphasized by Leja (2008), the universities will fulfill their social responsibility on condition that they evolve towards organizations serving the environment. A similar point of view is presented by Sutz (1997) who, apart from two traditional roles consisting in educating students and conducting scientific research, attributes a third role to universities – creating mutual relations with the environment.

Chirileasa (2013) indicates the strong connection between universities and the environment. Describing the processes of their impact on the environment, she lists such activities as the development of the local community, the

development of innovation and the shaping of human capital. Studies by Stafaniuk (2014), just like Giuffré and Ratto (2014) emphasize not only the need to develop partner relationships with the environment, create conditions for fruitful cooperation with stakeholders, but also respect for the natural environment in the provision of educational services.

Schneider and Hersh (2005) emphasized the ethical aspect of the functioning of universities, formulated a number of specific goals for them, including:

- striving for excellence; it concerns, among others, implementing ethical standards in all aspects of teaching and learning;
- acting in a way that combines personal and academic integrity, which starts with being honest in relationships with others and full commitment to practicing the academic code of honor;
- actions to promote responsibility, both among the academic community and in society in general.

In the context of shaping the relations with the most important group of stakeholders, that is students, Berman (1990) stresses the importance of building their social awareness in the education process, including developing basic social competences, understanding the need to participate, providing social input, the ability to see and solve significant problems. The final report for UNESCO (2010) from the 2009 World Higher Education Conference is maintained in a similar tone and states that the main goal of higher education institutions should not only be individual education but also providing future generations with the skills and knowledge crucial to meet global challenges such as poverty, conflicts and climate change. Higher education institutions, through their basic functions, conducted within the framework of institutional autonomy and academic freedom, should promote critical thinking and active citizenship. This would contribute to sustainable development, peace, prosperity and the implementation of human rights.

3. Report on the pilot study

As far as the target screening is concerned, the Faculty of Entrepreneurship and Commodity Science (FECS) of the Gdynia Maritime University and the Faculty of Economic Sciences (FES) of the Wroclaw University of Economics were selected for the pilot study. The choice was based on the criterion of availability and adequacy of data to distinguish the attitude of students regarding social and environmental problems. At the Wroclaw University of Economics (WUE), in the light of the Declaration of Social Responsibility of the University signed in November 2017 (hereinafter referred to as the Declaration), actions were taken to create a strategy for social responsibility

of the university. At the Faculty of Economic Sciences of this university there is also an international scientific circle ENACTUS, connecting students, lecturers and business leaders, managers and companies that are responding with their entrepreneurship to economic, ecological and social challenges, while supporting the development of local communities. At Gdynia Maritime University (GMU) no formal efforts were made to develop and implement a social responsibility strategy.

In the primary measurement, an auditorium survey as a method of data collection and a questionnaire as a measurement instrument were used. Questions in the questionnaire were divided into three groups directly related to the answer to research questions as well as respondent's particulars questions. The first question identifies the operational definition of the social responsibility of the university in the respondents' opinion. In the second part of the measuring instrument there were questions about respondents' expectations in five aspects of functioning (natural environment, human rights, local community, work environment at the university, study conditions). The ordinal scale was applied, which at the stage of data analysis was treated as a range scale assuming that the differences between classes of values in the cafeteria are equal. When scaling the answers, balanced scaling was used, not enforcing, assuming that the answer *it is hard to say*, enables the respondent to take a neutral position or points to a lack of knowledge in the area of assessed issues. The third part of the questionnaire focused on the assessment of the study conditions. An assessment of statements on the Likert order scale was made, which during the analysis of data was treated as a range scale. The respondent's particulars questions made it possible to check the accuracy of the data at the reduction stage. In the reduction process, inaccurate, incomplete, incorrectly filled questionnaires were rejected (in total, 10 for the FECS and 100 for FES). As a result, 411 questionnaires were accepted for analysis, which is about 8% of the number of students at each of the studied faculties of both universities[5]. As part of the analysis, methods of descriptive statistics were used, such as numbers and proportions, as well as the arithmetic mean. For the presentation of data, a graphical method was used in the form of graphs enabling the simultaneous display of the structure of measurement results in all studied areas in both universities and a comparison of these results. The research is of pilot nature, the results and the conclusions arising from them apply only to the two studied universities.

5 The study assumed the selection of the number of respondents on each of the surveyed departments corresponding to approx. 8% of the number of students in the examined period. In the winter term of the 2017/2018 academic year there were about 1,500 students at FECS, and 5,000 students at FES, therefore about 120 respondents were supposed to be drawn at FECS, while about 400 at FES. Finally, after rejecting incomplete, inaccurate or incorrect questionnaires, 111 were taken for analysis at FECS, while 300 at FES.

4. Results

The study was conducted from November 2017 to January 2018. A total of 411 respondents took part in it, including 111 from FECS in Gdynia and 300 from FES in Wroclaw. Full-time students accounted for 41% of the respondents in GMU and 47% in the WUE, part-time program students respectively 59% and 53% of all respondents. In both universities, the respondents were mainly women – 71% and 68% respectively, people aged 18-24 – 68% at FECS and 89% at FES (25-30 year-olds counted 23% at FECS and 6.3% at FES, aged 31-40 respectively: 4.5% and 4%, and above 40 years: 4.5% and 0.7%).

To get the answer to the first research question: *How is the awareness of social and environmental problems in the studied universities shaped?* Respondents were asked to define the essence of the university by choosing one of the following options:

A) Educating according to the needs of the market and society
B) Conducting activities in accordance with legal and ethical standards
C) Pro-social activities going beyond statutory activities, undertaken for the internal and external environment and the university
D) Satisfying the needs of internal and external stakeholders, multiplying knowledge, searching for the truth
E) Responsibility for the impact of decisions and actions taken by the university on society and the natural environment (see Figure 1).

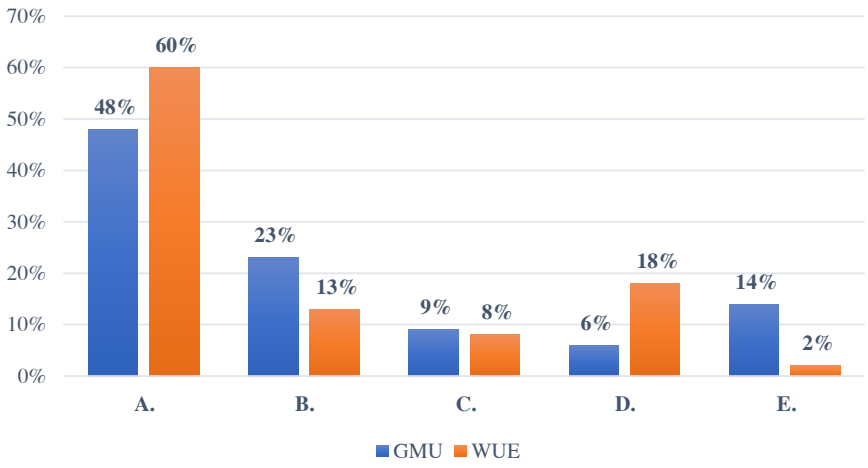

Figure. 1. The essence of the university in the opinion of GMU and WUE students

Students of both higher education institutions most often identify the essence of higher education with education in accordance with the needs of the market and society (answer A, 48% - GMU, 60% - WUE). Students of FECS, as next, indicate conducting activities in accordance with legal and ethical standards (answer B, 23%) and responsibility towards society and the natural environment (answer E, 14%). In turn, FES students emphasize the role of the university related to meeting the needs of stakeholders, multiplying knowledge and seeking truth (answer D, 18%) and operating in accordance with legal and ethical standards (answer B, 13%).

The results of the analysis of the answers to the research question: *What are the needs and expectations of students as key internal stakeholders of universities in relation to such aspects of university functioning as: natural environment, human rights, local community, work environment within the university and study conditions?* are presented in Figures 2 and 3[6].

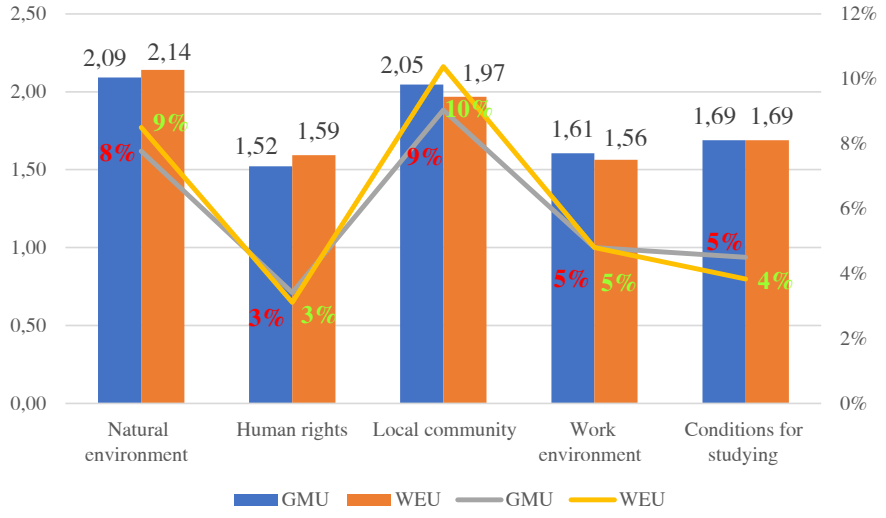

Figure. 2. The importance of key areas of university functioning in the opinion of students of the studied faculties of GMU and WUE

As shown in Figure 2, regardless of the university, the respondents pay the greatest attention to the issue of human rights and the working environment (from 1.52 to 1.61). At the next position in the hierarchy of respondents were the conditions for studying (grades in both universities 1.69), and then the

6 It has been assumed in the study that the number 1 means that the given issue is very important to the respondents; 2 – important; 3 – rather unimportant; 4 – definitely not important.

involvement of the university in matters of the local environment and in activities for the benefit of the natural environment (from 1.97 to 2.14).

The respondents, assessing the significance of the above-mentioned areas of the university's functioning, had the opportunity to choose the answer *it is hard to say* (when they were not sure or did not have the ability to answer) (they are illustrated by the lines in Figure 2). The percentage of *hard to say* answers depended on the area of the university's functioning, while to a small extent it was dependent on the respondents' affiliation. The respondents had the most doubts in the area related to activities for the benefit of the local community and the natural environment (from 8% to 10%) (Figure 2). They raised smaller doubts in the case of the importance of issues concerning the work environment and study conditions (from 4% to 5%). The fewest *hard to say* answers appeared in the context of human rights (3% in both universities).

In the study, it was assumed that studying conditions are an area that concerns the most and directly the students (Figure 3). Therefore, they were asked about the importance of detailed aspects of these conditions for them[7], such as: the quality of education, development of skills desired by the job market; providing access to teaching materials; developing individual responsibility; internships, studies abroad; the possibility of personal development; supporting physical development, providing health care; creating material study conditions in the form of a library, reading room, etc.; assistance for minorities and students with special needs (social benefits); education in the field of human and social values and promotion of civil solidarity; supporting student entrepreneurship and supporting student volunteering (Figure 3).

As can be seen in Figure 3, the expectations of GMU students are higher than those of WUE students in all particular studying conditions. In addition, in the case of the students from Gdynia, they are less diverse in relation to the expectations of the respondents from Wroclaw. The GMU students have the highest expectations for the quality of education and the creation of conditions for personal development by the university (1.6 each). Apart from that, they expect to be provided with access to teaching materials; creating material study conditions (library, reading room, etc.), help in solving student problems (including social problems), support for student entrepreneurship (1.7 each) and access to internships and studies abroad (1.8). They have relatively the smallest expectations for university support for student volunteering (2.0), university participation in developing individual responsibility; education in the field of human and social values and promotion of civil solidarity; supporting physical development and providing health care (1.9 each).

7 In assessing the importance of studying conditions for students, it was assumed that the number 1 means very high expectations of respondents, 2 – high, 3 – low and 4 – very low.

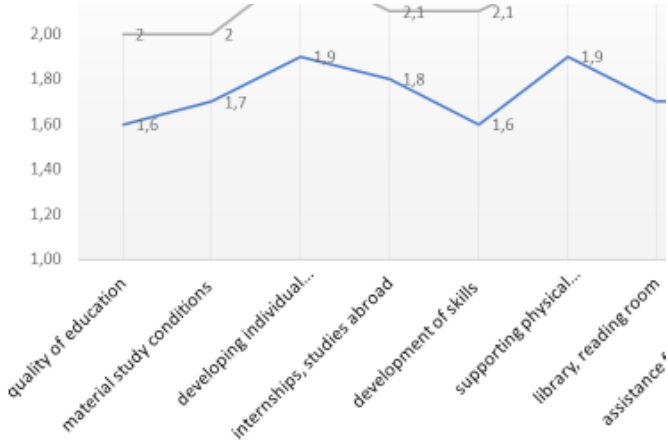

Figure. 3. Expectations of GMU and WUE students regarding study conditions

The WUE students, like the GMU students, first and foremost expect the proper quality of education and being provided the access to didactic materials (2.0 each). What is more, aspects such as internships and studies abroad, personal development, help in solving student problems (including social problems), support for student entrepreneurship and student volunteering are important to them (2.1 each). In third place in the hierarchy of their needs, there was creating conditions for physical development, provision of health care and development of individual responsibility (2.3 each) followed by education in the field of human and social values and promotion of civil solidarity (2.4). The smallest expectations of WUE students concern creating material conditions for studying in the form of a library or a reading room (2.6).

4. Conclusions and discussion

As the research results show, the students of both universities state that the main responsibility of the university is education, i.e., providing educational services of an appropriate quality, consistent with the needs of the market and society. In addition, the GMU students believe that the university should operate in accordance with legal and ethical standards, taking into account its impact on society and the natural environment. On the other hand, WUE students expect that the university will meet the needs of internal and external stakeholders, multiply knowledge, and search for the truth. Such an approach – broader and closer to contemporary views on the essence of social responsibility presented by respondents from Wroclaw – indicates their greater awareness in the area of researched issues, while the opinion of the students

from Gdynia corresponds to a narrow, less frequently used today, traditional identification of social responsibility with ethical activities and complying with applicable law. However, it should be emphasized that regardless of the respondents' awareness of social responsibility, they believe that the basic obligation of the organization results from its essence, which in the case of the university is education.

Despite some differences in the perception of the role of a socially responsible university, the respondents have similar expectations regarding the importance of the areas of its functioning. They pay the greatest attention to human rights, work environment and study conditions. The area connected with environmental protection and problems of the local community is of little significance in their opinion. Such a division may have various causes. The areas listed in the first group are closer to the respondents; they have more knowledge about them because they are sometimes directly related to them (e.g., study conditions). Hence their greater sensitivity to these issues may come from that. A lesser significance attributed to environmental issues may arise, for example, from the fact that respondents do not see a negative impact on the natural environment in the university's activities. The question remains, to what extent are students aware of the level of energy consumption, use of paper, and the generation of garbage by institutions such as universities?

Relations with the local community were also of lesser importance to the respondents. The reason may be a lack of university openness to these issues or a lack of information and internal communication regarding the involvement of the academic community in the problems of the local community. Moreover, the awareness of the role that universities have to play in the implementation of sustainable development principles, even in the group of these universities which, by signing the Declaration, officially committed to taking into account and applying the principles of social responsibility in all areas of activity and disseminating these principles among stakeholders, is not sufficiently developed. This is confirmed by research by Teneta-Skwiercz (2017), conducted in a group of five best (according to the "Perspektywy 2017" ranking), public economic universities in Poland. The research results reveal that the surveyed entities do not fully use their potential in building relations with the local community and in pro-environmental activities. What is more, they are characterized by a low degree of institutionalization and a short planning horizon of activities undertaken as part of the implementation of the idea of sustainable development. This is evidenced by the deficit of the social responsibility strategy as well as the internal organizational units responsible for formulating, implementing and enforcing policies, rules and procedures for realizing the idea of sustainable development.

The obtained results also provided answers to the third research question. It was found that there were differences in the perception of the social responsibility of a university between the students of the researched faculties of the Gdynia Maritime University and the Wroclaw University of Economics. The biggest ones concern the material conditions for studying created by the university (a library, a reading room) – expected by the GMU students, less important for the WUE respondents, and the support for student volunteering – the least important for the respondents from Gdynia yet expected by the students from Wroclaw. Generally, it has been established that GMU students have higher and less diverse expectations in terms of studying conditions than WUE students.

The direction of further research in the subject matter may be the recognition of students' opinions on the actual potential of universities in the field of active engagement in solving social and environmental problems and the role that the students could play in these processes. The obtained results may constitute an introduction to further research on the essence of social responsibility of a university.

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Biographical notes

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GUIDING DIRECTIONS IN SOCIAL ENTREPRENEURSHIP AND INNOVATION EDUCATION: INSIGHTS FROM THE ACADEMIC AND PRACTITIONER COMMUNITY

***Marzena Starnawska*[1]**

Abstract

*The aim of this paper is to provide insights into the views of SE and SI experts on the development of education in these two fields. SEE**2** has been gaining significant interest following the development of this research field. The research is based on the SE and SI ecosystem development projects run by two neighboring cities in Poland. However, literature is scarce in this area, and the empirical work on SEE is almost nonexistent. The research is aimed at identifying key factors conducive to social innovation and social entrepreneurship ecosystem development. In the vein of an inductive approach, the author presents qualitative data from focus group discussions and semi-structured interviews among experts from different settings. Grounded theory methods are used to generate key categories representing educational guidelines in SEE and SIE development in the experts' views. Based on a review of the literature and analysis of gathered data, the author provides key guiding directions for SEE and SIE development. First, the main features emerging from the literature are presented. Next, the research design and key findings are presented. Resulting from the analysis five third order codes are identified: diversifying, constructing contextually, engaging, relationship building, disseminating; which in the end are encompassed by the main category of 'understanding.' The findings show that SEE cannot be limited to a business school environment and should extend to other fields. This includes the incorporation of experts and academics from other disciplines. Also, an educational model should be constantly redefined to respond to local stakeholders' needs and problems, and academia should include community and other stakeholders. An engaging approach in an educational setting draws attention to the practical implications in educational contexts, and emphasizes*

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2 In this paper, the author refers to following acronyms throughout: social entrepreneurship (SE), social entrepreneurship education (SEE), social innovation (SI), social innovation education (SIE).

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the exposure of SEE to local problems and their interpretation. Also, SEE requires significant efforts in promoting the SE phenomenon and the education itself, to gain legitimacy and engage dedicated individuals and organizations.
Keywords: *social entrepreneurship, social innovation, entrepreneurship education, legitimacy, social entrepreneurs, social innovators.*

1. Introduction

The interest in SE and SI education is slowly gaining interests in academia, although some authors (Mirabella & Young, 2012) claim it has a much longer tradition, set in a non-profit management education model from a US setting. In their view SE, along with social enterprise, CSR has been placed under the frames of social purpose management education. Many of the educated 'social entrepreneurs' are likely to land in non-profit organizations and, therefore, there is no surprise that SEE has evolved from the non-profit context. The overarching need for the new skills and competences among citizens is also put forward by the EC (European Union, 2011; Urbaniec, 2016) where it is indicated that: *"To exit the financial crisis and address the challenges of unemployment, poverty, inequality, globalisation and climate change, Europe needs to open the minds of its citizens*". Thus, there is a strong need to apply this approach in SEE and SEI settings.

Although the literature on SE and SI have been so far very diverse and rich (Starnawska & Brzozowska, 2018) there have been three streams in the management and entrepreneurship literature addressing education and learning as responding mechanisms to social challenges: responsible management and entrepreneurship (Kurczewska, 2016; Żur, 2014), CSR education (Popowska, 2016) and SE and SI education (Starnawska, 2018). SEE literature has been very limited in this area, and the majority of the work is set in American contexts. What is more, the empirical studies on SE and SI education are focused on curricula content or required skills and competences (Mirabella & Young, 2012; Steiner et al., 2018). Apart from a few publications, the literature is very limited, based on anecdotal evidence provided by non-profit management, SE and SI researchers (Tracey & Phillips, 2012). In Poland, SE as a phenomenon has not gained sufficient legitimacy (Starnawska, 2016) neither in practice nor in research. So far, the majority of SE education has focused on social economy, which can be explained by the social enterprise models characteristic for CEE countries (Ciepielewska-Kowalik, Pieliński, Starnawska, & Szymańska, 2015), yet there is even less evidence on subjects or degree programmes in SE. Although the research makes distinctions

between SE and SI, considering the limited scope of education in these areas, the author analyses the research problem without making clear distinctions between the two on 'what,' 'how,' by 'whom' or 'where' these should be delivered. Additionally, it has become evident that there is no single best approach to entrepreneurship education (Tracey & Phillips, 2012). Taking these into consideration the paper aims to provide insights into the views of SE and SI from diverse settings and sectors on the important guidelines for development of the education and learning.

2. Social entrepreneurship and social innovation education – key insights

The critical overview of the existing, scarce literature on SE education shows three main streams, reflecting the major focus of empirical research and theoretical discussion. One stream focuses on the skills, competences and attitudes relevant for SEE; another provides distinct educational methods employed in this area, whereas the last stream discusses the setting of SE and SI education.

Among the skills required for SEE, several are proposed. Pache and Chowdury (2012) argue for behavioral skills for bridging competing logics (commercial, public, social welfare). Social entrepreneurs need to be able to act between these. Students in SEE need to become trilingual – understand and speak the logics of the three different sectors. Such ability can enable them to build relationships and partnerships with actors and organizations from different sectors, as discussed later. This requirement is visible in business schools which have moved away from established non-profit management programmes and have got involved in SE curricula development (Mirabella & Young, 2012). This bridging approach should be complemented by critical thinking, for the purpose of making appropriate choices on what logics should be adopted for SE activity. Another study about the importance of competences among SE practitioners in the US (Miller, Wesley, & Williams, 2012) puts the emphasis on: problem-solving, team building, financial capital management, leadership, communication skills, selling skills, strategy development, measuring outcomes, developing collaborative relations.

The need for learning and educating in curricula for SE and SI education has employed and utilized measures and methods 'from' traditional entrepreneurship such as business planning, HR management, finance management. However, Westley (2012) notes that there is a scarcity of focus on how social entrepreneurs can handle these when dealing with government or non-profit organizations. Thus, skills and knowledge regarding resource acquisition, such as social finance for example, together with related risks, is one of the important future

educational paths for SE and SI education, which has not been adequately/ sufficiently introduced into educational and learning curricula.

Regarding the solutions proposed and applied for social problems and addressing social needs, the emphasis on thoughtfulness, consultative and critical approach is suggested (Zietsma & Tuck, 2012). This can be done through considering anthropologist or sociologist skills in designing social entrepreneurial solutions, having effect on social and economic impact, with particular importance to changes in social structures. Zietsma and Tuck (2012) highlight the need of being careful in a 'first, do no harm approach.' Management skills and competences need to include careful consideration of the ensuing impact but importance of soft, intangible skills - sensitiveness (Dees, 2012) is also suggested. The two pillars of business and professional skills (including assertiveness, confidence, action-oriented problem solving), and pillars of listening, empathy, and humility to understand the needs of local community are equally important (Dees, 2012; Żur, 2014). This also translates into the ability of working with the environment – community and stakeholders. For this, people from other disciplines need to join the education – anthropologists, sociologists, and political scientists, to create meaningful social, cultural change. Another important direction in SEE literature emphasizes the role of experiential learning. Brock and Steiner (2009) analyze more than a hundred syllabi in the US on SE and find a common presence of service learning across programmes. This approach fits in to a broader stream of educating through entrepreneurship, where researchers and educators (Kickull, Griffiths, & Bacq, 2010), offer unique SE programmes where students act as consultants for new social ventures. In a similar, engaging vein, Dees (2012) argues for field-based experience for student and when there is no field work – experience through shadowing or volunteering, or internships. Dees (2012) also calls for bringing in speakers and business plan competitions. This goes in line with further proposals for SEE. A number of suggestions for key skills and competences, in particular for students educated to be leaders or entrepreneurs in sustainable development context, are proposed by scholars (Hull et al., 2016; Urbaniec, 2016) referring to the importance of innovativeness, proactivity, engagement and interdisciplinarity.

The educational setting of SEE has an impact upon the skills required. Dees' (2012) historical reflection on his contribution to SEE development in North America shows the effort and struggle for legitimacy SEE had to go through until it was recognized and approved by business school environments. Dees has purported the stance that for further development, SEE needs to go further, beyond to engineering, law, social work or public policy programmes. Research by Mirabella and Young (2012) on the US SE programmes among public policy, religious and business schools shows that

in the latter, there is more reliance on market skills, whereas in schools of public administration a more balanced approach is employed between general management, leadership skills, market, political and philanthropic skills. Considering isomorphic pressures in the SE field and practice, one may expect more convergence in educational curricula though, but this requires time. Surprisingly, the same research shows that very few SE programmes include as a key purpose ethical, responsible attitudes and views, or include people with diverse backgrounds. More focus is placed on understanding market forces and much less on policy, political or ethical issues in SE.

Another issue discussed in the literature refers to the directions for SEE development in the future. Mirabella and Young (2012) debate whether SEE is moving towards either a converged framework across disciplines, as a kind of blended model for future social entrepreneurs and managers of social purpose organizations, or a diverging scenario, where public policy schools and business schools will go in different directions in delivering SEE. Still, the content of the converged programme for SEE can be subject to institutional pressures (Pache & Chowdury, 2012).

Also, there are normative suggestions in the limited and anecdotal literature, about the core focus of SEE and SIE. Westley (2012) suggests that it is social innovators as institutional entrepreneurs, not social entrepreneurs that should be educated. The former has much greater challenges, as they cross boundaries and aim to break or change existing systems. Dees (2012) argues that highlighting social innovation allows a broader impact to be built and involves more people interested in developing innovative solutions to generate and support social change. This discussion shows that it is worthwhile including both SE and SI aspects in the discussion on education in entrepreneurship addressing social problems.

3. Research methods

The research took place during the running of the two SE and social innovation ecosystem development projects held independently in two main cities in one of the biggest regions in Poland. The research aimed at identifying the key factors conducive to social innovation and social entrepreneurship ecosystem development. The guiding research question proposed by the author in both projects was ‘How can social entrepreneurship and social innovation ecosystem be developed in the two respective cities?’ The data was gathered during discussions with expert groups developing plans for such ecosystem development. The expert groups consisted of individuals representing different organizations and sectors: commercial entrepreneurs, social entrepreneurs, NGO managers and leaders, educators and researchers

from educational and research institutions, public administration officers, business angels and impact investors. The data was recorded in two ways: either notes or field notes from the discussion groups were taken during the process of discussion or, participants were informed about the recording of the discussion group and as permission was granted, the recordings were transcribed by the researcher. The first part of the research was the project on 'Social entrepreneurship ecosystem development' which was held between September 2015 and February 2016[3] in city A. Overall, focus groups were held and nine semi-structured interviews were run with social enterprise representatives. The next part of the research was run between September 2017 and February 2018 in city B, during three discussion groups aimed at working out guidelines for social innovation system development[4]. The data from both projects, and observations made during the expert focus group discussions and semi-structured interviews, led to the development of categories acting as guiding pillars for such ecosystem development, which is SE and social innovation education and learning. Each of the discussions was based around the pillars of business, education, public administration, non-governmental organizations, and the broader support environment mechanisms and tools for ecosystem development. The aim of the research presented in this paper was to provide insights into the views of SE and SI experts and other actors on the guidelines for education development in the SE and SI field. The data presented in the paper refers to education and learning pillars in SE and SI education development.

The generated evidence of transcripts and field notes served as primary data has been analysed through the employment of grounded theory analytical methods. At the beginning, first order coding was initiated and the codes were grouped into second-order codes and third-order codes. The data were analyzed with the application the Grounded Theory (GT) procedures (Glaser & Strauss, 1967). The data analyses have gone through constant comparison in two stages; in the first stage, the first, second and third order codes were generated, once each interview and focus group in Project 1 was transcribed. After that, when Project 2 was finished, another round of first, second round coding was employed with new data. The author aimed to streamline the codes into more general, encompassing categories, (Gioia, Corley, & Hamilton, 2012). Finally, the author overviewed, deleted, revised, and added codes applicable to both projects' transcripts. Then the final categories were revised and generated, and the main category was proposed.

3 The author has not disclosed the names of the research projects in these cities, therefore the initial letters are used.
4 The author has not disclosed the names of the research projects in these cities, therefore the initial letters are used.

Table 1. Research methods, respondents and data gathered

Project name and data collection period	Data collection methods Respondents	Data
Project 1 City A SOCIAL ENTREPRENEURSHIP ECOSYSTEM DEVELOPMENT September 2015 and February 2016.	2 focus group: one with experts from public administration, support for SE (8 ppl), another with expert social entrepreneurs (6 ppl) 9 Individual, semi-structured interviews with experts: social entrepreneurs, experts supporting SE development, public admin. officers supporting SE and SI	13.5 hours of recording 15 pages of field notes
Project 2 City B SOCIAL INNOVATION SYSTEM September 2017 and February 2018	3 expert discussion groups including 24 people involved in SE, SI and entrepreneurship development in roles of private investors, commercial entrepreneurs, freelance experts, experts from NGOs, public admin. Officers, university lecturers, high school teacher	8 hours of recording 6 pages of field notes

4. Findings

The inductive approach to the data has allowed the author to generate second and third order codes through the application of GT techniques. This finally led to the proposition of 'understanding' as the key category encompassing guidelines for SE and SI education. Only a selection of respondents' quotes is presented in the paper.

The first presented third order code 'diversifying' (see Table 2) reflects an encompassing approach to the design of SE and SI education. It is important to include educators with backgrounds in variety of disciplines which constitutes variety of subjects to be covered in educational programmes. In this vein, it is acknowledged that, apart from management skills, students need to acquire social skills and empathy development, as emotional intelligence plays a key role. It is also clear that students can contribute differently to SI and SE, as not all of them need to be social entrepreneurs, and therefore learning to "run a relay race" and capitalizing on different skills and predispositions is a natural course of action. Likewise, students come from different backgrounds and this adds to the recognition of the nature of problems in local contexts. The diversity is also manifested in the need to expose students to diverse logics (e.g., market, welfare) and to diverse settings. It also entails a pluralistic approach to research and educational paradigms, through the acknowledgment of more radical and critical stances. Diversifying serves as a valuable introductory code to such as the 'understanding' category.

Another third order code 'constructing contextually' (see Table 2) shows how important it is to de- and re- construct locally, or contextually, when

the design of the SI and SE education is undertaken. This requires both, embeddedness in the local community and a good understanding of the needs, but also a flexible approach, without an unreflexive application of educational solutions imported from abroad.

Next, 'engaging' as a third order code (see Table 2), reflects the necessity and potential of mutual engagement of different actors and organizations in a university context and within a university. First, it seems necessary to recognize the students who have already been engaged in organizations and activities addressing societal challenges. This can also be reflected in the recognition of their diverse backgrounds and experiences. The experts highlight the role of engaging students in the educational process, through ambassador programmes, to build communities of SE and SI support around their university. Also, because some may become emotionally attached to their work, their engagement can be stronger, and then, a careful caring for their actions and ideas should be pursued.

The following third order code (see Table 2) is 'relationship building' which is strongly linked to an engaging and contextually constructing approach. Each university itself, to provide SE and SI education, needs to be a responsive actor recognizing local problems in relationship with other stakeholders (internal and external). A lot of this is possible through mutual trust and dialogue. Local actors and organizations can act as guest speakers, co-design educational programme, and welcome students for internships.

The last third order code, 'disseminating,' generated as an outcome of GT analysis (see Table 2), represents the need to promote SE and SI education, as well as research, since the field has not significant legitimacy in research and practice. This can also induce further interest from candidates for SE and SI programmes and classes. Wise publicity and promotion lead to the recognition of 'doing things that matter,' and making people feel important. This kind of boosting can also work through engaging students in ambassador initiatives.

The constant comparison of generated codes has led to the proposal of the main category such as 'understanding' (see Table 2). This reflects both the on-going process of SE and SI education involving continuous flexibility, relationship building, and the need to promote and disseminate it on different levels among different actors and organizations.

The generated third order codes give a response to Tracey and Phillips' (2012) call for issues that need to be integrated in SE education such as managing your own accountability, managing your own identity and managing the double bottom line.

Table 2. Second-order codes and third-order codes*

	Second-order codes
DIVERSIFYING (Third-order code)	diversity of educators and knowledge
	pluralistic approach to research and education paradigms
	including social skills: empathy
	value nourishing towards meaningfulness
	running relay race openness
	different skills combined
	acknowledging diverse student backgrounds
	combining diverse settings
	combining different logics
	Second-order codes
CONSTRUCTING CONTEXTUALLY (Third-order code)	embedding locally
	flexibility addressing local problems
	Second-order codes
ENGAGING (Third-order code)	engaged students with backgrounds engaging students
	caring for engaged students, nourishing motivation
	caring for students mind-sets execution promise
	engaged, responsible university
	Second-order codes
RELATIONSHIP BUILDING (Third-order code)	engaging other actors and organizations
	building trust and dialogue
	adapting to local actors/organizations needs
DISSEMINATING (Third-order code)	student ambassador-ing
	creating trend; changing the education system
	publicity building; replicating interest of business in SE to business schools
	publicity for attracting students
	making feel important

Source: own elaboration, * quotes from experts' discussion are available upon request, please contact the author.

Table 3. Third order codes and main category

Third order codes	**Main category**
DIVERSIFYING	
CONSTRUCTING CONTEXTUALLY	
ENGAGING	UNDERSTANDING
RELATIONSHIP BUILDING	
DISSEMINATING	

Social enterprise needs to be able to create and manage its own identity, and accountability towards the environment. Exposing students to education in the studied field needs to be comprehensive through the inclusion of skills, disciplines, actors and organization, and to make it responsive to contextual circumstances. It is not surprising that the discussion on the development of SE and SI ecosystems has been intensive and has provided valuable insights on how the local stakeholders to the university need to be engaged in education, and how the university itself needs to expose and engage in contextual problems, as part of the local ecosystem.

5. Conclusion

The findings of the paper manifest a tautological nature of the potential recommendations for SEE and SIE. However, these emphasize the need for a broader and deeper embeddedness of a university in the local community. One of the limitations of the paper is that it does not provide insights into the perspectives of university staff that are performing different roles in educational process. Also, the paper focuses on the context of just one agglomeration, and similar research could be replicated in other settings for validating and revising the categories emergent from the inductive approach. The last drawback of the paper is that it does not provide a historical perspective on the trajectory of social enterprise, SE, SI, and other social issues related to education in Poland. This could serve as an important value added for international readers, for gaining insights into the educational system. Therefore, future research should include a university staff perspective and further projects of a replicative nature should be repeated in other settings. The research aimed at identifying the key factors conducive to social innovation and social entrepreneurship ecosystem development. These insights stress the important need for diversification and related inclusiveness, and also relationship building and responsiveness to the local contexts, as well as the engagement of actors and organizations from the local ecosystems in designing and running SEI and SEE. The paper would definitely have benefitted if other insights had been presented, that focused on non-educational aspects of SE and SI. However, it was the deliberate choice of the author to present data referring to SE and SI education.

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ACCELERATED ENTREPRENEURIAL PROCESS AMONG NASCENT ENTREPRENEURS' EMERGING START-UPS – EXPERIMENTING EXPERIENCES

Marzena Starnawska[1], Ondřej Dvouletý[2]

Abstract

Responding to the new phenomena in entrepreneurship ecosystems in Poland, the authors aim to study the experiences of nascent entrepreneurs in a (pre) accelerator programme for start-ups. ABU3 is a business acceleration and incubation programme, where participants co-live and co-work on their new start-up ideas. The authors analyse data gathered throughout in-depth phenomenological interviews with six nascent entrepreneurs working on their start-up ideas. Employing a rather less common, inductive approach, the authors use grounded theory analysis methods, which is rare in entrepreneurship research. Their results provide 3 key categories that reflect a strong experimentation approach. The findings contribute to acceleration processes literature by providing insights into the interactive and dynamic nature, on a micro level, of individual and interpersonal behaviours among accelerator programme participants based on the study of the (pre)accelerator programme set in an emerging economy context. The practical implications indicate a careful approach to designing acceleration and incubation processes, where and when nascent entrepreneurs take advantage of experimentation, and resourceful attitudes in the entrepreneurial idea development.

Keywords: *accelerator, incubator, nascent entrepreneurship, start-up, experimenting.*

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3 This acronym has been employed to refer to the (pre)accelerator's name.

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1. Introduction

Over the past couple of decades, different supportive measures and mechanisms for business incubation and start-up support have been implemented as part of an entrepreneurial ecosystem, introduced by policymakers, universities and corporations, creating a friendly environment for small business and entrepreneurship development (Skowronek-Mielczarek, 2013; Dvouletý & Lukeš, 2017; Dvouletý et al., 2017; 2018). All these efforts have been aimed at the support and acceleration of entrepreneurial start-up ideas. One of the established ways to support the creation of start-up ventures is the fostering of an entrepreneurial infrastructure (business incubators, science-parks, technology-parks and accelerators). In 2005, the first Y Combinator (USA) (Kowalik, 2014) business incubation solution emerged, focusing on the intensive process of start-up incubation, such as an accelerator. Whereas incubators have offered a rather hard infrastructure, accelerators provide an opportunity for knowledge-intensive processes based on mentoring, education and networking, during a limited time period (Miller & Bound, 2011). Such initiatives are a novelty on the Polish entrepreneurship ecosystem landscape. The literature offers a limited theoretical framework for analyzing incubator models and their internal processes (Hackett & Dilts, 2004) among the existing and nascent entrepreneurs involved. The literature mainly focuses on macro or mezo, i.e. the organizational level of incubator models. However, little is known about the processes among their participants: beneficiaries and supporters in the business incubation process within these models, and related processes and behaviors which constitute a research gap. The findings from the inductive study presented in this paper are the result of an attempt to explore and provide insights into the experiences of participants of a business accelerator programme ABU, run in city T, one of the biggest cities in Poland.

The paper is structured as follows: in the first part, there is an overview and comparison of the different incubation and acceleration initiatives that are presented, including their origins. Following that, the author provides the background to the ABU pre-accelerator programme. In the fourth part, the research methods employed are presented and in a further part the data is analyzed and conclusions follow.

2. Business incubation and acceleration initiatives

Business incubators, technology parks, have for a long period served as supportive measures for start-ups and business incubation[4]. Recently,

4 In Poland incubators have grown in significant numbers since 1995-1996. The first incubators were started in the early 90's as a part of a World Bank development programme for small scale entrepreneurship. The most recent data from 2014 shows there are 93 incubators (academic, technological, entrepreneurial) altogether in Poland (Bąkowski & Mażewska, 2014).

reflecting the new tendencies in the global landscape and in particular in North America, new means for supporting start-ups emerge such as business accelerators and co-working spaces. The USA and, in Europe, the UK, as well as Israel, show leadership in the number of accelerators (Kowalik, 2014; Gutkowski, 2016). As for Poland and other neighboring CEE countries, there are still few, there is no official register of them, and they vary in type and approach (See more: Battistella, De Tooni, & Pessot, 2017; Dee, Livesez, Gill, & Minshall 2011; Kurchenko, 2016. The nominal numbers appear to seem high, as many incubators claim to be called 'accelerators' (financed from EU funds), but are mainly local governments with a focus on letting out office space to entrepreneurial ventures using redistributed financial support for the applicants (Gutkowski, 2011). Therefore, it seems they do not offer more than regular incubators. There are very few that offer intensive training, mentoring support and financing for enthusiastic people and/or their ideas. The earliest evidence of such are: Y Combinator accelerator started in 2005 (USA), followed by TechStars with VC funding (USA), Dreamlt Ventures that have spread from the USA to Israel and other countries, and Seedcamp or Oxygen Accelerator (UK) (Kowalik, 2014)[5]. The most recognized from Poland are Startup School, Smart Space[6], and Business Accelerator[7]. There are also other accelerators 'imported' from Silicon Valley such as Founder Institute, Innovation Nest Fund or the ones founded by large enterprises such as Orange Fab previously founded in France and the USA, Idea Bank Business Incubator, as well as Hub:raum by Deutsche Telekom.

As accelerators are a young phenomenon in entrepreneurship ecosystems in Poland, these vary in foundations, types, support schemes, and constitute quite a heterogeneous group. Therefore, some conceptual confusion exists when differentiating between incubators and accelerators in particular. All these are designed for supporting start-ups and their founders but accelerators aim at a higher speed processes. Start-ups have begun to recognize the importance of connecting, collaborating and networking, as essential to success. Both incubation models, accelerators and incubators, aim to facilitate interaction between entrepreneurs and their environment. But accelerators offer knowledge and some minor capital (such as seed capital) transmitted through interactions and training with mentors and experts. Accelerators do not have formal procedures regarding project recruitment. They focus mostly on younger and/or nascent entrepreneurs, university graduates, and with entrepreneurs who have limited professional experience. They offer insightful feedback and support for idea development, and at the end of the programme

5 Currently there are approx. 213 accelerators recognized all over the world. See more Pauwels, Clarysse, Wright, and Van Hove (2016).

6 Founded by Toruń Technological Park.

7 Founded by Cracow University of Economics.

choose the most interesting projects for further VC or business angel financing. The natural process is that the idea or project is intensively developed, may receive accelerator capital or may reach a pivotal point, where it is significantly modified or rejected. Accelerators are compared to business schools, where the learning and reflecting process runs at a faster speed (Gutkowski, 2011). Accelerators are more dynamic, intense measures for business incubation. In the next part of the paper, the main features and ensuing differences between business incubators and accelerators are summarised (Table 1). In accelerators, there an application process is required, applicants are accepted in cohorts and participants work on their start-up idea for approximately 3-6 months. Small office workspace is offered for teams, and ventures can expect minor seed capital in exchange for the equity. The start-up founders can rely on mentoring from experienced experts, entrepreneurs and investors, and this varies in response to the accelerator programme participants. They can benefit from both formal and informal networking processes. They are also introduced to a variety of resources such as the aforementioned investors or mentors. Although business incubators offer working space, they also provide infrastructure, and some business development services such as legal, accountancy, marketing, intellectual property training and advice, and can be used on ad-hoc basis. The mentorship for business ideas and start-ups is minimal if not non-existent. They usually host residents for longer periods, between 1-5 years and recruit them on an ongoing basis. Incubators may expect a small equity in exchange for a low or no fee for their benefits (Stengel, 2016). Implicitly, both models provide networking opportunities, that can end up in collaboration or mentoring.[8]

These incubation models are similar in the sense that they provide working space, training and mentoring for start-up founders and their new ideas, and also to a limited extent, they provide some financial capital. The networking and collaboration opportunities arise, thanks to the common space, where participants and entrepreneurs work. However, in the accelerator, this process is more intensified, and what the author shows in the case of the pre-accelerator ABU programme described later in the paper, the co-living aspect provides a ground for community development. In this way, the ABU environment is a unique example of an entrepreneurship ecosystem element with the potential for organic development.

8 In Poland, there are around 258 co-working spaces registered in on-line data base (these include small office work spaces as well as large ones). Retrieved 1 December, 2017, from http://www.coworkingpoland.pl/

Table 1. Comparison between accelerator and other incubation models

	Incubator	Accelerator	ABU* (pre)accelerator
Duration of support/ stay	1-5 years	3-6 months	3 months, negotiable
Intake in groups	no	yes	yes
Selection	non-competitive	competitive, in cycles	competitive
Start-up stage	early; late	early	early
Education, training	ad hoc, human resources	seminars, workshops	seminars, workshops
External, standardized services	legal, accountancy	no	no
Mentorship	minimal	intense, by self and others	intense, by self and others
Start-up location	on-site	on-site	on-site
Participants'/ entrepreneurs' residence	off site	off site	on-site

* This model is presented in further sections of the paper

Source: Cohen (2012).

3. ABU accelerator – background and guidelines

ABU[9] was founded in June 2015 by entrepreneurs operating in city T, who had worked and operated in different enterprise development organizations and networks, and who had also had significant own-business development experience. ABU calls itself interchangeably a pre-accelerator or accelerator, as the program prepares the participants and their ideas to the actual acceleration, which involves further significant funding and idea development. However, the former – pre-accelerator seems more adequate, as it does not reflect the whole acceleration process. ABU was founded by seed-fund but is co-run by Business Incubator, a local foundation established in city T. Entrepreneurs from the seed-fund have been involved in entrepreneurship ecosystem development in the city for a long time. The initial assumption for ABU was to run it as a non-profit venture, supported by the vast network of private investors and local authorities within the city.

ABU is located on the site of a former military training and housing estate that has been transformed into an up-market residential area over the last couple of years, surrounded by cafes, restaurants and clubs. The venue is located in one of the central spots in the city, with good links to transport and shopping centers. On the infrastructure side, ABU itself consists of 16

9 The authors do not provide the reference for the (pre)accelerator website for the purpose of not disclosing the name.

micro-apartments for 1-2 people charged at a rate of 400 Euro per month, and the participants of the ABU accelerator programme can stay for up to 3 months (although an extension to 6 or even 9 months is possible). ABU is the only co-working and co-living space in Poland of its kind at the moment and therefore serves as a unique mechanism for entrepreneurship development and acceleration at the same time. There are around 11 co-working spaces in the T[10] city area (O4 business center, Business Inkubator "Starter") but none of the spaces country wide offer co-living opportunities. The idea is based on four COs: co-living, co-working, co-habiting and co-development. The distinguishing feature is that participants of the ABU accelerator programme live in the same place at the same time.

Potential participants apply through the ABU website, where they need to provide some personal contact details and explain their interest. The ABU team invites selected applicants for a short 15-20 minute interview, either face to face or on-line. Applicants from all over the world are welcome to apply and, based on the number of available apartments, around 16-18 people are chosen to join the programme. Some ABU programme participants can be involved in the whole programme without the need to be residents of the ABU micro-apartments.

Participants of the programme may be experienced entrepreneurs, or people looking for a business idea, or people with some undefined business idea. The selection criteria are not strict, and the potential residents need to express their interest in joining the ABU programme. It is natural that with time some ideas are given up on in the programme while others are taken on. Some ABU residents decide to join other start-up project teams.

ABU accelerator programme participants are given an opportunity to select a mentor, from a group of experienced entrepreneurs, who guide them throughout the whole programme upon recruitment. Another important element of the programme is the range of workshops and training offered to participants[11] including different soft and hard skills. The 3 month programme is structured between two events. There is an official opening of the programme for a batch of new ABU programme participants, and a final event, where they present their progress and make their pitches to compete for an ABU grant of 20,000 PLN. Some selected ideas are also invited to a further acceleration process and support by the Seed Fund, that has received a public grant from the National Centre for Research and Development programme called "Bridge" for accelerating measures, and also for giving small grants to ABU

10 The location of the ABU accelerator is represented as T city.

11 These are focused on Minimal Value Proposition, Lean canvas, but there are other trainings included, depending on the availability of professionals and experts, willing to support ABU programme. These also include teamwork skills development, presentation skills, social media tools, scaling growth on-line, pitching skills and others, depending on availability of experts.

winners. So far (as of March 2018) more than one hundred individuals have participated in the ABU programme, and three start-up ideas have received further significant funding for their development.

Table 2. ABU (pre)accelerator programme

(pre)accelerator ABU programme STAGES				
recruitment	ABU first idea pitching first idea pitching meeting and choosing mentors	**workshops/training** **mentoring/advice** *co-living* *co-working* *co-developing*	ABU final idea pitching event final pitching, grant award for a start-up idea - ABU winner	**Alfabeat accelerator, significant seed capital**

4. Research methods

This particular study aims to identify opinions' and experiences from ABU pre-accelerator programme participants. Five in-depth, open interviews, took place between June and November 2016, as well as three IDIs were run with ABU founders and managers. The author has used an inductive approach to data collection and analysis. The selection of the ABU programme participants was non-random, and based on snow-ball recommendation, which in the end covered participants from the first, second and third batch of the ABU programme. The planned IDIs turned out to become phenomenological interviews (Kvale & Brinkmann, 2011), as the interviewees openly and eagerly shared their experiences, and made sense of their working and living experiences at ABU. Therefore the main aim of the presented research is to provide insights into the ABU programme participants' experiences. Altogether, based on the interviews, 83 standardized pages of interview transcripts were prepared and used in the data analysis process.

Table 3. ABU accelerator programme participants and their start-up idea profiles

participants	entrepreneur profile gender/age	start-up status while in ABU	Start-up idea profile at arrival
(tg)	male, approx. 25 years old	nascent entrepreneur	disposable endoscope; investment fund
(jt)	male, approx. 25 y.o.	potential nascent entrepreneur	business intelligence services
(js)	male, approx. 25 y.o.	experienced entrepreneur	online sale of second-hand clothes
(pb)	male, approx. 30 y.o.	potential nascent entrepreneur	box game room "Machinaroom"
(mw&sc)	males, approx. 20 y.o.	entrepreneur	advertising agency for small firms

Having gathered rich textual data, the authors decided to analyze it with the application of the grounded theory procedures (Glaser & Strauss, 1967) which is still not very common in entrepreneurship research (Glinka & Gutkova, 2012). The authors employed open coding in first stages of data analysis, then these codes were allocated to second order codes and the 4 key categories were generated and proposed as the outcome of the analysis.

5. Empirical findings

The following key categories that emerged as the result of data analysis were: doing business at the same time, making do with what is at hand, benefiting from the unexpected and the challenging, and risking the acceptable.

The first category that emerged throughout the analysis is related to 'making do with what is at hand.' This category strongly converges with the concept of bricolage, as the author used this analytical-theoretical code to encompass a variety of resources: be it human, physical, knowledge, symbolic ones, to progress with idea acceleration, revision, or to turn on the pivotal point to start the start-up idea from scratch again, based on what resources are at hand.

Another key category 'Benefiting from the unexpected and the challenging' emphasizes developing ideas with the approach that makes efforts to take advantage of the unexpected, at times challenging situations. Participants are aware how little time they have to work on their idea, and want to "squeeze as much as they can" out of the circumstances. ABU infrastructure is designed to make them work together, and despite some level of dissatisfaction with training and workshops they make the most of it by talking to trainers and collaborating with them, for example.

Table 4. Making do with what is at hand category

Quotes	Second-order categories
"Together with other ABU managers we discussed, for a lot of time, how we can combine the two organizations, we decided to create some common value there" (mw&sc); *"When you were there, you could really, (…) squeeze out of people a lot. Nobody was offering the help aloud, but nobody was refusing it either"* (js); *"You only needed to go ask anybody and they said "*I do not know, you just need to ask one of our mentors, because this guy knows the stuff"*"* (js); *"There is this list of mentors, hanging on the wall here. (…). But we now know, who we can really can turn to when we need to pick somebody's brain*" (tg)	benefiting from others' availability
"*The idea was that they know how to use endoscope and what can be done to improve their quality, but they know nothing more. They did not know how to manufacture that, how much it costs, what the sales will be like. Therefore I decided to join this project"* (tg) *"We also had some people here, who joined ABU without any clear business idea, they basically joined others (…) this is how it can work as well"* (tg)	generating ideas while combining people
*"We have had these alliances here, when mentors opened the doors, they proposed their own resources to be used for free "*hey man, I have some free software development hours so I will ask my engineers to do it for you"*"* (tg)	mutual help and mutual resource sharing
"When we have people with similar attitudes here, it is important because you can go for lunch together, do anything together, and when you spend time together, we have all these chats and you can "mince" a lot with them. It is a great value, it is a great energy that pushes you forward , it is just here" (tg)	feeding on the community energy
"It struck me, that when I told others that I am in ABU, they started to give me more recognition, from then on, I have tried to leverage my ABU residence wherever I am. I knew it is gonna build up my status, my image" (jt)	leveraging on the symbolic capital

The third category is 'risking the acceptable.' It seems that the researched participants secure their backs by doing some part-time jobs, and they do not entirely commit themselves to the start-up idea development. At the same time they risk only what they can afford and to do so, they experiment in a close environment – where they can receive negative feedback, do not purchase necessary equipment, use what is at hand.

The findings on the experiences participants of ABU programme show, that their experiences are not only an outcome of deliberately and externally designed acceleration process. It is vivid, that many of these processes emerge organically, as a result of embeddedness in the small community, responding to the call for further insights on the contextual nature of entrepreneurship.

Table 5. Benefiting from the unexpected and the challenging category

Quotes	Second-order categories
"We had this guy here, the movie maker. He tells us this and that, but none of this is relevant for me, so I approach him and try to squeeze as much as I can out of him" (jt);	capturing value from seemingly irrelevant
"*So there was this lawyer who spoke nothing relevant to our business line, but at the end, we took over the reins, and we started asking him about reaching his own customers (…) we are working with him now*" (mw&sc)	utilizing new contacts in unexpected ways
"*At the beginning this kind of disapproval expressed by fellow mates was kind of problem. (…) it was not directly expressed. This discomfort, was the biggest advantage for me, because I had to keep trying to move on (…)*" (jt)	taking advantage from negative feedback
"*I did not expect these rooms to be so small, but the cleaning was quick*, (…)! *Other people complained about the wooden seats in the co-work room, but you know I told them* "are you here to sit on your a…. comfortably or to develop your business, man?" (pb)	benefiting from co-living context

These vary: from networking, via alliancing between inhabitants and programme participants, to devoting individual time and knowledge to supporting others in the community among ABU programme participants.

Table 6. Risking the acceptable category

Quotes	Second order categories
"*People, in general, are afraid to lose their reputation, when they put forward something controversial, or propose some kind of alternative solutions. Co-living (…) people know you, on personal and professional level, so there is a lot of comfort in the conversations*" (jt)	not risking professional image in friendly environment
"*At the beginning we did not even have a drill, so I had to use a screwdriver, you know garage job*" (pb)	not having everything, experimenting with items at hand
"*We are at the stage of growing our organization, so moving here saves our time, which is very valuable, improves communication etc.*"(mw&sc)	time investments and commitments made and saved

Source: Own study

Table 7. Third order codes and main category

Third order categories	Main category
Making do with what is at hand	
Benefiting from the unexpected and the challenging	experimenting
Risking the acceptable	

The initial primary purpose of the study, aimed at the evaluation of the ABU accelerator programme through the eyes of participants, naturally employed

a phenomenological approach. The study provides insights into micro-level experiences of programme participants, their activities and behaviors in understanding the process of start-up development. The incubating environment of accelerator allows for speeded up processes of idea development, through multiple experimentations, undertaking affordable risks through facing and embracing contingencies manifested in making do with what is at hand and in benefiting from what is challenging. The natural outcome of the acceleration can equally be further acceleration after leaving the programme, pivotal turn of giving up the preliminary business ideas, joining other members of the community. This is possible thanks to the experimenting approach to the entrepreneurial process of new idea development. A closer look at the incubated and accelerated context, allows the roots and antecedents of new start-ups to be understood, i.e. how the entrepreneurial teams emerge, how resources are gathered, how business ideas develop.

6. Conclusions

This paper aimed to study the experiences of nascent entrepreneurs in a (pre) accelerator programme. Some particular categories feature these accelerated entrepreneurial processes. Previous studies on business incubation models have focused mainly on organizational, incubator model level. However, the nature of the undertaken research is exploratory, and shows deeper insights on the individual and interaction level in ABU. The study shows that such acceleration programmes supporting start-ups, employ schemes that allow for experimentation, collaboration, flexibility and risk-taking, as these recognize the bounded rationality of entrepreneurs and the uncertainty in the environment. The (nascent) entrepreneurs themselves can afford to do so in a friendly and supportive accelerator environment, such as the ABU community, where 'experimenting' mingles with 'real business.' From a practical point of view, business support and government agencies should recognize the natural and valuable process of experimentation approaches.

The authors acknowledge the limited scope of the study, based on phenomenological insights into the experiences of the ABU accelerator program participants and residents. One of the limitations of the paper is that the interviews cover experiences of participants from the first couple of rounds in the ABU programme. Therefore, further research is required on current and forthcoming program participants, which would secure a differentiation in the sample in terms of their background, experience, start-up ideas, and would increase the level of rigor and validity of new findings. It should be noted that this program was researched in the first two years after the launch. Additional

in-depth studies could serve as a long-term approach to the study of the ABU accelerator programme and the ABU community.

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CONSUMER SOCIAL RESPONSIBILITY (CnSR) AND CSR IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

Danuta Szwajca[1]

Abstract

The objective of the paper is to identify the mutual dependencies between responsible consumption and corporate social responsibility in the context of the concept of sustainable development and to build a model of the triad of sustainable development on this basis. On the grounds of critical analysis of the assumptions of the concept of consumer social responsibility and corporate social responsibility, an attempt was made to answer the question of what is the role of consumers, enterprises and the state in implementing the principles of sustainable development. The results of theoretical considerations made it possible to conclude that responsible consumers, as the key stakeholders of an enterprise, can effectively stimulate its social responsibility, while a socially responsible company can shape and support the development of responsible consumer attitudes, while pursuing both its particular interests (i.e., satisfaction and profit), as well as reaching a common goal for improving the standard of living in the environment that is not degraded. The entity supporting the processes of cooperation between the consumers and enterprises should be the state, implementing the assumptions of sustainable development. In this way, the consumers, enterprises and the state create a triad of sustainable development. The proposed triad model, which is a part of the concept of sustainability transition, may be an inspiration for further research on the stimulators and barriers to sustainable development.

Keywords: *CnSR, CSR, sustainable development, quality of life.*

1. Introduction

The expansive economic activity of a man in the 20th century and the first decades of the 21st century has led to such negative phenomena as

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degradation of the natural environment, depletion of many resources, violation of ecological balance. This is primarily due to the production and service activities of enterprises that subordinate the available resources (material, human, capital) to economic goals, striving to maximize profits. The problem of the negative impact of the business sphere on the natural environment and society was noticed many years ago, which was reflected in the development of various ideas and concepts related to broadly understood corporate social responsibility (CSR), such as: business ethics theory, stakeholder theory, compliance, corporate social performance, corporate citizenship, corporate sustainability (Carroll, 1999).

The negative impact on the environment does not only belong to a productive activity of a man, but also to the sphere of consumption - its level, dynamics and structure. The lifestyle based on consumerism, which currently dominates in highly developed countries, leads to excessive consumption, overload of goods, and, as a consequence, to wastage and increase of waste, which pollutes the environment and reduces the standard of living conditions. Therefore, in the recent years, the representatives of various scientific, political, international and social organizations have moved and promoted the concept of consumer social responsibility. The basic idea of this concept is to postulate a moderate, rational and economical use of goods and promote consumer decisions that take into account ethical values and environmental protection (Devinney, 2006; Caruana & Chatzidakis, 2014; Barnett, Cloke, Clarke, & Malpass, 2011). It also emphasizes the need to strive for sustainable production and sustainable consumption, which favors the principles of sustainable development (see more in Adamczyk, 2012, pp. 177-179).

2. Research approach

The objective of the work is to identify the interrelations between responsible consumption and corporate social responsibility in the context of the concept of sustainable development and to build a model of a "triad" of sustainable development on this basis. The implementation of the objective was based on the use of the following methods: critical analysis of the concept of consumer social responsibility (CnSR), corporate social responsibility (CSR), sustainable development, deduction, synthesis and the construction of theoretical model. On this basis, the concept of the theoretical model called the model of sustainable development triad was elaborated, in which the determinants of realizing the assumptions of sustainable development from macro and micro levels were indicated.

3. The essence and premises of CSR and CnSR concepts

The first type of human activity that triggers changes in the natural and social environment is running a business. Enterprises, in pursuit of economic goals (profit maximization), very intensively and quite egoistically used available natural and human resources for decades, leading to the violation of environmental and social balance (Gorczyńska, 2009). The ruthless competitive struggle carried out in the international and global arena by large, multinational corporations has contributed to the emergence and growth of many serious global problems, such as: environmental degradation, depletion of raw materials, inequalities in access to and distribution of goods, violation of employee rights, use of unfair marketing practices, unemployment, hunger or civilization diseases. The idea of Corporate Social Responsibility (CSR) emerged as a reaction of many interest groups to these problems. In Western European enterprises, the concept of social responsibility has been dynamically developed since the 1970s. The most important factors that significantly contribute to this development include the growing wealth of societies, changing social expectations resulting from increased consumer awareness, globalization and rapid, free flow of information and dissemination of knowledge about the need for sustainable development (see more in Werther & Chandler, 2011, pp. 19 -20).

Consumption is the second important type of economic activity for a man. The technical progress and socio-economic development that has taken place over the centuries, especially dynamic and intense in the twentieth century and the beginning of the 21st century, has led to a civilization of consumption in highly developed countries. The dominant lifestyle is based on consumerism, understood as an excessive consumption of goods and services in relation to real needs, carried out regardless of social, ecological and individual costs (Mróz, 2009). Of course, the notion of excessive consumption is relative, but nevertheless it is the attitude of, called by Fromm, a state of permanent insatiability, which is motivated by the pursuit of an even higher level of well-being, to catch up with better-off people, to impress them, enter a given social group, etc. The problem is that the desired level of well-being resembles a horizon that cannot be reached (Fromm, 1995).

An excessive and irresponsible consumption leads to many negative ecological, social and ethical phenomena. The undesirable ecological effects include increased consumption of resources (especially water and electricity), leading to their depletion, air pollution, food wastage and an increase in the amount of waste, including those difficult to dispose of. The excessive, irrational consumption is also the cause of serious social problems in the form of various types of addictions (from stimulants, drugs, work, shopping, etc.)

and civilization diseases (obesity, hypertension, cancer, anorexia, depression, etc.). Ethical issues concern the fact that excessive consumption in highly developed countries happens more or less at the expense of poorer countries, economically and politically weaker (Aldridge, 2006), and at the expense of exploitative utilization of limited resources, which reduces the development opportunities for future generations (Jackson, 2009).

The answer to these problems and threats is the concept of consumer social responsibility (CnSR), which is a certain analogy to the concept of CSR and derives from it. In accordance with the assumptions of the CnSR concept, the responsible consumer is guided by ethical values and standards in his choices and market decisions; in a deliberate and conscious way, chooses ethical consumption based on personal and moral beliefs (Devinney, Auger, Eckhardt & Birtchnell, 2006). The ethical consumption includes the following forms of consumer behavior: (Bylok, 2016):

- buying and preferring products made in accordance with the principles of Fair Trade,
- boycott and non-buying of goods produced unethically;
- lobbying and direct actions against dishonest and unethical producers.

Adopting the assumptions of ethical (socially responsible) consumption requires a change in the consumer value system based on hedonism, egoism and self-centeredness, into a system dominated by such values as social justice, respect for other people, empathy, joint responsibility for the natural environment and the well-being of future generations.

4. Interdependencies between CSR and CnSR concepts

Corporate social responsibility and consumer social responsibility concern the ecological, ethical and social consequences of consumer decisions. In the case of an enterprise, these are the production decisions (choice of resources and technologies, production methods, means of transport, place of sale, etc.) and refer to the consumer decisions related to consumption (choice of product, method of use, place of purchase, method of disposal of used product and its packaging, etc.). Making these decisions by both entities in the context of social responsibility is conditioned by mutual dependencies. On the one hand, social, ecological, ethical beliefs and resulting consumer market behavior force enterprises to take pro-social actions, on the other hand, the involvement of enterprises in CSR initiatives is accepted and favored by consumers, which translates into their purchasing decisions and loyalty to companies (Pivato, Misani, & Tencati, 2008; Lee & Shin, 2010; Czubała, 2011; Mazur-Wierzbicka, 2015).

The impact of consumers (customers) on the company's behavior and decisions results from the fact that they are one of the key groups of its stakeholders. Through their market choices, consumers determine the sales volume, the level of profit, the overall financial condition and the survival and development prospects of the enterprise (Caputa, 2015). The buyers are also a valuable source of information and inspiration for the company: they provide comments and suggestions about the strengths and weaknesses of the current offer, generate ideas for new products, and through recommendations and dissemination of good opinions about the company, build its positive reputation. As a result, the consumers have much power (mainly economic) and the ability to influence the company, regardless of whether they realize it or not.

The leading possibility for consumers to influence a company in order to drive it to social responsibility concerns purchasing decisions, which are a real way of manifesting the values they trust (Fritsch, 2006). At the same time, the non-use of products (their boycott), that are harmful to the environment, difficult to dispose of, produced in violation of ethical principles or human rights, discourages the producers to manufacture them.

Another form of consumer activity is the expression and transmission of remarks, comments and opinions about products and producers through various communication channels. Excellent opportunities in this regard are created by the Internet and modern media (especially social media), thanks to which the users have a wide access to many sources of information, too easy and quick exchanges of experiences and opinions. Consumers-netizens can create strong opinion-forming centers and pressure the groups in the network. Consumers are turning into prosumers, better educated, aware of their rights and the power to influence the decisions of even powerful, global corporations.

The next form of consumer influence on the pro-social orientation of enterprises is the activities of organizations and associations within consumerism - a movement initiated by J.F. Kennedy, who established fundamental consumer rights towards sellers (right to security, information, choice, opinion, etc.). Consumer organizations undertake many different initiatives and lobby for the establishment of standards favorable for the buyers and legal regulations and quality standards. In recent years, the ecological, ethical and political problems, related to consumer protection, protection of health and consumer protection, environmental protection, support for domestic and local entrepreneurs, are of interest in the area of consumerism. It is also postulated to change the current model of excessive consumption towards sustainable consumption, which results in the development of various patterns of consumption and lifestyles, such as deconsumption, presumption, freeganism, dematerialization of consumption, domocentrism, consumer ethnocentrism, servicisation, Slow Life movement, LOHAS philosophy, etc. (Kiełczewski, 2012).

All these movements and social, ecological, cultural and political trends combined with the dynamic development of information and telecommunications technologies affect the expectations and preferences of consumers who are transformed into eco-consumers, "green consumers", gaining more and more power and influence on corporate strategies (McWilliams, Siegel & Wright, 2006; Lou & Bhattacharya, 2006; Porter & Kramer, 2007; Ofek & Wathieu, 2011). In response to these challenges, the enterprises are changing technologies, developing eco-products, introducing eco-products into their offer, implementing socially responsible investments and seeking social innovations (Mulgan, Tucker, Rushanara, & Sanders, 2007; Nidumolu, Prahalad & Rangaswami, 2010).

Socially responsible enterprises can, in turn, shape and multiply the pro-social orientation of the consumers, thus influencing the development of socially responsible consumption. The activities of enterprises in this respect consist of the use of various forms of social marketing, and above all (Czubała, 2013; Belz & Peattie, 2009):

- ecological marketing (also known as green, environmental, sustainable, eco-marketing);
- marketing of an important case (also known as socially engaged marketing or marketing combined with charity - cause-related marketing),
- ecological and humanitarian sponsorship.

Sustainable marketing is defined as the process of creating, communicating and delivering value to clients in a manner consistent with the idea of sustainable development, environmentally friendly and society-friendly (Peattie, 2010; Martin & Schouten, 2012). The companies implementing green marketing principles offer eco-friendly products, use packaging that is easy to utilize and biodegrade, run social campaigns for a healthy lifestyle and for shaping environmentally friendly attitudes and behaviors. Global corporations such as Johnson & Johnson, Danone Group, Unilever, Epson Europe and Sony are committed to popularizing the idea of eco-marketing, e.g. under the Working Group on Sustainable Marketing initiative (Williams, 2010; Supekova, 2015).

Cause-related marketing refers to the activities undertaken as a part of a comprehensive marketing strategy that integrates the company's core marketing objectives (e.g., sales growth) with the needs of a specific case or charity organization (Dąbrowski, 2011). The research shows that the number of clients is increasing, for whom information about the combination of product sales with social action is a stronger incentive to purchase than discounts, gifts or other incentives (Kozłowski, 2008). This translates into the growing effectiveness of this form of social marketing.

Sponsorship is a form of financial, factual or organizational support by the company of specific sports, cultural events, institutions and social

initiatives in exchange for the promotion of its brand or logo. In recent years, there has been an increase in spending on sponsoring ecological, charitable or humanitarian initiatives (Datko, 2012). This type of sponsorship promotes the idea of social responsibility among consumers and is more effective in this respect than traditional social campaigns in the media.

All the activities carried out by the enterprises are aimed at educating consumers, building their ecological awareness, promoting a healthy lifestyle, and consequently, changing the attitudes and preferences of buyers towards socially responsible consumption. Thus, socially oriented consumers can consciously and effectively influence the increase of corporate social responsibility, and vice versa - socially involved enterprises can shape pro-social attitudes and behavior of consumers (Figure 1).

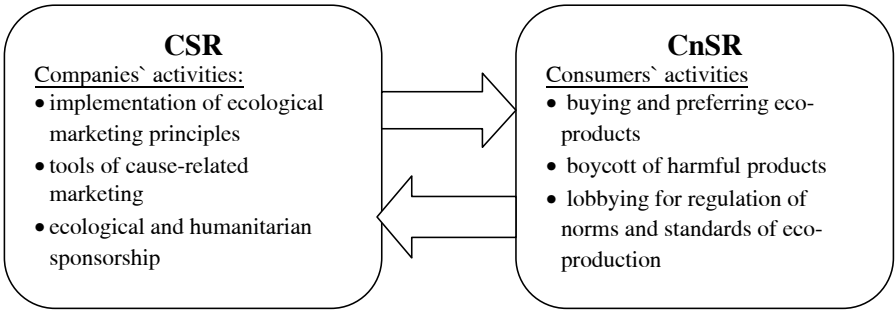

Figure 1. Mutual support of CSR and CnSR

Figure 1 shows only some examples of enterprises' activities in terms of CSR, considered to be the most important ones, and the actions of consumer social responsibility that support each other, influencing the development of both concepts - CSR and CnSR.

5. Actors of sustainable development - the triad concept

The development of CSR and CnSR can be stimulated not only by the interaction of enterprises and consumers but also by the active involvement of the third actor, the state. Governments and public administration institutions have many opportunities and instruments to influence the pro-social activities and behavior of micro-entities in the sphere of production and consumption.

With regard to the enterprises, the state may use indirect and direct impact instruments in the following three areas (Jastrzębska, 2015):

1) Promotion (information campaigns, assistance programs).

2) Legal regulations (formal and legal solutions, green and ethical criteria for public procurement).
3) Controls (supporting institutions regulating and monitoring CSR activities).

In practice, the activity of governments and public institutions in this area is diverse. According to data from the European Commission in 2011, EU Member States use tools that can be divided into five categories: legislative solutions, economic and financial incentives, information and promotion activities, actions supporting multilateral cooperation and partnership for CSR, and hybrid instruments, being a combination of the above (Corporate Social Responsibility, 2014). The most commonly used include development of the national CSR strategy, creation of advisory institutions and CSR promotion centers, initiation of joint projects, implementation of CSR evaluation systems for listed companies, introduction of product labeling systems. Along with the development of the CSR concept, the dissemination of similar solutions in the particular countries is observed. There is also a discussion about the scope and level of state regulation in the field of CSR.

In relation to consumers as members of civil society, the state may use similar instruments, although the scope and effectiveness of their impact are slightly different. In the area of promotion, these are social campaigns in public media, educational programs in the education system, cooperation with non-governmental organizations in organizing pro-social actions and projects, etc. Legal regulations (mainly at the level of local authorities) concern issues such as waste segregation, limiting air emissions, energy and water saving, etc. In the area of control, these are actions supporting the initiatives of non-governmental organizations and local communities in the field of monitoring the condition of the natural environment and taking up intervention actions.

The basic goal of all activities of the state is to raise the consumer's social and civic awareness, which should lead to a change in their attitudes and behavior in the consumption process. In view of the fairly doubtful effectiveness of advertising campaigns in this area (Szwajca, 2015), the specialists on social sociology emphasize the special role of education of children and youth from the earliest stages of education, from kindergarten, through schools and universities, to public institutions and workplaces.

The concepts of CSR and CnSR are convergent with the ideas of sustainable development, and within its framework, with the principles of sustainable production and sustainable consumption. Sustainable development (SD) is a type of socio-economic development in which the process of integrating political, economic and social activities takes place, preserving the natural balance and durability of the basic natural processes, in order to guarantee the ability to satisfy the basic needs of both the modern generation and future

generations. The main principle of SD is to balance the three basic elements of the system that creates the conditions of human life on Earth: economy, society and the environment in such a way, that the development of one of them does not pose a threat to others. SD is one of the key priorities of development strategies of contemporary societies and economies. Sustainable production and consumption mean the use of goods and services that meet basic needs and lead to a better quality of life, while minimizing the use of natural resources and toxic materials as well as emissions of waste and pollution throughout the product or service lifecycle, in a way that does not threaten the needs of future generations and supports consumers in making better choices (UNEP 2010).

The implementation of sustainable production and consumption is possible when these elements are considered as the components of the same integrated system. It is necessary to adopt a holistic approach that takes into account the whole life cycle of products, and the element connecting the products and production systems are products. The production system manufactures the products which are then used by the consumption system, whereas the consumption system generates the products that are absorbed by the production system (Szymoniuk, 2015).

When following the rules of SD, the economic entities can fulfill all three objectives: economic, social and ecological (Table 1).

Table 1. The goals of economic actors within the framework of sustainable development

Goals Actors	Economic goal	Social goal	Ecological goal
Enterprises	profit	consumer satisfaction (customers)	powerful, clean and healthy environment for the next generations
Consumers	meet the needs	prosperity of present and future generations	
State	economic development	a healthy, responsible society	

The company, through sustainable production, may achieve a profit, satisfaction of consumers (customers) - its key stakeholders, and contribute to maintaining an un-degraded environment. The consumer, thanks to sustainable consumption, can satisfy the needs, take care of well-being and maintain a clean environment for the present and future generations. By pursuing a policy of sustainable development, the state seeks to protect the natural environment, "educate" healthy civil society and maintain the pace of economic development, ensuring the improvement of the quality of life. It is worth noting that the common goal for all entities is to preserve a clean natural environment.

The implementation of the SD assumptions, therefore, requires the integrated actions of business entities at the micro level and at the macro level. These three entities: enterprises, consumers (households) and the state create a kind of "triad" of sustainable development (Figure 2).

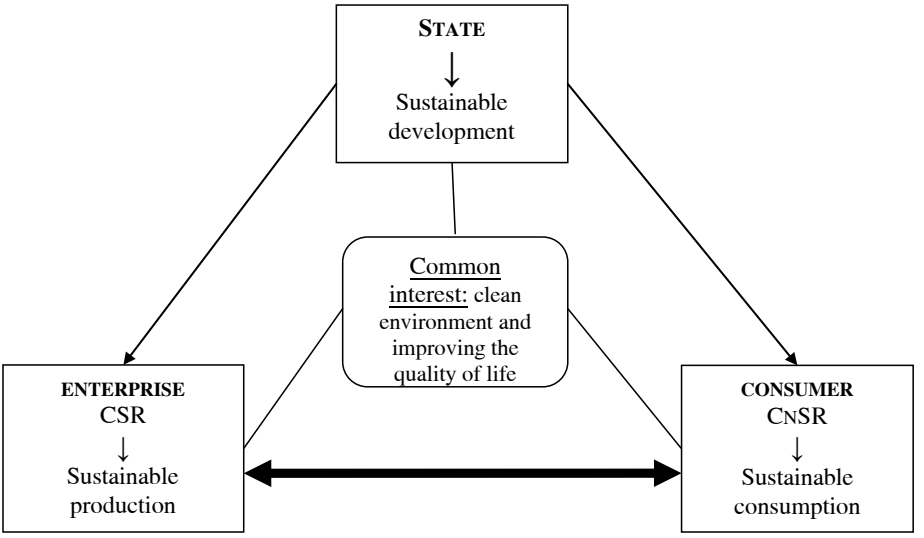

Figure 2. The concept of "triad" of sustainable development

A special role of the inspirer, coordinator and promoter of this process should be played by the state that has the capabilities and tools to influence micro-entities. By supporting the company's activities towards social responsibility and sustainable production as well as promoting responsible and sustainable consumption, the state can effectively influence the implementation of the superior objective of sustainable development, which is to improve the quality of life and maintain a healthy environment, in order to ensure the well-being of both present and future generations. It is worth pointing out the importance of initiatives in the field of public-private partnerships and the functioning of the network.

These three groups of entities, as a result of cooperation and actions in the field of responsible development coordinated by the state, can effectively achieve a common goal, which is a high-performance, healthy and clean environment that creates opportunities for improving the quality of life of both present and future generations.

6. Towards sustainability transition

The presented model of the sustainable development triad corresponds to the sustainability transition (ST) concept, concerning the creation of a new economic model that could meet the challenges of the present era. The need for transformation is justified by the inefficiency of the current economic model, based on striving for the growth of measured GDP, which has led to a deep crisis in economic and financial, ecological and social dimensions (Jackson, 2009; Loorbach & Lijnis Huffenreuter, 2013). The postulated and already initiated processes of system changes concern a multifaceted transformation: from a high-emission to a low-emission economy, from resource-intensive to resource-efficient production based on "clean" technologies, from deep inequalities in the distribution of goods to egalitarianism, from unethical practices to the compliance with ethical standards and the principles of social justice (McIntosh, 2013; Røpke, 2013). According to Røpke (2013), changes in the production and consumption systems are of fundamental importance, especially in the energy production and distribution system, transport system and food production methods.

The ST supporters stress that it is a complex, long-lasting process that requires a coordination of activities in many areas and by many actors (actors). In the dimensional view, implementation of the ST assumptions requires: (Geels, 2013)

- serious reconstruction of the current capitalist economic system;
- "green" industrial revolution;
- "green" growth.

This means the necessity to coordinate the processes occurring in parallel in three areas: economy, technology and socio-economic policy, as well as the involvement of three basic groups of actors: the state (governments, self-government authorities, international organizations) enterprises and civil society (consumers and non-governmental organizations). Each of these groups has a different role to play, using other resources and instruments (Farla, Markkard, Raven & Coenen, 2012). The governments and international organizations have a key role to play in initiating, implementing and coordinating activities, due to their decision and legislative capacity: they should formulate strategies, policies and action programs, create institutional and legal frameworks as well as mediate in the cooperation: the state - business - society. It is worth indicating the effects of the activities of these entities in the form of such documents as: Global Green New Deal (G20 report), Towards Green Growth (OECD report) or EU Europe 2020 development strategy. The task of enterprises is to further implement the CSR principles, developing clean technologies, supporting social innovations within a broader concept of corporate sustainability. The

role of consumers and non-governmental organizations consists of respecting and promoting the principles of responsible consumption, improving the environmental awareness of society, as well as influencing the decision-makers and enterprises through social campaigns and actions.

7. Conclusion

There are mutual dependencies between CSR and CnSR. Socially responsible enterprises can influence the development of pro-social behavior of consumers, using the various forms of social marketing, such as: ecological marketing, cause-related marketing or ecological and humanitarian sponsorship. On the other hand, socially oriented consumers can motivate the enterprises to implement the principles of social responsibility by preferring the ecological, and boycott of harmful products, lobbying for the establishment of standards and norms of eco-production.

An important role in supporting the development of social responsibility of both enterprises and consumers can and should be played by the state, by implementing the assumptions of sustainable development, and within its framework - the idea of sustainable production and sustainable consumption. The state has many instruments thanks to which it can influence corporate social responsibility of enterprises and consumers, from informational, educational and promotional activities, through active cooperation and supporting the implementation of pro-social initiatives to the legal regulations penalizing irresponsible behaviors. The state can, therefore, fulfill an educational, motivational, integrative and coordinating function. In this way, the state can become a kind of "transmission belt" between the sphere of production and the sphere of consumption, as well as be an initiator and coordinator of activities aimed at implementing the principles of sustainable development, creating a triad of sustainable development with the enterprises and consumers. The triad model is a part of the concept of sustainability transition, which concerns the need for a multifaceted transformation of the present capitalist economy and the creation of a new economic system that could meet the modern challenges of civilization.

The proposed model of triad indicates the conditions for executing the assumptions of sustainable development from the micro and macro levels. At the micro level, it postulates the need to create socially responsible attitudes of consumers and entrepreneurs, because it indicates the role and importance of cooperation of these entities towards achieving a common interest, which is an environment that is not degraded, providing development opportunities and improving living conditions for present and future generations. At the macro level, it indicates the role and importance of the state in shaping the

desired behaviors of micro-entities, and also suggests the directions of the socio-economic policy of the state and its bodies in the implementation of the assumptions of sustainable development. As a theoretical construction, the triad model can be an inspiration for empirical research on stimulators and barriers to the development of CSR and CnSR concepts and to sustainable development in cross-sectional terms, including the appropriately selected groups of actors (enterprises, consumers and consumer organizations, state authorities and non-governmental organizations), with the ability to conduct research in various cross-sections: industry, regional and international.

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IV.
BUSINESS AND NON-PROFIT ORGANIZATIONS – SECTORAL AND INDUSTRIAL ASPECTS

STRUCTURAL CHARACTERISTICS OF INDUSTRIAL CLUSTERS: THE ESSENCE AND MEASUREMENT

Joanna Bohatkiewicz[1], Marta Gancarczyk[2]

Abstract

The aim of the paper is to classify and characterise indicators of cluster measurement according to their ability to reflect the structural characteristics of this phenomenon. The article addresses the questions which structural characteristics can be attributed to clusters and which measures reflect these structural characteristics. In the first part of the study, the definitions of clusters were analyzed to identify their structural properties. In the second part, the indicators used in extant research were classified according to their ability to measure structural characteristics of clusters. The article is valuable for systemizing the cluster measurement based on the theoretical foundations of this phenomenon, which gives foundations for future research methodologies that appropriately investigate cluster structural properties and their dynamics. This will enable further in-depth analyses of changes in structural characteristics and of transformation processes within clusters. The study is conceptual and based on literature review.

Keywords: *clusters, cluster measurement, cluster indicators, structural characteristics, industrial clusters.*

1. Introduction

Initially, scientific research focused on clusters related to a resource-based approach and static analysis, emphasising the idea and construction of clusters as a specific form of industrial organization. The evolution of the concept of clusters as geographical agglomerations of cooperating enterprises dates to the

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work of Marshall (1890). Further progress was made in the 1970s and 1980s with the development of the new industrial districts' concept by Beccattini, Bagnasco, Bellandi, Brusco, Garofoli and representatives of the California school of location – Piore, Sabel, Scott, Storper, Walker. Forthcoming research was carried out by Pyke and Sengenberger (1992), Cossentino, Pyke and Sengenberger (1996), Brusco (1990) and Sturgeon (2008). Further development of the concept indicated an attempt to systematise the existing knowledge about clusters by presenting their typology. One of the most important classifications of clusters of that time was proposed by Markusen (1996). Another breakthrough in the evolution of the concept was brought by the research carried out by Porter (1990), whose definition of clusters has become a permanent part of the scientific achievement about this form of industry's organisation. Further research on this phenomenon showed clusters in a broader context, emphasizing hierarchical and heterarchical connections within and outside a cluster. The concept of modular production networks (or modular systems) was proposed by Sturgeon (2003). Later, research on clusters focused on a more dynamic analysis by noting that clusters were subject to constant changes in a turbulent environment. Therefore, studies were undertaken on the evolution of clusters and their life cycle (Gancarczyk, 2010). The functioning of clusters in an international context became the next substantial step in clusters' research. As it was proved, these geographical agglomerations, similarly to individual enterprises, are also subject to internationalization processes (Gancarczyk & Gancarczyk, 2018). Clusters may therefore occupy a certain position in global value chains (GVC), and their position may also change by upgrading or downgrading their position in GVC (Giuliani, Pietrobelli, & Rabellotti, 2005; Gereffi, 2014; Gancarczyk & Gancarczyk, 2016; Dahlan, Samat, & Othman, 2015).

Despite the development of research on clusters, there is almost no discussion on a very important element of measurement, especially in the context of the extent to which indicators of clusters reflect their structural characteristics. The indicators are treated randomly in the literature. The study of clusters is often limited, for example, to the analysis of the number of companies of a specific industry specialization in a given geographical area e.g. without considering the linkages between them. There is a tendency to use reduced models, limited to one main variable, when describing a complex phenomenon of clusters.

The aim of the paper is to classify and characterise indicators of cluster measurement according to their ability to reflect the structural characteristics of this phenomenon. The article addresses the questions which structural characteristics can be attributed to clusters and which measures reflect these structural characteristics. The hitherto achievements and scientific discussion

on clusters is based mainly on the analysis of the dynamics of clusters and their evolution processes. However, to demonstrate a change that takes place within a cluster, it is necessary to define this change by identifying structural elements (characteristics or properties) of clusters and by conducting research on them, define what the change is about. Work therefore fills the research gap by defining structural features of a cluster, as well as by collecting indicators to evaluate changes taking place within the cluster.

In the literature review the essence and structural characteristics of clusters were presented. The definitions of clusters were analyzed, and structural properties of clusters were identified. The common denominator for the definition approaches was presented and structural characteristics of clusters were formulated. The economical reasoning and benefits of clustering were also pointed out. In the second part, measures to identify clusters and to analyze clusters were classified according to their ability to measure structural characteristics of clusters. The indicators were gathered from the literature, official reports of the European Commission, OECD or Eurostat. In the discussion part, the conclusions were made.

2. Research approach and methods

The following research procedure and reasoning were adopted:

- collecting available definitions of clusters based on available literature;
- demonstration of recurrent structural characteristics of clusters, described in the definitions;
- taking the identified structural characteristics of clusters as a reference point in further analysis and research on clusters;
- collecting indicators for analysis and research of clusters based on the literature of the subject in scientific journals and research reports of the European Commission;
- subjecting the identified indicators to characteristics and systematization from the point of view of structural characteristics of clusters;
- drawing conclusions.

The paper has a narrative and conceptual character, based on the narrative review of literature in economics, economic geography, and management that focuses on clusters and regional development. The review included the leading scientific, international journals and public reports in these research areas.

3. Literature review

3.1. The essence and structural characteristics of clusters

The literature review indicates that there are many definitional approaches to clusters. This form of industry organization lies in the scope of scientific interest not only of individual researchers but also numerous international organizations. Some definitions of clusters were gathered and collected in Table 1 below.

Table 1. Definitions of clusters

Source	Definition	Structural characteristics of clusters
Rosenfeld and Stuart (2001)	"groups of related economic entities, representing a specific sector or related industries, located in the same region"	specialization in one or related sectors, geographical concentration
Porter (1990)	"geographical concentration of interrelated companies, specialized suppliers, service providers, companies operating in related sectors and related institutions in specific fields, competing with each other, but also cooperating"	geographical concentration, specialization, business networks based on competition and cooperation
Rosenfeld (1997)	"geographically limited concentration of similar, related or complementary economic operators, with active channels for trade transactions and contacts, communication and dialogue, specialized infrastructures, labour markets and services, and shared opportunities and threats"	geographical concentration, active networks
Muizer and Hospers (2000)	"a cooperation agreement whose strategic objective is to maintain or increase the competitiveness of its participants, the geographical dimension is dominant, but the cluster may also consist of horizontal, vertical and institutional dimensions"	business cooperation, geographical concentration

Source	Definition	Structural characteristics of clusters
Jacobs and De-Man (1996)	"geographical or spatial grouping of economic activities, horizontal and vertical relations between industrial sectors, the use of common technologies, the presence of a central actor and the effectiveness of the cluster are determined by the quality of cooperation between the companies that form it"	geographical concentration, cooperation between companies
World Bank (2009)	"an agglomeration of firms, suppliers, service providers and institutions in a given field which are interlinked and geographically close together, experience external benefits and synergies, such as access to specialized human resources, the dissemination of knowledge and higher labour productivity in view of increased levels of competition"	specialization in related sectors, geographical concentration, business relationships based on competition and cooperation
UNIDO (1999); Główka (2016)	"regional and territorial concentrations of companies producing and selling similar or complementary products, and thus forced to overcome similar problems and challenges. This results in the development of specialized competences and skills, as well as the faster development of specialized and personalized services"	geographical concentration, specialization
OECD (1996)	"production networks of closely related companies (including specialized suppliers), knowledge producers (universities, research centres, engineering companies), bridge institutions (brokers, consultants) and customers linked to each other in the value-added production chain"	business networks, specialization in related sectors
PARP (2016)	"a specific form of organization of production, consisting of the concentration in close proximity of flexible undertakings pursuing complementary economic activities' and 'a geographical concentration of independent operators representing a specific economic specialization, cooperating and competing in the value chain"	geographical concentration, economic specialization, business relationships based on cooperation and competition

Source: own elaboration based on literature review.

It is also pointed out in the literature that clusters are closely connected with a given territory and are regionally integrated (PARP, 2016). Further definitional approaches are proposed by Cooke (2002), van Dijk and Sverisson (2003), Doeringer and Tekla (1995), Fromhold-Eisebith and Eisebith (2007), Roelandt and Den Hertog (1999).

The common denominator for the presented definition approaches seems to be the key structural characteristics of a cluster (Gancarczyk & Gancarczyk, 2013; 2015). These include:

- geographical concentration in a given region, which supports the process of regional and sectoral specialization (Bellandi, 2001; Krugman, 1993; Piore & Sabel, 1984; Porter, 1998; Micek, 2017), due to the fact that cluster members represent the same or related industries (Klepper, 2007; Longhi, 1999; Fornahl, Hassink, & Menzel, 2015; Główka, 2016);
- network connections between enterprises, non-profit organizations, as well as business support organizations, such as universities, representatives of local government units, who support the process of creation and diffusion of innovations (Asheim & Isaksen, 2003; Brusco, 1982; Markusen, 1996; Porter, 2001; Putnam, 1995; Pyke & Sengenberger, 1992; Saxenian, 2000; Gancarczyk & Gancarczyk, 2013).

The condition for identifying and measuring the structural change of a cluster is to determine its essence and structural characteristics. Structural characteristics of a cluster are these elements that characterize cluster, which constitute its essence as a form of industry organization and which are subject to transformations during a cluster's evolution process. Changes in structural characteristics are of a long-term and permanent nature; therefore they are not connected with temporary fluctuations of the economic situation (Gancarczyk & Gancarczyk, 2013). In order to be able to speak of a change in structural characteristics of a cluster, it is necessary first to identify structural changes in the cluster, and then to analyze them in terms of their development. Therefore, quantitative indicators should be used to measure these structural characteristics and to signal their evolution.

It is not without a reason that these two structural characteristics of clusters are identified. Their identification is, in fact, dictated by their economic value. The phenomenon of clusters is important because it describes such an organization of an industry which entails obtaining specific economic benefits. In this context, it is worth analyzing the economic benefits of these two structural characteristics.

The economic justification for clusters is based to a large extent on the benefits resulting from the presence of this form of industry organization in the economy (macroeconomic benefits) and the participation of individual entities in the cluster (microeconomic benefits).

The benefits of geographical concentration, which support the process of regional and sectoral specialization, contribute to the emergence of the benefits of agglomeration. An economic entity being a part of a cluster may benefit from agglomeration advantages, despite the growing economic pressure caused by e.g. market saturation by a growing number of competitors, which would not be possible to achieve by acting in isolation from the cluster. Cluster members may record savings in the scope of transaction costs (Brusco, 1982; Pyke & Sengenberger, 1992), lower transportation costs, economies of scale and scope e.g. due to participation in flexible production systems (Krugman, 1993; Gancarczyk, 2010). The external benefits also include access to qualified employees, specialist infrastructure, knowledge, know-how, information that spills over (Marshall, 1920; 1927; Gancarczyk & Gancarczyk, 2013), participation in the process of production and diffusion of innovations. Access to innovation, knowledge and know-how are now considered to be the most important advantages of clustering (Yoo, 2003). These benefits of specialization imply a certain knowledge base in the region that can cause further regional development.

The above-mentioned benefits of agglomeration result mainly from the geographical proximity and sectoral similarity of cluster members, presence of the so-called critical mass of business entities and bigger level of trust (Gancarczyk & Gancarczyk, 2013). The common strategy or joint projects can further reinforce these benefits.

However, the economic justification for clusters is not only conditioned by its geographical proximity, but also using the potential of the agglomeration through the creation of network connections between entities belonging to the cluster (Gancarczyk, 2010). That is why the second group of benefits, related to network connections, was created.

The main benefit is based on the fact that they support the process of creation and diffusion of innovations. In the case of network connections, there are external benefits in terms of access to information, knowledge and skilled personnel (Marshall, 1920; 1927), economies of scale and scope for cooperating companies in the form of flexible production systems (Gancarczyk, 2010). It can be a source of competitive advantage, resulting from higher levels of trust and reciprocity relationships that go beyond direct business relationships (untraded interdependencies) (Storper, 1995) both in terms of cost efficiency and innovation (Brusco, 1982; Pyke & Sengenberger, 1992; Putnam, 1995; Markusen, 1996; Saxenian, 2000, Porter, 2001; Asheim & Isaksen, 2003; Eraydin & Armatli-Köroğlu, 2005; Molina-Morales & Martínez-Fernández, 2006; Gancarczyk, 2010). These connections determine how innovation is created and how knowledge is disseminated as an external effect (knowledge spillovers).

The creation of network connections in the region is conditioned by institutional thickness (Amin & Thrift, 1994), which refers to the number of companies and institutions in the business environment, and to density (Putnam, 1995), i.e. the number of relations between them. Institutional thickness, density and non-business relations together determine the so-called embeddedness (Granovetter, 1985), i.e. lasting and deepened network connections. It is possible thanks to the conducive, social and cultural structure of the region (Gancarczyk, 2010).

A description of network connections can also be provided by the applied cluster typologies, which describe the structure of a cluster and its connections (Markusen, 1996).

Clusters are considered to be one of the most effective forms of maintaining market position. It is assumed that clusters, thanks to their specialization, effectively generate a competitive advantage in the markets (Yoo, 2003). As PARP (2016) points out, a cluster creates new value for all types of entities participating in it, such as enterprises, universities and other scientific entities, business environment institutions, public administration and other supporting organizations (PARP, 2016).

3.2. Measures to identify clusters and to analyze their structural characteristics

There are many indicators used for identifying and analyzing industrial clusters. However, the studies of changes in structural characteristics of clusters are not conducted in a holistic way in the analyses, using the applied indicators. The measures can be divided into two groups, one for each structural characteristic of clusters.

First group, the measures of geographical concentration and specialization include:

- Location quotient (LQ);
- Gini Coefficient (GC);
- Herfindahl-Hirschman Index (HHI);
- Ellison and Glaeser Index;
- Maurel and Sédillot Index;
- Shift-share analysis;
- Input-output analysis.

Location quotient (LQ) is one of the most commonly used, a relative measure of concentration of a given type of activity (industry) in a research area in relation to the reference area, predominantly a region. It measures the relative importance of the sector compared to the reference economy, usually a national economy (Górska & Łukasik, 2013). Both the country

and the economies of other countries can be used as a point of reference. The assumptions necessary for the application of this method of cluster identification are: an equal level of productivity in the reference area and unified local consumption.

This indicator enables one to identify those areas where clusters, associated according to a common resource, can be identified. Companies in the region, that have a higher level of concentration of the surveyed resource than domestic ones, are potential participants of clusters (Górska & Łukasik, 2013). It is assumed that the higher the level of the LQ indicator, the higher the level of concentration and the more certain it can be that a cluster is present in a given area.

LQ is sometimes calculated for the number of companies from a certain section of economic activity in the research area in relation to similar companies in the reference area. It is then assumed that an LQ value greater than 1.25 means that there are more companies of such scope of expertise in the research area than in the reference area. It is therefore assumed that these companies are members of the cluster.

This coefficient is used in analyses and publications of the European Cluster Observatory, European Commission, Eurostat or national statistical organizations.

It is important to undertake an additional analysis of the stage of development of the industry in order to take full advantage of the LQ index. Emerging industries such as environmental technologies, for example, may have a relatively lower level of concentration than the entire national economy. However, they are likely to become more important sectors of the economy in the future. In the case of younger industries, the cluster will be at an early stage of development. In the case of mature industries, recently established clusters may indicate a new direction that the industry has taken in the course of its development.

LQ can be an initial measurement in the process of cluster identification. It can be very useful if used in combination with different methods, especially with the input-output analysis, which provides information on industrial interdependencies.

The Gini Coefficient (GC) determines the concentration of a given phenomenon and compares the phenomena. It takes values from the range [0; 0.5]. The closer it is to 0.5, the higher the concentration of the phenomenon in the defined area. It can therefore measure the degree of concentration of the number of companies in a given region, indicating the degree of concentration of a cluster. The Herfindahl-Hirschman Index (HHI) is a basic measure of market concentration that estimates the density of an industry and the level of competition in a given market. An increase in the HHI means an increase

in the strength of manufacturers and a loss in competitiveness. It ranges from 1/n, where n is the number of companies in the market for perfect competition, to 1 in the case of a monopoly. The Ellison-Glaeser spatial concentration Index uses GC and HHI, and is an expanded measure of market concentration. For $\gamma < 0$ there is no geographical concentration and the activity is dispersed throughout the country. For γ between 0 and 0.02 one can speak of very low concentration of a given industry, for γ between 0.02 and 0.05 there is an average concentration, and for γ between 0 and 0.05 there is a strong geographical concentration, and the possibility of a cluster being present in the market. The Maurel-Sédillot Index analyses the industry concentration expressed by the HHI. When individual companies within an industry are accidentally dispersed throughout the national territory, the value of this indicator is zero. If the value of the index is different from zero, it is caused only by a concentration within a given industry expressed in HHI. The interpretation of the value of the index proposed by Maurel and Sédillot is similar to that of the Ellison and Glaeser index. Finally, the Shift-share analysis generally examines the level of development of a given area against the level of development of the reference area. For example, it determines whether a region's share in employment or the number of firms in a given industry in the examined region changes faster or slower than in a given industry on a national scale. This indicator separates the impact of factors influencing the development of the industry on a regional level, isolating it from factors occurring on the scale of the whole country. The LQ analysis usually compares the concentration of employment in industry, and the analysis of changes in shares is used to identify the impact of EU-wide and sectoral trends on the performance of regional industry (Górska & Łukasik, 2013; Yoo, 2003). The assumed range of results will depend on the selected variables and the specificity of the studied area.

The input - output method is an analysis of intersectoral relations on a national scale, in which production flow matrices, so-called input-output tables, are used. They present the flow of goods and services in the economy, which depends on the demand for the final product. Literature presents several models in which such links operate, including the Italian district (otherwise the Marshall District), satellite, hub-and-spoke and state-centered districts (Markusen, 1996). They are examined in terms of the links between the organizations, their durability, density and structure. The input-output (IO) model shows the flow of products and services between industries, thus revealing the relationship between them. This makes it possible to identify those sectors where there are potential vertical, resource and value chain related clusters (Górska & Łukasik, 2013). The results of the analysis may lead to the identification of clusters due to the production process in which

they participate, as well as to the grouping of suppliers and recipients of goods and services.

The input-output model is also a useful tool for verifying whether a cluster requires further segmentation. Even if a given level of aggregation is sufficient, it is still useful to identify interrelated subgroups of clusters. A narrower definition of a cluster and its sub-groups means that activities aimed at the development of cluster processes on a regional or national scale will be carried out more effectively (Yoo, 2003).

However, when choosing this method, it is worth remembering and mentioning, after Bergman and Feller (1999), that in many OECD countries the analysis of interaction matrices is based on the analysis of innovation and not on traditional input-output matrices.

Based on the links shown in the input-output table, those sectors which use each other's products are identified and are then grouped into clusters. Data for the OI model are also available for specific countries and for specific years (Hoen, 2000), which facilitates researches as well as data comparability. It is therefore certainly conducive to the widespread use of this method and its usability.

At the same time, several indicators are used to analyze clusters, largely based on the size and structure of employment and the type of business activity. A resource approach can therefore be distinguished, emphasizing the following aspects: human resources - structure, size and their development, "know-how", financial resources, infrastructure, market activity, marketing and PR, communication in the cluster, creating knowledge and innovation, improving the competitive position of the cluster and innovation, internationalization of the cluster, indicators related to regional and institutional conditions, public authorities' policy for the development of clusters, as well as management issues in the clusters. The study "Benchmarking of Clusters in Poland" refers to these criteria (Majewska, 2015). These indicators may be of an auxiliary nature to the ones indicated in this article.

The above-mentioned indicators are used, among others, in the analyses of the European Cluster Observatory, as well as by the European Commission, e.g. in the Regional Competitiveness Index study (Dijkstra, Lewis, Annoni & Kozovska, 2011). The STARS methodology is used and is based on concentration, specialization and, additionally, cluster dynamics measures.

Table 2 below, summarizes the above-mentioned indicators in the context of geographical concentration as a necessary structural characteristic of clusters. The second group of measures is focused on the network connections of clusters on regional and supra-regional level (external linkages). Namely, this group of indicators includes:

- institutional thickness index;

- density index;
- embeddedness index.

These structural characteristics of clusters relate to their potential for growth, may also influence knowledge spillovers as network relationships foster knowledge transfer and innovative activity. All of this may induce an upgrading process within global value chains.

Institutional thickness index calculates the number of participants in clusters. Since one of the necessary characteristics of clusters is the geographical proximity of organizations participating in a cluster, this indicator can also be useful for the analysis of geographical concentration.

Density index which is based on the number of linkages inside a cluster clearly indicates network connections. The higher the index, the better the position of a cluster is to achieve a competitive advantage due to the higher possibility of knowledge transfer and innovative activity.

Embeddedness index is the most complex of all the previously mentioned indicators. It can be calculated as a share of regional connections relative to external linkages in contracts and ties of cluster participants, complexity of transactions implemented or durability of relations. The usefulness of this measure is identical to that of the institutional thickness or density index. Moreover, it can evaluate the matury stage of a cluster, its' position in the life cycle and evolution process.

4. Discussion and results

The range of measures and accompanying methods used in the process of cluster identification is extensive. The variety of indicators means that there is no single way to identify, analyze and evaluate clusters. Additional analysis of measures of structural characteristics of clusters may show the potential in describing there characteristics by different indexes. Some of these measures can help analyze both of the structural characteristics, as presented in Table 4 below:

Moreover, among the measures complementing the quantitative analysis, several qualitative methods can also be used. These methods enable one to deepen the knowledge and understanding of clusters gained through quantitative research. They can also help to verify the results obtained from the quantitative analysis and to refine the final conclusions of the research accordingly.

One of the methods of qualitative analysis is the expert analysis method. It makes use of interviews, focus groups and surveys (Yoo, 2003). It is particularly useful in the case of analyzing determinants of the development of clusters and their change.

Table 2. Measures used in the analysis of geographical concentration as a structural characteristic of clusters

Indicator	Measurement	Usability
Location quotient (LQ)	usually number of companies from a certain section of economic activity in the research area in relation to similar companies in the reference area	level of geographical concentration, analysis of critical mass of entities in a given area, in relation to other area (e.g. nation), identification of cluster
Gini Coefficient (GC)	number of companies of a specific business activity in a given region	level of geographical concentration, critical mass of entities in a given area, identification of cluster
Herfindahl-Hirschman Index (HHI)	density of an industry and the level of competition in a given market	analysis of structure; strength of producers, level of competitiveness, level of density of companies
Ellison and Glaeser Index	number of companies of a specific business activity in a given region and density of an industry	level of geographical concentration as in GC and analysis of structure as in HHI
Maurel and Sédillot Index	number of companies of a specific business activity in a given region and density of an industry	level of geographical concentration expressed by HHI
Shift-share analysis	national growth effect, industrial mix effect and regional competitiveness effect by e.g. number of companies or employment	analysis of network connection between industries, geographical concentration of key industries, level of development of a given area against the level of development of the reference area (also implemented for regional data)
Input-output analysis	analysis of input-output tables	analysis of intersectoral relations on a national scale, network connection between industries, geographical concentration of key industries, identification of clusters (except from regional analysis)

Source: own elaboration based on literature review.

Table 3. Measures used in the analysis of network connections as a structural characteristic of clusters

Indicator	Measurement	Usability
Institutional thickness index	number of cluster participants	network connections analysis, partially geographical concentration
Density index	number of linkages among cluster entities	network connections, potential of cluster to achieve competitive advantage
Embeddedness index	share of regional connections relative to external linkages in contracts and ties of cluster participants, durability of relations, complexity of transactions implemented	network connections analysis, potential of cluster to achieve competitive advantage, analysis of cluster evolution stage

Source: own elaboration based on literature review.

Table 4. The potential of each indicator used to describe the structural characteristics of clusters (*- weak, ** - medium, *** - strong)

Indicator	I structural characteristic: geographical concentration	II structural characteristic: network connections
Location quotient (LQ)	***	
Gini Coefficient (GC)	**	
Herfindahl-Hirschman Index (HHI)	**	*
Ellison and Glaeser Index	*	
Maurel and Sédillot Index	*	
Shift-share analysis	*	**
Input-output analysis	*	**
Institutional thickness index	*	***
Density index		***
Embeddedness index	*	***

As Feser and Luger (2002) point out, the quality of the research depends to a large extent on the number of answers provided and on how experts are selected. The drawbacks of this method include the subjectivity of experts, risk of providing false information regarding the identification of industry clusters and the time-consuming nature of the study.

Another method is that of a graphical-theoretical analysis of the identification and analysis of micro clusters. As already mentioned, one of the key features of clusters is their ability to create and diffuse innovations. Therefore, there are methods aimed at researching this issue, such as graphic

and theoretical analysis. It analyses research and development cooperation between companies, research institutions, universities, government institutions and other entities creating innovations in the region (Meeusen & Dumont, 1997). The network criterion requires two entities to be partners in the same joint research project or to be parties to a research agreement. The most important feature of graphical and theoretical analysis, however, seems to be the fact that it finds a connection between entities conducting joint research and development projects, as well as other types of innovative activity.

Methodologically appropriate analysis and identification of clusters should be characterized by several features.

- It should take into account specific structural characteristics of clusters and specificity related to local conditions.
- It should be a conglomerate combining both quantitative indicators and methods specific to qualitative research.
- It should, where possible, include data based on time series to be able to assess changes in the regional, local and global value chains, if such cluster is a part of it.

Location quotient, Gini Coefficient and HHI best reflect the cluster's structural characteristic of geographic concentration that is associated with industry specialization. The other indicators mentioned in Table 2 complement the analysis as they are modifications of the three mentioned above. It should therefore be stated that the identification of a cluster should include at least LQ, GC and HHI. At the same time, an analysis of network connections should be carried out using all the above-mentioned indicators in Table 3, i.e. institutional thickness index, density index and embeddedness index.

5. Conclusion

To sum up, it should be noted that identification of clusters on the basis of their structural characteristics and additional attributes should not be based solely on one indicator or method. For example, Berman and Feser (1999) point out that the Location quotient does not analyze the interdependencies between sectors. Therefore, in order to identify clusters and assess their structural characteristics properly, it is necessary to use this measure in combination with other measures and methods.

The presented range of measures may be an example of a way to identify industrial agglomerations. At the same time, the analysis should include not only quantitative indicators, but also elements of qualitative research. The natural limitations of each method can be significantly reduced. Thanks to this holistic approach, it is possible to gain a deeper understanding of the specific conditions of the region in which a cluster identification process is carried

out. The process of creation and evolution of clusters is always embedded in the local specifics of a given area, and is a result of social and economic transformations, as well as the influence of institutional factors, such as the activities of local and regional administration, business environment organizations or decisions made at the level of government administration.

The aim of the paper was to classify and characterize indicators of cluster measurement according to their ability to reflect the structural characteristics of this phenomenon. The article addressed the questions which structural characteristics can be attributed to clusters and which measures reflect these structural characteristics. Based on the available definitions of clusters, structural characteristics were distinguished. The indicators used to identify and analyze clusters were systematized due to their ability to measure the structural characteristics of clusters.

The article is valuable for systemizing the cluster measurement based on the theoretical foundations of this phenomenon, which gives foundations for future research methodologies that appropriately investigate the structural properties of clusters and their dynamics. This will enable further in-depth analyses of changes in structural characteristics and of transformation processes within the clusters.

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CONDITIONS AND POSSIBILITIES OF NETWORK RELATIONS CONFIGURATION – COMMUNES' PERSPECTIVE

Marcin Flieger[1], Władysław Adam Janiak[2]

Abstract

The primary purpose of the article is to determine the possibilities and conditions of strategic configuration and evolution of inter-organizational relations, in the context of building abilities for the effective creation of communes' cooperative advantage. At the beginning of the article, the authors present assumptions and different opinions concerning the theory of strong and weak ties, which constitutes the fundament of further analysis. Next, the main elements of cooperative advantage for communes are identified. Then the authors analyze possible strategic configurations of network relations in the context of the adequate creation of strong and weak ties and their impact on each element of communes' cooperative advantage. The scrutiny includes the process of development of the network. Finally, as a practical outcome of the analysis, the authors present recommendations for communes concerning active, concise measures to increase the efficiency of network relationships and, as a consequence, cooperative advantage.

Keywords: *network; public network; network relations; cooperative advantage; commune.*

1. Introduction

Nowadays problems of strategic management are analyzed through the perspective of multi-layered dependencies of different organizations operating in a market. As a result, organizational efficiency is assessed not individually, but in the context of relational approach. It means that the analysis is based on the network relations trend. Taking these aspects into consideration, there appears a fundamental question concerning the possibilities and conditions of

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strategic configuration of network relations in order to increase the efficiency of realized tasks and projects.

Network collaboration constitutes one of the modern ways of creating relationships between units (Zdziarski, 2016). The network consists of knots (in this case - organizations) and relationships between them, which allows added value to be created. The network becomes a very specific sort of collaboration based on horizontal dependences (see more in Łobos, 2000, pp. 98-103; Mitręga, 2010, pp. 88-94; Newman, Barnes, Sullivan, & Knops, 2004). Relationships are not based on subordination. Thus a hierarchical structure is not created (see more in Flieger, 2016, pp. 124-126). Each partner joins the network freely, in the process of searching for mutual benefits (see more in Zimniewicz & Piekarczyk, 2010, pp. 12-24). Built relations allow knowledge, skills and material resources exchange (see more in Downes, 2005; Czakon, 2012, pp. 42-48).

Although in recent years matters regarding the network relations trend are being explored more profoundly, the analysis concentrated mainly on the private sector. Still, there is very little attention put to the question of intentional configuration of a network relations portfolio and its influence on public organizations' cooperative advantage. At the local public administration level, a commune constitutes a basic unit which contributes to economic and social development of a region. Therefore, it is crucial to possess the ability to adjust to the changing needs and expectations of citizens and other beneficiaries. One of the most important aspects of increasing efficiency of realized tasks is the ability to initiate and develop collaboration with other units operating in a region. Most of all, they include non-governmental organizations, private companies and other public administration institutions.

Development of network relations by a commune contributes to building a cooperative advantage. Cooperative advantage is defined in different ways (Kożuch, 2011), but in the paper, it is understood as a benefit which an organization gains thanks to cooperation with other units, and which would not be possible to gain without the cooperation (Huxham, 1996; Lank, 2007). Cooperative advantage contributes to a more efficient realization of an organization's objectives and its development. Therefore, it is vital to create cooperative advantage in an active, well-thought-out way, by identifying and influencing its elements.

However, communes very rarely carry out profound analysis concerning the identification and characteristics of the key elements which constitute their cooperative advantage. Therefore, the authors attempt to determine the possibilities and conditions of strategic configuration and evolution of inter-organizational relations (see more in Stańczyk-Hugiet, 2016, pp. 286-297; Lavie, Stettner, & Tushman, 2010), in the context of building abilities for the

effective creation of a cooperative advantage. At the beginning, the authors present assumptions and different opinions concerning the theory of strong and weak ties, which constitutes the fundament of further analysis. Next, the main elements of cooperative advantage for communes are identified. Then the authors analyze possible strategic configurations of network relations in the context of the adequate creation of strong and weak ties and their impact on each element of communes' cooperative advantage. The scrutiny includes the process of development of the network. Finally, as a practical outcome of the analysis, the authors present recommendations for communes concerning active, concise measures to increase efficiency of network relationships and, as a consequence, cooperative advantage.

2. Research approach and methods

The authors made an attempt to answer the following key questions:

- What constitutes the main elements of cooperative advantage in case of communes?
- In what way may a commune configure and evolve network relationships in order to influence set elements of cooperative advantage in a most effective way?
- What measures ought to be taken up by communes in order to take advantage of inter-organizational network and partnership in an optimal way?

The following research methods were used:

- study of literature - the authors analyzed literature which concerned two major elements: the characteristics of network relationships in the context of embeddedness and its relational dimension; modern trends in managing public organizations in the context of conditions and benefits of participating in public networks and building cooperative advantage;
- analysis of documents and law acts which determine communes' operations and possibilities of collaboration with organizations operating in a region – which determine the phases of the process of achieving network collaboration maturity and, as a consequence, depicting possibilities of configuring network relationships from a dynamic perspective;
- expert interviews with representatives of communes – the information gained contributed to a more profound understanding and systematizing the main elements of cooperative advantage for communes.

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3. Assumptions of the theories of strong and weak ties

The proposed analysis of network relations configuration has been based on the theories of weak and strong ties. The supporters of the strength of a weak ties theory emphasise the unique value of heterogenic and temporal relations, since they allow access to larger amounts of diverse information (Granovetter, 1973). As a consequence, an organization is capable of monitoring changes in the environment to a higher degree, which results in limiting uncertainty and broader possibilities to develop. According to Granovetter, weak ties possess more significant potential to integrate organizations, because in the case of strong ties they are limited to small groups. In a wider context it is underlined that, because of the diversity of the group, weak relations have a positive impact on economic development (Sabatini, 2005). It is also vital to mention that weak ties to a greater degree allow access to partner's knowledge which is perceived as universal and codified (see more in Zdziarski, 2016, p. 663).

The theory of strong ties, on the other hand, explains that strong relations lead to frequent contacts between organizations, and they know mutual conditions, expectations and objectives better. As a result, collaboration is based on trust. In spite of the fact that, within the confines of the network, homogenic organizations do not have access to diverse information, which does not support limiting uncertainty, it is important to stress they have effective communication and a close exchange of information (Granovetter, 1973). Thus, it is strong ties which support adaptation to changes in the environment, since they support collaboration and measures which are aimed at analyzing and assessing external threats (Uzzi, 1996). Among the most vital advantages of developing strong ties is also making it easier to exchange resources, including complex, specific, not codified knowledge (see more in Zdziarski, 2016, p. 663). Moreover, strong relations minimize the risk of opportunistic behavior, which leads to a more secure feeling.

Critics of focusing on strong ties pinpoint a few vital issues. Most of all, strong relations require more effort to develop them, and at the same time, an organization receives less new, diverse information than in the case of weak ties (see more in Stańczyk-Hugiet, 2016, p. 289). Moreover, the network will consist of units which share a similar opinion and possess similar information, which indirectly may influence economic development in a negative way (Sabatini, 2005).

Assumptions of the theories of weak ties and strong ties ought to be related to the concept of embeddedness. Initially, this phenomenon was put under scrutiny in the context of social relations. However, it also occurs in inter-organizational collaboration. The very idea of the embeddedness concept is that the interactions between units (organizations) initially are conditions by

which social relations and economic motivation appear later. Thus, it is the social relations which influence economic decisions, not the other way round (Uzzi, 1996). The stronger the embeddedness of relations is then the higher the trust in partners, and the more visible the tendency to share information and solve problems together is. If we assume that these are the crucial benefits of collaboration and the vital conditions of success, the embeddedness concept tends to favor strong ties.

However, Granovetter reaches different conclusions. He argues that it is the weak relations which constitute the source of the most valuable information for an organization. Embeddedness leads to a strengthening of ties between people (organizations), but the key advantage is that the phenomenon in question increases the probability of penetration of contacts within a network (Granovetter, 1973). This process is called transitivity. If unit A has developed strong relations with unit B, and unit B has strong relations with unit C, there is a high probability that unit A has some relation with unit C. As a consequence, all units will gain access to the same information. In this context, so-called bridges are especially important. They are organizations (or people) which have access to numerous groups having diverse information. Most often, bridges develop weak relations with at least one group from the ones they connect. Thus, weak ties allow fast access to distant parts of a network and contribute to the spread of information (see more in Zdziarski, 2016, p. 661).

4. Elements of communes' cooperative advantage

Before organizations configure network relations with partners, they need to identify benefits (advantages) which they expect to gain as a result of realized ventures within the inter-organizational network. Undoubtedly, the possibility of strengthening *competitive* advantage constitutes one of the crucial benefits (see more in Mitręga, 2010, pp. 88-94; Greve, Rowley, & Shiplov, 2014). However, equally vital is the possibility of building *cooperative* advantage, which constitutes a benefit gained by an organization from collaboration with other units, and which would not be gained if the partners did not initiate cooperation (see more in Huxham, 1996, pp. 15-17; Lank, 2007, pp. 7-9). This benefit ought to be perceived from a comprehensive, multi-dimensional perspective since it consists of various elements. Network relations allow the transfer of knowledge, resources and skills, and access to so-called private information (Uzzi & Dunlap, 2005). Moreover, an organization gains benefits concerning limiting risk (uncertainty) (Borgatti, Mehra, Brass, & Labianca, 2009), strengthening power or market credibility (see more in Lank, 2007, pp. 37-38).

In the case of communes, the main elements of cooperative advantage are:

1) Exchange of information – it constitutes one of the basic benefits of collaboration and it is most valuable in the initial phase of building relations. It is important to break stereotypes, get to know one another, understand partners' objectives, what conditions affect their operation and what they expect from cooperation. As a consequence, a commune can fulfill beneficiaries' needs more effectively by optimizing the process of providing services.
2) Access to partners' knowledge - network collaboration supports effective knowledge management, which ought to be understood as taking advantage of identification, development and sharing knowledge, in order to create unique potential of human capital. In spite of the fact that the concept should be implemented at both internal and external level, in the context of cooperative advantage the awareness and activity in the external field is vital. It means identification of external sources of knowledge and sharing it with other organizations. This activity constitutes one of the key advantages of being a part of a network. What is crucial, a commune may gain access to both codified and not codified knowledge. Codified knowledge (also called formal, easily accessible) is presented and passed on verbally, in a form of documents, etc. It is easily transferable; it can be registered, stored and diffused. Non-codified knowledge, on the contrary, stems from workers' experience and skills. It is individual, intuitive, and the possibilities of its transfer are limited. Access to different sorts of knowledge makes inter-organizational network relations especially valuable. Although the knowledge management concept is well known and exploited by private organizations, because it constitutes one of the crucial conditions of building competitive advantage, it is often neglected by organizations from the public sector. Therefore it is so important that initiating and developing network collaboration with other organizations supports effective implementation of the concept. However, to make it possible, sharing knowledge must be supported by an open communication system. Communes need to identify the best possible and most effective channels with partners, making sure that the flow of knowledge is not constrained. Only in this way is there a chance that a coherent, multilevel knowledge management will contribute to building cooperative advantage.
3) Flexibility and innovativeness - flexibility is defined as a capability of adjusting to changing conditions. It can be analyzed from two perspectives: structural and a decision-making process. The first one seems crucial in terms of taking advantage of inter-organizational collaboration. Structural flexibility means the ability to modify organizational structure, in order to make it more efficient in the process of providing services. Communes' cooperation with

partners from other sectors makes it possible to learn how to take advantage of process structures. Generally, structural flexibility is well developed in the private sector, because private organizations implement business process management (BPM) widely, in search of higher efficiency. The BPM idea is to identify and manage business processes which are realized within an organization. The process orientation leads to considerably more flat structures and responsibilities are delegated to teams which are supposed to manage (plan, implement, adjust and control) each process. The process orientation is rarely implemented by public organizations, which operate mostly in a functional paradigm. Inter-organizational collaboration allows a commune to take advantage of private organizations' experience and make an attempt to identify and develop their own processes. Moreover, a hybrid structure can be implemented, which means connecting identification of crucial processes with a functional approach. This solution seems especially attractive in the case of public organizations. In a wide-perspective, the definition of innovation concerns all fields of an organization's activities and is understood as an innovation for the organization itself, not in a global meaning. Thus, innovative behavior can be analyzed on a micro scale and it concerns the way of accomplishing tasks by a public manager or some unit (team, department) (Henry, 2001). Innovative approach and behavior constitute an extremely important element of cooperative advantage (Vangen & Huxham, 2010), and thanks to inter-organizational collaboration communes gain a chance to learn from partners, adopt new solutions, develop their competences. It is a chance to limit formalization, bureaucracy and hierarchical, rigid structures.

4) Common exploitation of resources – although access to partners' knowledge constitutes the most important and valuable benefit of network collaboration, cooperating organizations also take advantage of other resources, both financial and non-financial. Financial cooperation takes place in more advanced phases of network development when organizations have already got to know one another well and they understand mutual expectations, needs and limitations. In the case of collaboration between communes and private organizations, the so-called public-private partnership seems to be an especially interesting form. It constitutes a collaboration of public organizations and private sector in the field of public services. These joint initiatives enable each partner to concentrate on the element of service which they can do best. In this way, cooperating organizations can take advantage of a synergy effect in a very efficient way.

5) Possibility of realizing common objectives – as was stated above, today the efficiency of an organization is not analyzed from an individual perspective, but in the context of relationships with other units, because organizations (also from different sectors) are dependent on one another. Moreover, often they are able to identify common goals. Therefore, it is so important to be able to cooperate and benefit from a synergy effect. In case of communes, they can find common objectives with organizations from both private, non-governmental and public sector. Mostly they operate in the same region and it results in having to deal with similar problems or supporting similar causes. Cooperation with private companies may have the form of a public-private partnership. Collaboration with non-governmental organizations often focuses on realizing social, sport or cultural measures. In the case of collaboration between communes the character of common goals depends substantially on the nearness of the units. If communes are located directly one next to another, territorial relations constitutes the fundament of collaboration. Often it concerns realization of measures in the field of communal management, common infrastructure or social and cultural initiatives (Provan & Brinton, 2001). For instance, communes can join forces in order to increase efficiency in exploitation of common environmental virtues (e.g., promotional campaigns). In the case of collaboration of communes which are located in one urban area, infrastructural initiatives are very typical. Territorial relations often have a form of agreements, local or regional associations (Thurmaier & Wood, 2002). If communes are located in different parts of a region (in this case territorial relations do not exist), functional issues are crucial. A lack of territorial nearness results in a situation in which the network is joined only by communes which notice some similarities between one another, including common objectives and values (see more in Furmankiewicz, 2002, pp. 12-13). The goals may concern economic or social issues, similar environmental advantages or projects in the fields of sport or culture. This sort of cooperation is especially valuable from the point of view of creating and developing network relationships because the main reason for initiating cooperation is to benefit from sharing knowledge. Thus, possibilities of realizing common goals are very much dependant on possible forms of cooperation. Summing up, network cooperation between communes may be financial or non-financial. The first one is more typical for neighboring communes; the latter one dominates in cooperation of units which are not located next to one another. Then there is a distinction between local and trans-territorial networks (see more in Camagni, 1995, pp. 195-211). Local relations favor the realization

of social, economic and cultural initiatives, whereas trans-territorial cooperation is often more formal and based on functional benefits.

6) Building the competence of public managers – the competence in question is defined as public manager's knowledge, experience and skills allowing the achievement of organizational objectives, abilities of professional behavior, ethical values and a thorough understanding of social matters (see more in Kożuch, 2010, p. 349). Changes in public organizations' strategies, structures and ways of solving managerial problems had an impact on evolution of public offices. It is understood as a change in the way of thinking and organizational behavior of people. It resulted in dealing with tasks and solving problems in a way typical for managerial approach, not only following set procedures and formal rules. In the case of public organizations, it means concentrating on efficiency and economical aspects of managerial decisions. One of the crucial conditions of effective public management is constituted by the so-called orientation for cooperation (see more in Kożuch, 2011, pp. 91-97). Initiation and development of relations with other organizations, from different sectors and with different characteristics, allow public managers to learn and gain valuable experience regarding how a public organization can be managed. Benchmark of private organizations seems especially interesting. They have developed and implemented various effective concepts and methods of management and it is the public managers' role to adapt them to the conditions of public offices. However, public managers ought to obey slightly different criteria. First of all, the ultimate objective is to follow a set of values, including ethical ones, which ought to be implemented by public organizations. In other words, public managers cannot concentrate only on efficiency and economics; they must include social aspects. Furthermore, they need to solve managerial problems in accordance with criteria of political rationality (together with economical rationality). Public managers exploit their own management instruments, which constitute a so-called managerial toolbox. The crucial instruments which ought to be included in the box are project management, quality management, management by objectives, knowledge management, marketing management, outsourcing, participation management, public-private partnership.
7) Building an organizational culture of cooperation – this kind of culture is characterized by looking for mutual benefits of collaboration and perceiving other organizations as potential partners. Organizations attempt to focus on the things which can develop cooperation (similarities), avoiding potential conflicts. Such an organizational culture constitutes a foundation for the development of network relations and, as a consequence, public managers can gain knowledge

and skills (from partners) which would allow them to be more efficient in making managerial decisions.

8) Building trust among a public office's beneficiaries – one of the crucial benefits of initiating and developing network relations is the possibility to get to know one another, to understand partners' objectives and expectations. As a result, organizations have a chance to develop trust in one another, which allows them to strengthen bonds. Exploitation of network relationships increases the quality of public services, which has a direct impact on the way a public office is perceived by its beneficiaries.

5. Strategic configuration of network relationships

Undoubtedly, both the theory of strength of weak ties and the theory of strong ties have advantages and disadvantages. Therefore, it is so important to manage network relationships with partners consciously, in order to influence set elements of cooperative advantage in the most effective way (Head, 2008). Thus, a public office ought to configure network relations strategically in the context of adequate building strong and weak ties. The three basic strategies are domination of weak ties; domination of strong ties; a balance between strong and weak ties.

Taking into account pros and cons of both theories, communes need to analyze thoroughly which strategy would have an optimal impact on particular elements of cooperative advantage. One of the key factors influencing the choice of strategy is how advanced the network is. Creating inter-organizational network is a process consisting of a few stages. Achieving other levels is understood as increasing network collaboration maturity (Flieger, 2016, pp. 89-91). Each stage has its unique specification, conditions, potential benefits and constraints. Therefore, communes must choose a strategy which would match these characteristics. In the initial phase, organizations get to know one another, and they attempt to understand partner's objectives and expectations. It is also the time to break negative stereotypes. As organizations take up common initiatives, relations become closer and trust in partners increases. That is why, from the point of view of choosing the optimal strategy of creating network relationships, the awareness and identification of the process of network development is crucial. There are numerous, often contradictory opinions concerning the most effective strategy. At the initial phase of network development, the domination of strong ties (embedded relations) can be of great value, because it allows access to partners' resources, which often is necessary for an organization to operate. Access to specific, complex knowledge (know-how) is most appreciated. Moreover, strong ties, thanks to

stable relations based on trust, minimizing the risk of opportunistic behavior and give a sense of security. However, as the network develops, strong ties may limit the possibilities of exploring heterogenic resources. Organizations may get stuck in strong relations and this leads to inertia. Thus, after securing access to partners' resources (thanks to strong ties), at another stage of network development, a commune can decide to explore and exploit weak relations, which would allow access to a wider spectrum of information and more diverse resources.

Thus, communes ought to analyze which strategy is optimal in order to influence each element of cooperative advantage. However, the scrutiny must include the context of development of the network. Creating an optimal structure of the network is a process consisting of phases which lead to achieving network collaboration maturity. In the case of cooperation between communes and organizations operating in the region, the process consists of a few general stages: informing, consulting, common projects (local operational initiatives) and strategic partnership (long-term cooperation based on common strategic objectives and values). The above perspective analyzes the possibility of configuring network relations dynamically, in the context of achieving further stages of network maturity. Depending on the implemented changes of strategy (or lack of change) for building a portfolio of strong and weak relations, it is possible to identify the following behavior:

1) In cases where strategy has not changed:
   a) exploitation of relationship of the same type – organization continues taking advantage of relations which were built at the previous stage; the relations are perceived as optimal,
   b) exploration of relationship of the same type – commune acknowledges the benefits of the implemented strategy and attempts to initiate and develop more relations of the same type.
2) In cases of s change of strategy:
   a) exploration of relationship of the different type – the implemented strategy does not allow gaining all planned benefits from network relations, therefore an organization develops another type of relationships which allow them to achieve other objectives,
   b) limitation of relationship of the same type – implemented when an organization believes that the current strategy does not allow set objectives to be achieved; this strategy is often realized together with the previous one (exploration of relationship of the different type),
   c) redundancy – the commune has developed some relations with partners, but at some point it appeared that there was no need to exploit them to the same degree as before. Thus an organization limits gaining real benefits from relationships, but it still

keeps them as a potential source of advantage. In other words, a commune keeps previously built relations but currently does not exploit them for its benefit.

Additionally, it ought to be emphasized that the choice of the strategy of network relations configuration also depends on some processes taking place within a network. The most important processes include:

- transmission – flow of financial and non-financial resources between units (knots) in a network;
- adaptation – units within a network react in a similar way to phenomena and changes taking place in the environment. It refers to both behavior and attitudes (opinions and ways of explaining things);
- binding – some members of a network strengthen ties and, as a result, sub-groups appear. They develop new ways of behavior;
- exclusion – takes place as a consequence of binding; units which strengthen bonds with chosen partners while at the same time limiting collaboration with other members of a network (Borgatti et al., 2009).

Identification of those processes, and assessing in what way they contribute to bringing benefits for an organization, is of great importance. The answer to this question allows optimal relationships with partners (strong or weak ties) to be determined, in order to support chosen processes. Transmission and adaptation are developed and supported mainly by strong ties, based on a profound understanding of partners' operating conditions and mutual trust. However, in the process of creating coalitions (biding), the crucial factor may be access to wide spectrum of information and the possibility of reaching distant parts of a network (thanks to the process of transitivity). In this case, the domination of a weak ties strategy would be more efficient.

6. Conclusion

Taking into account modern trends in public management, leaving the hierarchical paradigm, and stressing the need for flexibility and innovative approach (see more in Kożuch, 2004, pp. 15-18), it is advisable to create relations based on the concept of inter-organizational network and partnership. However, to make the network efficient, there is a need to implement systematic, well-thought-out measures. Regarding communes, they ought to:

1) Identify all elements of cooperative advantage and grade priorities concerning the benefits communes wish to achieve as a result of inter-organizational collaboration – it is crucial for communes to become aware of the potential of network collaboration and in what way it may support them achieving their strategic objectives.

2) Identify organizations operating in a region and assess them as potential partners for network cooperation. The verification ought to include both private companies, non-governmental organizations and other public administration institutions.
3) Assess possible forms of cooperation with organizations operating in a region, also in the context of achieving other stages of network collaboration maturity.
4) Analyze possible relations with partners in the context of creating strong and weak ties – as each theory has its advantages and disadvantages, it is vital to create and manage network relations intentionally. Strategic configuration of the relationships must include analysis of the impact that each strategy (balance or domination of strong or weak ties) has on every element of cooperative advantage.
5) Within the confines of a strategic configuration of network relations portfolio, including the process of achieving other stages of network collaboration maturity – a commune can modify the strategy as it achieves other levels (and forms) of collaboration, in order to influence each element of cooperative advantage in an optimal way.

The abovementioned recommendations concerning the strategic configuration of network relations constitute a fundament which allows individual analyses to be carried out by concrete communes, taking into consideration their unique characteristics, economic and social conditions, needs and limitations. At the same time, however, it is vital to stress that the paper concentrates on a *relational* aspect of the network analysis, passing over potential influence of structural and positional conditions.

The scrutiny presented has a conceptual character, identifying crucial aspects and strategies of building network relationships in the context of their impact on a commune's cooperative advantage. In further research, the authors are going to focus on an operational dimension, identifying ways of measuring the relations (based on Organizational Network Analysis and Dynamic Network Analysis) and their influence on elements of cooperative advantage.

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DETERMINATIVES OF EMPLOYMENT CHANGES IN THE POLISH SERVICE SECTOR BETWEEN 2005 AND 2017

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Abstract

Structural changes are one of the most important issues that market economy countries currently have to struggle with. Additionally, in the economies of many countries changes in their structure are caused by the ongoing third Industrial Revolution. Many of those countries have entered the next phase of structural transformation called economy servitization. A predominant role of services contributes not only to employment growth in that sector, having regard to both the number of employed people and the proportion of workforce, but also primarily to economic development. The importance of the service sector is consistently growing, which translates into a constant search for its complexity and multidimensionality, especially those concerning employment. The article is aimed at characterizing the determinatives of employment in the service sector, including a contemporary concept of the distinction between market and non-market services. The methods used include an analysis of statistical data and econometric modeling. The results show that in the post-accession period employment in the service sector was growing faster than in the economy in general and that a faster pace of employment changes is observed in market services and employment in non-market services is stabilized. The main determinatives of employment changes in the service sector are global demand, level of production and real wages. Additionally, employment in both the market and the non-market service sector is marked by a high dependence on the level of employment in the previous periods, which indicates a delay of labor market adjustments. However, labor market adjustments in the non-market service sector are slower than in the market service sector. Further studies should be aimed at the analysis of the influence

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of workforce mobility and migration's influence on structural changes in employment. The in-depth analysis of changes in respective sections of the service sector, with specific reference to highly innovative services, is also a promising avenue for further research.
Keywords: *employment, services, structural changes.*

1. Introduction

In the modern world economy, the service sector becomes a testimony of economical growth and an indicator of greater effectiveness and also a symbol of wealth and prosperity. Provision of services is necessary for the correct and quick development of economies. All of this leads to economists' continuous interest in this problem.

An economy's servitization is understood as a domination of a service sector in both production and employment and is a natural process noticed in economically developed countries. The process itself occurs in individual countries with a different dynamism. It mostly comes from historical conditioning that decides the rate of transfer of employees from the agricultural and industrial sectors into the service sector. In 2000, employment in the service sector in Poland exceeded 50% of overall employment and had steadily increased since then. In 2013 ca. 55% of the overall workforce was in the service sector, which, considering other countries of European Union, definitely places Poland in the lower half.

The main aim of the article is the characterization of employment determinatives in the service sector whilst considering the modern thinking of its division into market and non-market services. The analysis spans the years from 2005 to 2017 and the authors used a method of econometric modeling for this. In deciding upon that period, the authors, firstly, wanted to summarise the initial period after Poland's accession to European Union and, secondly, to point out what consequences the financial and economic crisis of 2008-2009 had on employment. The authors adopted three research hypotheses. The first one reads: employment in the market service sector increases faster than in the non-market service sector. The second one is: basic employment determinatives in the service sector are production and real wages. The third one is: The Polish service sector is characterized by the existence of the hysteresis phenomenon.

The article is constructed in the following manner. Firstly, the results of the literature review are presented, considering the role of the service sector in the economy and determinatives of employment structure changes. In the

next part, the research approach and the methods used are presented and in the last part the authors present the recount of results of the empirical analysis, formulate conclusions based on that analysis and point to the directions of further research.

2. Literature background

The separation of the economy into agriculture, industry and services**,** which was proposed by Fischer in the 1930s (Fischer, 1935), is the most commonly used in economic literature. The separation was, and still is, used by economists such as Clark (C1957), Foursatie (1954) or Kaldor (1967) and Fuchs (1965), Baumol (1967) to demonstrate the correlation between structural changes in employment, i.e. employees transferring from agriculture through industry to services, and economic development. Having regard to demand factors, workforce transfers to the third sector results from, first, the gradual saturation of market (demand) with agricultural, and industrial goods and, second, increasing demand for transport, financial and real estate-related services. When analyzing the supply concepts of the growth of the service sector, one can state that technological progress has a minor influence on employment in services, due to low work substitution through capital**.** Employment growth in the service sector results from differences in the level and pace of productivity changes in industry and services, and the resulting relative wage increase in relation to the costs of equity funding. (Skórska, 2016; Cyrek, 2011).

In accordance with the concept of the tertiary civilization, the ultimate goal of structural changes is reaching the services employment rate of 80% in general. Currently, in the European Union, that level has been reached by Luxemburg, Sweden, the United Kingdom, the Netherlands, France and Denmark. Employment growth in the service sector has a direct impact on economic development, for work is a basic production factor. Furthermore, due to low vulnerability to fluctuations in production, their growing share in the economy stabilizes the consumption expenditure, thus reducing the amplitude of business cycle fluctuations (Sobotka, 2000). According to Kłosiński (2002) the growing importance of services has several causes:

- the growth of state interventionism and regulations creates the need for using services, including lawyers, accountants, economic advisors;
- the internalization of markets and increasing competitiveness imposes the use of market research and marketing services**;**
- the growing transfer of goods, persons, payments and information in regional and interfirm terms makes it necessary to increase

employment in service sectors including those transfers, e.g., transport, tourism, banking, IT sector;
- growing competitiveness supports the establishment of innovations, designed as part of research and development services;
- knowledge-based economy needs to use educational services;
- the increase in trade means a developing banking and insurance services sector;
- the demand for information is growing, which fosters the development of data communications services.

Changes in the rate and structure of employment in the economy are influenced by many different factors. They primarily arise from the aforementioned long-term development trends, which are characterized by the diminishing role of agriculture and industry in aid of the service sector. Technological progress and the increasing amount of free time determine a rapid employment growth in services. Over a short period of time, the most important employment dominant is the business cycle affecting primarily the employment level, and, to a lesser extent, structural changes.

In economic theory, the issue of determinatives of employment changes was presented by both representatives of classical (neoclassical) and Keynesian economics. According to the neoclassical theory of Marshall and Pigou (Kwiatkowski, 1988), employment grows when marginal productivity exceeds marginal labor costs, which are defined by wage rates. The neoclassical, macroeconomic function of employment is therefore an increasing function of job performance and a decreasing function of real wages (Kwiatkowski & Włodarczyk, 2012). According to Keynesians, effective demand is a basic decisive factor in the rate of employment (Keynes, 1956). The growth of aggregate demand results in production, and thus in employment increase**.** That growth of demand should, therefore, be created and supported by the active state policy. It can be seen that elementary economic theories emphasize two major factors, which determine changes in employment, i.e., real wages and production.

The level of economic development of a specific country affects the structure of employment as well. That level, measured by GDP per capita, is substantially correlated with shares of employment in the processing industry and market services (Śliwa, Waląg, & Tabor 2016).

Determinatives of employment in contemporary economic literature also include a number of economic, technological, institutional, organizational and social factors. Skórska (2016) identifies changes in the structure of employment, which are caused by globalization or restructuring of industrial undertakings. Globalisation influences the reallocation of sources of production factors, including working on an international scale. A growing

network of relationships between economies, an increase in liberalization and market integration encourage that. Work dematerialization and the growing importance of knowledge are other important factors of change. Those elements affect the development of knowledge-intensive services, which is connected with the increase in demand for so-called knowledge workers. Another determining factor of changes in the structure of employment is technological developments, especially the developments in information and communication technologies. Technological development determines creating a demand for new kinds of services and also changing the form of many services (e-trade, e-administration, e-health, e-learning, e-banking). Among the social factors, it is worth mentioning an aging society, a change in consumption patterns and the growing wealth of society (Skórska, 2016). Węgrzyn (2015) also mentions innovations in the services sector as a substantial determinative of structural changes in employment.

The determinatives of the structure of employment may also include the degree of openness of the economy: the more open economy is, the more vulnerable it is to external cyclical factors causing changes in employment. It is also important to note the influence of factors such as work time and labor productivity (Kwiatkowski & Włodarczyk, 2012) and the influence of availability of flexible work forms (Kwiatkowski & Włodarczyk, 2017). On the other hand, Rowthorn and Ramaswamy (1997) emphasize the influence of factors such as differences in the pace of changes in labor productivity, changes in the structure of domestic demand and limitations of investments in the industrial sector.

3. The research approach

The aim of the research is to characterize employment determinatives in the Polish service sector, considering the modern idea of service division into market and non-market services. To accomplish the above-mentioned aim, three research hypotheses were formulated:

H1: In the analyzed period, market services in Poland increased more dynamically than non-market services.

H2: Employment changes in the Polish service sector depend on, above all, factors postulated by orthodox streams of economic thought: global demand and real wages.

H3: The Polish service sector is characterized by the existence of the hysteresis phenomenon.

In economic literature, many different divisions of service sector exist. In the European Union's statistical institutions (Eurostat), the most commonly used is the statistical classification of economic activities in the European Union (NACE). In Poland, the Polish Classification of Business Activities (PKD, 2007) has been in operation since 2008. Through this classification, the so-called section structure in economy is examined, which provides exceptionally useful data for analyzing different types of economic structures, such as the three-sector or four-sector employment structure. Over the last few years, it has also common to describe the structures of economy categories using the Polish Classification of Business Activities (PKD, 2007). PKD-2007 enables the creation of a unique economy structure, which can be described as a "new" economy structure by sections. It is a result of globalization, informational and technological progress and challenges, which are posed to a modern "new economy" based on knowledge, inventions and scientific research. The indicators of these processes are new sections in the PKD-2007 structure, such as "information and communication" or "professional, scientific and technical activity." The detailed presentation of a new section arrangement in the Polish economy is presented in Table 1. On the basis of data included in Table 1, one can find that the overall structure of the service sector was divided into 15 sections, among which eight sections were excluded (sections G–N), while the next seven sections (sections O-U) form the sector of non-market services. This division was used in this research.

In the source literature, many different criteria of division also exist. M. Cyrek divides services into traditional, with low human capital (sections G, H, I in PKD 2007) and into other sections of service based on knowledge, demanding highly qualified employees (Cyrek, 2011). G. Węgrzyn introduces a category of services for knowledge, which composes: professional, scientific and technical activity, information and communication and education. These services are included in sections M, J and P in PKD 2007 (Węgrzyn, 2011).

The first step of the research was the analysis of statistical data concerning employment in the service sector, change in wages and efficiency of the Polish economy. The second step was to research determinatives in the service sector. It was realized using the econometric modeling method. The time fence for that research spans years 2005 and 2017. A time series with quarterly intervals was created. In the course of the research, data exceeding the given time fence was used, as in model delays of chosen variables (delays up to 5 quarters) were considered. In the case of variables, for which the quarterly data were unavailable (FDI), annual data for each of four quarters of the year was used in a given year. Data used in this research come from the Eurostat database.

Table 1. Division of services into market and non-market by sections and type of activity

Market services		Non-market services	
Section symbol	**Type of activity**	**Section symbol**	**Type of activity**
G	wholesale and retail trade; vehicle repair, including cars and motorcycles	O	public administration, national defense; mandatory social security
H	transportation and warehouse management	P	education
I	activities connected with accommodation and food service	Q	healthcare and social assistance
J	information and communication	R	activities connected with culture, entertainment and recreation
K	financial activity and insurance business	S	other service activities
L	activities connected with the real estate market	T	households employing workers; households producing and providing subsistence services.
M	professional, scientific and technical activities	U	organizations and extraterritorial groups
N	activities connected with administration; supporting activities		

Source: appendix to a decree issued by Council of Ministers on 24 December 2007 concerning Polish Classification of Business Activities (PKD).

The analysis was carried out separately for market services and separately for non-market services. The starting point for modeling was the function of employment rate in service as follows:

$$\ln(Z_t) = \alpha + \beta_1 \ln(GDP_t) + \beta_2 \ln(RWage_t) + \xi_t \quad (1)$$

Where:

Z_t – Employment in service sector during period t

GDP_t - Real gross domestic product during period t

$RWage_t$ – Real wage in sector during period t (wage index 2012 = 100)

α – Constant

β_1, β_2 - Parameters measuring employment flexibility toward independent variable

ξ_t - Random constituent

That function integrates two orthodox theoretical approaches to the issue of employment: neoclassical theory, which combines adjustments on labour market with changes of minimal wage and Keynesian theory, which

combines employment changes with changes of effective demand. According to Keynesian theory, when aggregate demand of goods rises, the amount of production in the economy also rises which, in circumstances of unchanging technology of production and constant labor resources, implies an increase in the amount of employment and a decrease in unemployment. However, in neoclassical theory, an increase in wages negatively influences demand and labor which implies a decrease in employment. The combination of these two approaches is commonly used by Kwiatkowski in his works (cf. Kwiatkowski, 2014; Kwiatkowski & Włodarczyk, 2012; Kwiatkowski & Włodarczyk, 2017), and this is also a reason for opting for this method in this article.

The delayed variable was added to this model to take into consideration the potential phenomenon of hysteresis of employment rates in the researched sector. Other potential determinatives of employment level such as efficiency in the sector and inflow of foreign direct investment were added. Foreign direct investments are not usually considered as an employment determinative in the service sector, but the authors decided to include them in the analysis on account of the occasionally postulated (however never clearly empirically proven) influence of foreign direct investments on the creation of new workplaces. Obtained results of estimation will contribute to further research in this field. For that reason the estimated function took the following form:

$$\ln(Z_t) = \alpha + \beta_1 \ln(GDP_t) + \beta_2 \ln(RWage_t) + \beta_3 \ln(Productivity_t) + \beta_4 \ln(FDI_t) + \gamma \ln(Z_{t-1}) + \xi_t \quad (2)$$

Then, to this model, delays of independent variables (maximal period t – 5) were added. Finally, the estimated function took the following form:

$$\ln(Z_t) = \alpha + \sum_{s=0}^{5} \beta_{1s} \ln(GDP_{t-s}) + \sum_{s=0}^{5} \beta_{2s} \ln(RWage_{t-s}) + \sum_{s=0}^{5} \beta_{3s} \ln(Productivity_{t-s}) + \sum_{s=0}^{5} \beta_{4s} \ln(FDI_{t-s}) + \gamma \ln(Z_{t-1}) + \xi_t \quad (3)$$

Where:

GDP_{t-s} - Real gross domestic product delayed by s quarters

$RWage_{t-s}$ - Real wages in sector delayed by s quarters (wage index 2012=100)

$Productivity_{t-s}$ – Efficiency in sector delayed by s quarters (measured as the ratio of added value produced in the sector and the employment rate in the sector)

FDI_{t-s} - Inflow of foreign direct investments (expressed in %GDP) delayed by s quarters

Z_{t-1} - Eployment rate in sector in period t-1

Both of these models (for market and non-market services) were estimated by the use of the classical method of the smallest squares. After an initial assessment of models' parameters it turned out that some of the independent variables are statistically unimportant. To eliminate them the backward elimination approach of stepwise regression method was used. The backward elimination approach initially counts in all variables in the model's construction and gradually eliminates those which do not fulfill conditions of statistical significance (one variable for one step, in sequence of decreasing p). Then the estimation of the model's parameters is again made. The procedure of backward elimination was carried out until all independent variables were statistically significant on a level α=0.5.

Obtained models were verified in substantive and statistical terms. The statistical verification involved: verification of statistical significance of estimated structural parameters; evaluation of model correctness considering its matching to data, measured by adjusted coefficient of correlation. Evaluation of model's permissibility considering the coefficient of residual variation, evaluation of the model's statistical significance by F-test statistics, and evaluation of residuals' characteristics (Chi-squared test, Wald–Wolfowitz runs test, LM test Breusch–Pagan test). Both, the model of market service sector employment and the model of non-market services sector employment were successfully verified in each of the abovementioned aspects.

4. The results of the empirical analysis

According to the neoclassical theory, to be able to identify changes in employment it is essential to compare labor productivity to labor costs. The data concerning changes in variable values are included in Figure 1.

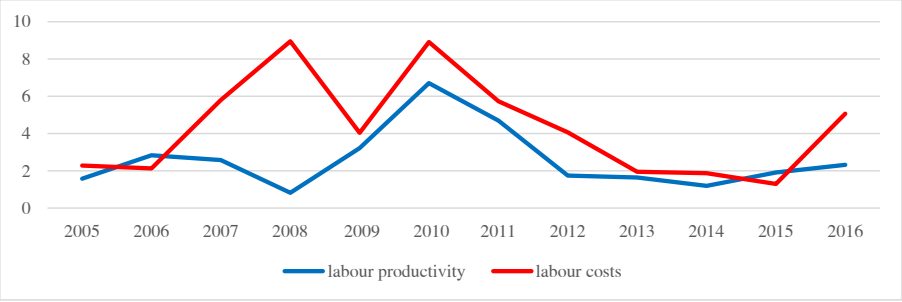

Figure 1. Labor productivity (the annual growth rate) and labor costs (the annual growth rate in the Polish economy in the 2005-2016 period

Source: own elaboration based on the data from OECD.

The analysis of the data from Figure 1 indicates that in the Polish economy labor costs on average have a delayed yearlong reaction to changes in productivity. A short-term decrease in salaries connected with the economic crisis in the 2010-2014 period is also apparent. Analysing the services sector, in the 2004-2011 period the lowest growth of productivity (5%) occurred in market services combined with the growth of employment increased by 30% in the corresponding period. In non-market services, an increase in productivity of 9% occurred combined with the increase in employment of 17%. The worst relations between productivity and employment were observed in sections I, J, M (activities connected with accommodation and food services, information and communication, professional, scientific and technical activities) – a decrease in productivity combined with employment growth. Productivity increased the most in sections N, R, H (administrative and support service activities, cultural, entertainment and recreation activities, transport and storage management) (Wąsowicz, 2013). On the basis of these data, it can be concluded that the growing share of services in production was primarily connected with population growth, and not with productivity growth.

In the Polish economy, the share of the services sector in GDP creation in the 2005-2016 period was exceptionally stable and fluctuated at around 56%. The data presenting the dynamics of changes within the services sector in general and within the division into market and non-market services are contained in Table 2. The study period was divided into two sub-periods to highlight short-term changes.

Table 2. Changes in the structure of employment in the services sector in Poland in the 2005-2016 period (in pp)

Changes in employment	The 2005-2010 period	The 2010-2016 period
Employment in general	9.4	8.4
Services in general	9.9	12.3
Market services	11.2	14.6
Non-market services	8.1	8.7

Source: own elaboration based on the data from Central Statistical Office (https://stat.gov.pl/).

On the basis of the data in the above table it can be concluded that the dynamics of change in services was much higher than in the economy in general, which is a result of, first, workforce transfer from other sectors and, second, employment in services of those entering the labor market. Market services are developing the most dynamically, which is a good sign of education and professional qualification level of new employees. The share of people working in three sectors of economy and in the division into market and non-market services is shown in Figures 2 and 3.

When analysing the data contained in Figures 2 and 3 it should be noted that the changes in the structure of employment in Poland confirm the deepening servitisation of employment, which is connected with the continued development of a market-based system and with the convergence of the employment model of countries such as Poland and the corresponding structures of more developed countries.

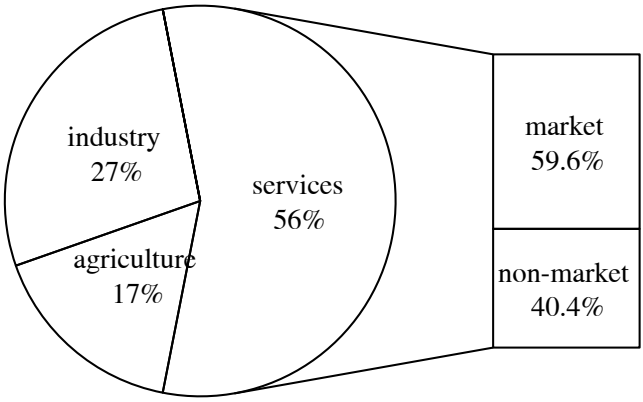

Figure 2. The share of people working in sectors of the Polish economy in 2005

Source: own elaboration based on the data from Eurostat (http://epp.eurostat.ec.europa.eu).

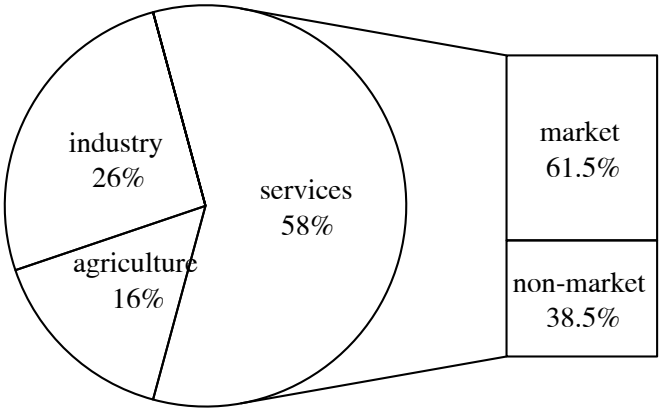

Figure 3. The share of people working in sectors of the Polish economy in 2016

Source: own elaboration based on the data from Eurostat (http://epp.eurostat.ec.europa.eu).

In the analyzed years, the demand for jobs connected with traditional areas, i.e., industry and agriculture was relatively low. Workplaces in services were dominant. Nevertheless, it has to be stressed that despite transformations taking place, the industrial sector (unlike agriculture) is still an essential part of labor demand.

Summarising the analysis of changes in the structure of employment, it is worth emphasizing that the current economic structure is a result of political and economic circumstances of recent decades. However, Poland is still one of the countries with a relatively low share of services in the structure of employment and GDP creation. Additionally, a low share of employment in the service sector is accompanied by a relatively slower dynamics of changes for those employed in that sector. It should also be noted that the development of the service sector followed an even trend in the period considered. The beginning of the 1990s was characterized by much more rapid employment growth in services and their share in GDP creation than the period after 2005 when we see instead a stabilization in the level of development in the services sector.

The results of the analysis concerning determinatives of the level of employment in the market service sector are, as a rule, compliant with the expectations formulated on the basis of the theory. Econometric modeling showed that the level of effective demand – in the model represented by the size of real gross domestic product – has a significant impact on the level of employment in market service. Higher effective demand encourages entrepreneurs to expand employment. There is also some delay in relations: even though employment in the service sector is the most flexible towards GDP in the t period, nonetheless the size of GDP in the previous quarters (t-2 and t-3) has also proven to be an essential dominant of the level of employment. The delay in relations (of two quarters) can also be seen in the case of the influence of real wages on the level of employment in the period considered. The higher level of real wages in the sector results in a decrease in the level of employment. The results of the analysis also show a negative influence of productivity (without delay) and inflow of foreign direct investments (with delay of three quarters) on the level of employment in the market service sector. The level of employment in the previous sector has a strong influence on the development of the level of employment in the period considered – it shows that analyzed labor market adjustments are not immediate (Table 3).

The process of econometric modeling of determinatives of employment rates in the non-market service sector demonstrated that in the case of that sector, the set of significant determinatives is basically limited to traditional factors treated in economic literature. Significant influence on employment rates in the researched sector should be attributed to the amount of effective demand. Results show a positive covariance between the level of real Gross

Domestic Product and the employment rate in the non-market service sector. However, a higher GDP transfers into a higher employment rate with delay (three or four quarters).

Table 3. Results of estimation of model explaining changes in market service sector

	Coefficient	Standard Error	Student's - t	Value of p
const	-2.17979	0.564775	-3.8596	0.00036
ln(GDPt)	0.234243	0.0249312	9.3956	<0.00001
ln(GDPt-2)	0.187117	0.0253328	7.3864	<0.00001
ln(GDPt-3)	0.210389	0.0246047	8.5508	<0.00001
ln(Rwaget-2)	-0.178436	0.0463319	-3.8513	0.00037
ln(Productivityt)	-0.369676	0.0431085	-8.5755	<0.00001
ln(FDIt-3)	-0.00361749	0.00155284	-2.3296	0.02437
ln(Zt-1)	0.554754	0.0653014	8.4953	<0.00001
Coefficient Of Correlation R2	0.991713			
Adjusted R2	0.990424			
F(4.48)	769.3479			
Value p for F-test	1.24e-44			
N	53			

Table 4. Results of estimation of model explaining employment changes in the non-market service sector

	Coefficient	Standard Error	Student's - t	Value of p
const	0.50856	0.443176	1.1475	0.25685
ln(RWaget)	-0.0564187	0.0225155	-2.5058	0.01566
ln(GDPt-3)	0.0753236	0.0256358	2.9382	0.00506
ln(GDPt-4)	0.106315	0.0188566	5.6380	<0.00001
ln(Zt-1)	0.688694	0.0714026	9.6452	<0.00001
Coefficient Of Correlation R2	0.969686			
Adjusted R2	0.967159			
F(4.48)	383.8520			
Value p for F-test	8.80e-36			
N	53			

The important determinative of employment level in the analyzed sector is the height of real wages – with higher real wages, the employment rate lowers – and this complies with neoclassical economy theory. However, the employment rate in the non-market service sector is mostly determined by the employment rate in the previous period. It is a stronger covariance than in the case of the market service sector which indicates slower adjustments on the labor market in public and quasi-public services (Table 4).

5. Conclusions

On the basis of the analysis of the source literature and considering the results of the research carried out, the following patterns can be observed:

- in the post-accession period, employment in the service sector increased faster than in the economy altogether;
- a faster rate of employment changes in market services is seen, employment in non-market services is stable
- the effects of the 2008 – 2009 crisis are: a short-term decline in employment, labor efficiency and wages in the service sector;
- global demand, levels of production and real wages are basic determinatives of employment changes in the service sector;
- results show that employment in the market service sector is negatively impacted by labor efficiency which can probably be explained by satisfaction of demand on those services and increasing use of technology;
- foreign direct investments have a low influence on employment changes in the service sector;
- employment in both the market and non-market service sector is characterized by a great dependence on employment in the previous periods which indicates delays in labor market adjustment.
- labor market adjustments in the non-market service sector are slower than in market services.

Econometric analysis allows for a positive verification of the research hypotheses. Employment in the market service sector increased faster than in the non-market service sector. The basic determinatives of employment changes in the service sector are global demand and real wages. In the Polish service sector the hysteresis phenomenon occurs.

Fields worth deeper analysis and direction of further research are: determination of the influence of occupational mobility and migration on structural changes of employment; changes in respective sections of the service sector with particular consideration given to highly innovative services; and an answer to the question: Is there an optimal three-sector employment structure and has this optimum been reached in certain countries?

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LEVEL OF CONSUMER AWARENESS IN THE ASPECT OF LOCAL AND REGIONAL FOOD PRODUCTS ORIGINATING FROM LOWER SILESIA - RESULTS OF SURVEYS

***Izabela Kwil*[1]**

Abstract

The article addresses issues related to determining the level of consumer awareness in terms of local and regional food from the Lower Silesia region. In addition, regional food certification systems have been characterized. At the same time, the focus was on health-promoting products. The study uses literature studies and the results of questionnaire surveys conducted among a group of students participating in Student Activity Days in December 2017. The final part of the article presents conclusions from the conducted research, which results in relatively low consumer awareness in the studied area. The surveyed population group indicated that they know what local and regional products are, and in a few cases they were able to identify such products. The research carried out confirms that this knowledge is not sufficient. Respondents from Lower Silesia, as well as inhabitants of other voivodships, were able to exchange the food produced in the studied region to a small extent. The research results published in the article refer only to a part of the general population of the country, which is why they are for illustrative purposes only. Conducting such research on a group of people representing the entire population may be beneficial to determine the situation of consumers and entrepreneurs, and may serve as an indicator of the situation of local and regional products of Lower Silesia, in comparison with domestic production.

Keywords: *local food, regional products, lower Silesia, protected designation of origin, guaranteed traditional specialty, protected geographical indication.*

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1. Introduction

Lower Silesia is characterized by a rich diversity in the aspect of producing agri-food products. The current promotion of Lower Silesia focuses on the tourist attractions of the region, and not the wealth of regional products. Nowadays, local food is gaining in popularity due to the fact that it is produced on a small scale with the use of raw materials, characterized by the highest quality. In addition, such production occurs not far from the consumer's location. It is very important for each province that the products produced there are not only good to eat and pro-healthy but also well-known. The regional promotions use natural features, population and economic potential, as well as culture and history. In addition, actions are taken in the aspect of the image of the region against the background of the country. Such promotion affects the perception of the region. For such a promotion to work properly, the focus has to be on products that we associate with a given region. An example from Lower Silesia is the Likier Karkonoski, whose characteristic feature is the Liczyrzepa character on the packaging (see more in Adamczuk, 2013, pp. 15-24).

Although the current food market is global, consumers are increasingly showing interest in local food (see more in Mirosa & Lawson, 2012, pp. 116-125). Most often, they look for local food products directly from farmers, in shops and at agricultural marketplaces, and also buy them as everyday food products in local shops and supermarkets. In order to meet the customers' needs, local restaurants serve dishes prepared from local products and ingredients (see more in Pieniak, Verbake, Vanhonacker, Guerro, & Hersleth, 2009, pp. 101-108). Research indicates various reasons for the trend in which local food consumed on a daily basis (by residents) has become an attraction and tourist resource corresponding to the dietary "service landscape" (Mossberg, 2007, pp. 59-74). Explanation of this phenomenon may refer to external or internal human motivation (Mirosa & Lawson, 2012, pp. 116-125). Regional and local products fit perfectly into the concept of sustainable development. This concept is described as development, whose main purpose is to meet current needs, but it is not to jeopardize satisfying the needs of future generations, which in terms of defining economic goals meets the requirements set by the protection of the natural environment. An additional advantage of the market development of regional and local products, in contrast to mass-produced food, is that it is not a burden on the natural environment (see more in Minta, 2013, pp. 280-284).

Considering food from a local and regional aspect, it is worth paying attention to the correctness of defining these concepts. In the literature on the subject, many wordings can be found defining "local food" and "regional

food." Often these definitions are identified with each other although their meaning is different. This causes errors in the appropriate food classification.

The above considerations became the basis for determining the main purpose of the article. It is the definition of consumer awareness in the aspect of local and regional food of Lower Silesia. The article will also discuss the concepts defining local and regional food with an indication of the differences between them and the certification marks in the system of registering regional products.

The study used information from secondary sources, both from the literature as well as magazines and articles. In addition, information was available on the websites of the Ministry of Agriculture and Rural Development and the results of own research carried out in the form of direct interviews with participants of the Student Activity Days at the University of Environmental and Life Sciences in Wrocław on 6th December 2017. The study focuses on issues related to the terminology of local product concepts; regional products; their certification; and the definition of consumer awareness in the aspect of manufacturing these products in Lower Silesia. In the first part of the article, the definitions of local and regional products are discussed along with the determination of their correct terminology. Next, the article describes the certifications for regional food and the results of own research.

2. Local product and regional product - terminological arrangements

The distinction between regional product and local product is very difficult because these terms are very often used interchangeably. However, they should not be considered in a similar way, as it may introduce many ambiguities in their understanding (see more in Grębowiec, 2010, pp. 22-31). The most important features of regional products are their high quality, which often results from the production of these products from the best raw materials. In addition, the characteristics of such products may be determined by climatic factors and terrain. Regional products in the European Union are considered to be exceptionally good, but also as a cultural heritage of Europe. Such products or dishes are an important element of tourist promotion in Poland and Europe (Gulbicka, 2014). The local product is associated with the place of production; however, it has a stronger relationship with a specific town or village than in the case of a regional product (Grębowiec, 2010). A local product is very often defined as a regional product. Currently, there is no binding, unambiguous definition of the term. However, the most common criteria for assigning products to this category are the following factors: the place of production specified for a given region and the perception of products as locally produced. Taking into account the geographical aspect, local food is considered to be produced not more than 100 km from the location of the

buyer. It is, therefore, a product or service with which the inhabitants of a specific region can identify. Local products, as well as regional products, are manufactured in an environmentally friendly manner on a small local scale. The production of local products is very beneficial for social, environmental and economic reasons, and thanks to its originality, it can become a showcase of the region (see more in Rogala, 2015, pp. 227-238).

The term " local food" can be understood as the smallest unit of describing the origin of the food and is generally identified with the direct relationship between the producer and the consumer. Often, the term is also defined in terms of the distance between the place of production and the point of sale. However, this distance may vary depending on the local area context (Gradziuk, 2015, pp. 96-102). The *Regulation of the Minister of Agriculture and Rural Development of 8th June 2010 on detailed conditions for the recognition of marginal, local and limited activities* (Dz.U. No. 113, item 753) clarifies that this is an area of one province or its neighboring districts belonging to other provinces (Decree of the Ministry of Agriculture and Rural Development on 8th June 2010). It should be noted, however, that the definition of a local network of agri-food products, and short supply chains not only applies to the distance between the place of production and the selling point of the product but also on the number of links in the supply chain. The aim of this process is to shorten them, because the shorter the supply chain, the easier it is to preserve and convey authenticity and originality of the food, the cultural identity, as well as the traditional manufacturing methods and origin of the ingredients (see more in Gradziuk, 2015, pp. 96-102).

Table 1. Characteristics of the regional and local product

Regional product	Local product
It is a product manufactured in a specific region	A product or service with which the inhabitants of the region identified
Regional products (products of known origin) are those whose quality and reputation are related to the region of its production.	A product that residents of the area consider to be universal and people from outside are considered unique.

Source: own study based on Produkt tradycyjny i lokalny wytwarzanie, promocja, budowanie marki, dystrybucja Kompendium dobrych marek. Retrieved from http://ksow.pl/fileadmin/user_upload/ksow.pl/Projekty_z_konkursu_I_KSOW/Agrinatura/Broszura_Produkt_tradycyjny_i_lokalny._Kompendium._Całość.pdf

In attempting to determine the correct terminology of the above issues (focusing only on the definition of local and regional food, and omitting services) based on literature studies, the following definitions can be formulated:

- local products are products and products of the agri-food sector characterized by high quality (understood by the production of these

products from the highest quality raw materials). These products are made with regard to a sustainable development policy. They are closely related to the town or village in which they are produced. These products are not certified;

- regional products are products and preparations of the agri-food sector characterized by high quality (understood by the production of these products from the highest quality raw materials). These products are made with regard to a sustainable development policy. They are closely related to the area on which they are produced (e.g., Lower Silesia). These products are certified with quality marks awarded by the European Union.

The formulated definitions of local and regional products are very similar to each other and are therefore confused with each other. However, there are factors differentiating these products as an area of production and certification.

According to Grębowiec's research (2010), Polish consumers are increasingly interested in healthy food of the highest quality. However, the main reason for the lack of interest in purchasing these products is related to their ignorance and the difficulty in finding such products in a store (17% of respondents). The study also indicates that respondents do not know EU quality marks because they do not meet with the purchase of food products. Also in own studies, many respondents did not know that such signs exist, which made them mark the definition that seemed most likely to them.

Based on a report prepared by Beeline Research & Consulting (2017, pp. 18), according to more than half of the respondents (53%), local food is much tastier than food transported and produced in a "non-local" way. What distinguishes local food from respondents is the fact that it is much better and healthier. However, the opinions of the respondents regarding the price of local products are divided. Almost every third consumer surveyed indicated that in his opinion local food had an optimal price. On the other hand, 50% of respondents think that it is more expensive, while 21% of respondents disagree with this statement.

3. Health-related products as a special type of food products

Diseases associated with a lack of a balanced diet caused by poor nutrition and low physical activity, constitute a serious social problem, but also an economic one. However, research shows that consuming functional products (also called pro-health) can greatly limit the development of many diseases. Therefore, this food is very beneficial for human health. Hence the dynamic development of this food sector has now occurred (see more in Lange, 2010, pp. 7-24).

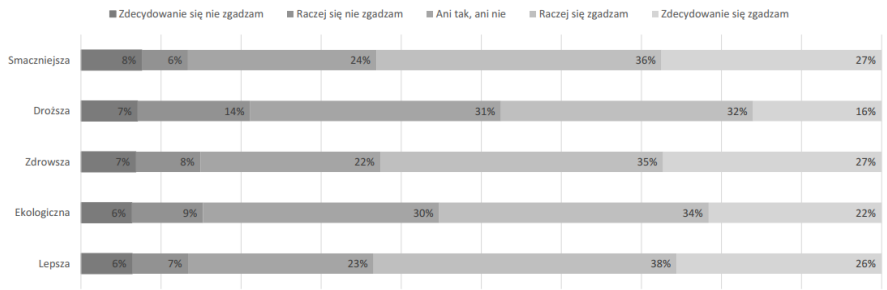

Figure 1. Respondents' answers to the question: To what extent do the following characteristics fit in with local food?

Source: based on the Beeline Research & Consulting report (2017, p. 18).

In 1991, as part of the European FUFOSE program (Functional Food Science in Europe), a definition was defined for functional food: "Food can be considered functional if it has been proven beneficial to one or more functions of the body over the nutritional effect, which is the effect of improving health status, well-being and / or reduced risk of diseases" (see more in Diplock, Aggett, Ashwell, Bornet, Fern, & Roberfroid, 1999, pp. 1-27).

It was also assumed that this food should be made from naturally occurring ingredients; be a basic ingredient in the daily diet; have a beneficial effect on the body's physiological processes; have a particular emphasis on improving the immunity of the human body, thereby preventing diseases caused by the lack of a properly selected diet. In addition, this food should be helpful in the treatment of specific diseases as well as slow down the aging process of the body (see more in Filipiak-Florkiewicz, Florkiewicz, Topolska, & Cabala, 2015, pp. 166-175).

According to Rogala's research (2014), respondents identified the most important advantages characterizing local and regional food. They are freshness (64.2%), health values (52.7%) and taste (49.1%). This means it is important for the consumer that the product they buy should have a fresh, good taste, but above all, it would have health-promoting properties.

4. The food registration marking system for regional products

The Polish food industry has been gaining an advantage over the competition in comparison with other European countries for some time. Building a competitive advantage in the European Union market is based not only on price benefits but also on the high quality of products offered. To improve the

competitiveness of Polish products in the EU market, agricultural producers and processing enterprises are making significant investments in order to adapt their businesses to European standards. Such activities lead to the acquisition by entrepreneurs of quality marks and certificates confirming the high quality of products (Lemanowicz & Szwacka-Mokrzycka, 2014). In European legal regulations, there is a system of distinguishing agri-food products of high quality and having a pro-health effect on the human body. The following markings are distinguished in the described system: Protected Designation of Origin, Protected Geographical Indication and Guaranteed Traditional Specialty. These legal regulations are aimed at preventing misleading consumers in the selection of the highest quality products as well as providing protection against unfair competition in the food products market (see more in Gąsiorowski, 2006, pp. 4-7). The registration and protection of regional and traditional products is regulated by two regulations: Council Regulation (EC) No. 509/2006 of 20 March 2006 on agricultural products and foodstuffs as traditional specialties guaranteed, and Council Regulation (EC) No. 510/2006 of 20 March 2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs.

The first quality mark - Protected Designation of Origin (PDO) - defines the name of the region, place or country used to describe the agri-food product originating from this place. Figure 2 presents a graphic version of the mark valid in the European Union - "Protected Designation of Origin". When awarding food products this sign, it is important that their characteristics and quality are mainly or exclusively related to the geographical area assigned to them and the relevant natural and human factors. In the case of such products, the production and preparation of products should take place only in the area assigned to them (Borowska, 2008).

Figure 2. Quality mark - Protected Designation of Origin

Source: retrieved from https://ec.europa.eu/agriculture/quality/schemes_en

Protected Geographical Indication (PGI) is given to food or agricultural products that must meet the criteria set out in the regulations. The name of such a product should be identified with the name of the region, place or country from which the product comes from and where it is made. In addition, products bearing the PGI label may also have other characteristics related to its geographical origins, such as climate, terrain or the method and tradition of their production. In addition, such a product should have a unique and specific recipe and reputation. The processing and production of such products must take place in a well-defined geographical area. Figure 3 shows the sign "Protected Geographical Indication" downloaded from the website of the European Union Commission. The most important difference between these two types of designations relies on the strength of the connection of a given product with the place of its origin. As mentioned above, the designation applies to products closely related to a given geographical area, however, unlike the Protected Designation of Origin, only one of the production phases must take place in the area (Protected designation of origin, protected geographical indication, specific character names and list of products traditional, 2005, pp. 7-10).

Figure 3. Quality mark - Protected Geographical Indication

Source: retrieved from https://ec.europa.eu/agriculture/quality/schemes_en

Guaranteed Traditional Specialty (TSG) is given to agri-food products that have characteristics that distinguish them from other food products. The graphic symbol placed on food products characterized by the described uniqueness is presented in Figure 4. The name of the product bearing this sign must indicate its specific character, manifested through the traditional method of production and the traditional composition and recipe of the raw materials used. These specific features of products marked with the GTS mark are manifested by clearly distinguishing agricultural and food products from other similar products belonging to the same food category. The traditional character of products cannot be limited only to the qualitative or quantitative

recipe of a product or production method defined by the Community law, national or standardization bodies (Borowska, 2008).

Figure 4. The quality mark - Traditional Specialty Guaranteed

Source: retrieved from https://ec.europa.eu/agriculture/quality/schemes_en

5. Own research on consumer awareness in the aspect of local and regional pro-health products

5.1. Research approach and hypotheses

In order to carry out empirical research, a structured research questionnaire was prepared. The research method used was a direct interview with the respondents. Acquiring information consisted of the researcher's direct contact with the respondent and recording their response on the research sheet. The survey was anonymous. The research questionnaire consisted of 12 questions (these were closed and open questions and metric questions). The questions were aimed at understanding consumer awareness in the aspect of local and regional products. The research was conducted on a randomly selected group of students during the Student Activity Days at the University of Environmental and Life Sciences in Wrocław on 6 December 2017. As a result of the research, 67 correctly filled sheets were obtained. The respondents in the survey were 58.33% female and 41.67% male and in an 18-24 age group. Most of them, about 40%, came from the province of Lower Silesia, 25% from the Silesian province and the rest from other provinces: namely Kujawsko-Pomorskie, Łódzkie, Świętokrzyskie and Wielkopolska.

In the research process, a hypothesis was formulated:

H: The surveyed group of consumers (students of the University of Life Sciences in Wrocław) is characterized by high awareness of local and regional products of Lower Silesia due to the teaching profile. It was assumed that high awareness can be talked about when consumers know and are able to:

- to distinguish between local and regional product concepts,
- mention local and regional products produced in Lower Silesia,
- indicate the indications certifying regional food.

6. The results of the tests carried out

The vast majority (about 83.3%) of the people questioned in response to the question of what definition characterizes a regional product intuitively indicated the correct answer. However, in response to the question of which local products (agri-food sector) respondents associate with the region of Lower Silesia, only a few (about 8%) were able to name a product and, additionally, assign it to the area from which it comes.

A question about the knowledge of the definition of EU quality marks, which read: "Please choose an EU quality mark, given to products with a traditional name, referring to its specific character or traditionally used recipe" only 25% of respondents were able to choose the character that this definition applies to (Traditional Tradition Guaranteed). Most people (about 62.7%) indicated the Protected Designation of Origin mark to be the correct answer. Figure 5 presents graphically the results showing respondents' answers to the above question (in %).

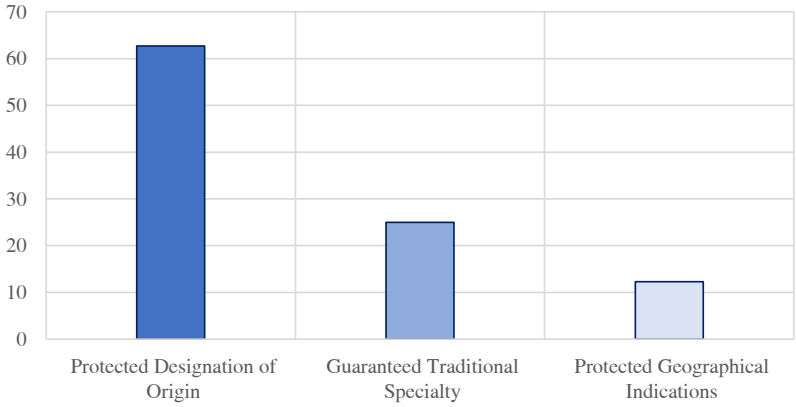

Figure 5. Respondents' answers to the question about assigning definitions to the appropriate quality label logo

Grębowiec's research results (2010) slightly differed from the results presented in the article. Among the respondents, 66.7% of women and 33.3% of men knew the concept of regional food (74.3% of all respondents). It is worth noting that in stores it is very rare to find food products marked with

a special quality mark, which means that the consumer has no idea about the existence of EU food quality systems. The most frequently found sign in Poland according to the respondents is the Protected Designation of Origin mark (48% of indications), and the remaining signs of quality are the least known.

7. Conclusion

In the subject literature, there is no definite and coherent definition of local food and regional food. Studies can only be found with the function of local entrepreneurship for the local community, its advantages or disadvantages. While regional and local food are linked by what are often confused with each other. In the future, it would be worth formulating a coherent definition for each of the concepts so that the consumer was aware of what characterized these products.

The research results presented in the article indicate that consumers have relatively low awareness, although they demonstrate knowledge of the definition of local and regional products originating in Poland as well as in a few cases they can name such products. The research confirms that knowledge in this respect is still not enough. Many of the people interviewed knew local and regional food produced in the provinces they come from. However, a small percentage of people living in Lower Silesia were able to correctly name food produced in this region. Most of these people could associate what is produced in the Lower Silesian Voivodship, but only a few could associate the name of the product and the place of its production.

Local and regional food should be a showcase of the region and be associated with it. Its high quality is characterized by utilizing the best raw materials and by having a health-promoting effect on the human body due to high content of bioactive components. The conducted research can, therefore, serve as a prelude to further research aimed at diagnosing the causes of low consumer awareness in terms of local and regional food. The answers obtained will determine what should guide the consumer when buying local products and what should guide the entrepreneur when producing and selling their products.

The research results published in the article refer only to part of the general population. In connection with the above, these studies are of an illustrative nature. Conducting such research in the future on a wider group of recipients, and in different age groups, may be used to research the situation of consumers and entrepreneurs on the local and regional food market and to develop the market for local and regional products. In addition, these results may lead to an attempt to analyze the situation of local and regional products of Lower Silesia against the background of domestic production.

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THE MAIN EXTERNAL FACTORS FORMING CONSUMER BEHAVIOR PATTERNS IN UKRAINE

Vasyl Lypchuk[1], Yaroslava Larina[2]

Abstract

In the article the main factors influencing consumer behavior are investigated and systematized. It is proposed to systemize them into external, internal and marketing factors. External factors include economic, political, social, scientific, technical and environmental. Internal psychological factors include dominant needs, motives, values, type of personality, psychological peculiarities of different demographic groups (age, sexual, etc.). A particular group includes marketing factors, whose influence on consumer behavior is extremely powerful. Marketing factors include commodity policy, including positioning, packaging, branding; pricing policy, sales policy, marketing communications. The peculiarities of forming consumer behavior models on food markets are also considered. In the course of the research it was discovered that the key element of the marketing mix that affects the adoption of consumer decisions is the price. It was proven that there are significant differences in relation to different generations of consumers to the qualitative characteristics of the goods.

Keywords: *consumer behavior, Ukraine, external factors of influence, demand, globalization.*

1. Introduction

The current state of consumption in Ukraine and other Eastern European countries can be defined as a long-time transition period. The collapse of the USSR and the entire "socialist bloc" marked the beginning of a new era. The process of breaking the old socio-economic system and formation of a new one began. However, if socio-economic and legal relations can be changed

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relatively quickly, decades of time are sometimes required to change the behavior of consumers and consumer culture. Nowadays, 25 years since the beginning of transformation of public relations in Ukraine, significant changes in consumer attitudes towards the processes of purchase and consumption of goods can be traced, as well as certain value reorientations. These changes also take place in other countries in Eastern Europe.

Substantial complexity of consumption problem and consumer behavior in the process of choosing caused its concernment not only in economics but also in sociology, psychology, health and politics (Sobczyk, 2014, p. 88). This means that new models of consumer behavior take on greater and greater importance for all branches of production and non-production sectors. Study and identification of these models are important both at the macro level and for formation of marketing policies and achievement of market success by individual enterprises. This raises the need to study the systematization of factors that influence the formation of consumer behavior patterns in Ukraine, and the definition of the peculiarities in the food products buying process by consumers of different socio-demographic groups.

The study of consumer behavior patterns is important, both for business entities that form on this basis marketing strategies for the promotion of products, as well as for the formulation of social policies at the regional and macro levels. This is due to factors that determine the formation of dominant models of consumer behavior. If such factors are the level of incomes and social stratification, which exacerbates public opinion, then it is necessary to make decisions at the state level on adjusting social policy.

The main aim of the study is to clarify the content and role of external factors as key to shaping the behavior of buyers in transformational countries that are in transition from an administrative economy to a market economy. The research hypothesis is following. If a country was under socialism for a long time, then the transition period will be longer and the dependence of the behavior of customers on external factors will be greater. Dependence on external factors is also determined by the success of the reforms carried out in the country in the transition period and, to a greater extent, the level of real incomes of consumers.

2. Literature background

The problems of consumer behavior are extensive, complex and multifaceted. It encompasses all psychological and physical actions associated with the purchase of goods: the search, use, and consumption, as well as production from their own households, which enable the consumer to achieve their goals, respectively, and contribute to full satisfaction (Antonides, 2003). In most

scientific sources, factors affecting consumer behavior are divided into external, internal and marketing factors (Babutsidze, 2012; Oklander, 2013; Światowy, 2006 and others). Ramya and Mohamed Ali (2016) classify the factors influencing consumer behavior into several groups: internal or psychological factors; social factors; cultural factors; economic factors; personal factors. We think that this classification needs to be clarified and supplemented, as some factors have not been taken into account, in particular, those related to scientific and technological progress, the growth of environmental needs, etc.

Problems with the formation of new models of consumer behavior in "post-socialist" countries are reflected in the scientific works of Afanasyeva (2009), Babutsidze (2012), Narkhova (2006), Petrushenkov, Petruschenkova (2001), Sobczyk (2014), Stonehouse (2001), Shamborovsky (2014). Consumer behavior patterns were equally highlighted as well in the particular models of Nicosii, Howard-Sheth, Engel-Kollat-Blackwell, Model of Triandis and Andreasen (Rudnicki, 2012; Smyczek, 2000; Światowy, 2006).

The influence of certain factors on the consumption process in modern conditions and the culture of consumption itself is considered in the works of Oklander (2013), Pogorila (2011), Popova (2010), Valdivia (2010) and other scholars. Most of them, are based on the classification of buyers' behavior and adopt the fundamental version of F. Kotler, which highlights cultural, social, personal and psychological factors (Kotler, 2002). Their main goal is to maximize consumer satisfaction.

Unfortunately, there is a lack of serious systemic research on the formation of modern models of consumer behavior in Ukraine. Little research has been done in particular on the examination of the influence of external factors, although globalization processes and socio-political instability make permanent adjustments to the solution of this problem. Particular attention in the process of studying the behavior of consumers in the transition economy should be drawn to external factors that are independent of the individuals, but to a certain extent are connected with it (socialization, traditions, etc.).

3. Research approach and methods

The abidance of a systematic and historical approach to the examination of consumer behavior was the general methodological background of the study. In the process of research, analysis and synthesis were used (for determination and generalization of factors influencing the consumer behavior), as well as statistical methods (for formation of the sample), and a graphic method (for a visual representation of the results of the study). The article uses primary data (based on the survey) and secondary data from the State Statistics Service of Ukraine.

The results of the questionnaire survey, carried out in 2016 among the inhabitants of Ukraine (in Kyiv and Lviv), are presented in the paper. The main method of data collection was a direct survey, which, alongside the use of a combination of qualitative (in-depth interviews) and quantitative (questionnaire) methods, provides sufficient reliability and certainty to the results.

To identify and explore the differences and common features of the food purchase process among older consumers and young people, we conducted a survey on food consumption in Ukraine. The completed questionnaire contains 12 questions. The probability is 0.954, t = 2. With a marginal error equal to one, the sample size was 400 respondents in Kyiv. In the course of the study, 400 people of different ages, sex and education level were questioned. The structure of the questionnaire allowed us to investigate the impact of individual characteristics of food products on final consumer choice, their relation to genetically modified products, trust in advertising, etc. The results clearly show the difference in the behavior of consumers of all ages. A consumer survey was also conducted in Lviv in 2016 to divide retail buyers into groups depending on their reasons for buying food products in the "Shuvar" agricultural products wholesale market. The results are based on a questionnaire survey of 220 retail buyers.

4. Discussion and results

Consumer behavior patterns typical for countries with a planned, transitional economy, and consumer behavior patterns in a market-oriented economy are based on opposite principles. In the first case, the correlation between the sphere of production and consumption is established by the state or monopoly associations. Norms and values of consumption and consumer behavior are determined by the peculiarities of the distribution sphere. In a market system, production is secondary to consumption and consumer needs. The sphere of consumption directly, through the market mechanism, determines the quantity and quality of the produced product, and indirectly – the trends of development in the sphere of production (Petrushenkov & Petruschenko, 2001).

In the context of national economies' openness, globalization is one of the most influential factors of consumer behavior model formation. This process of mutual influence and interpenetration of economic and political systems, cultures, and stereotypes, transforms the consumers, especially the younger generation, which is more open to the perception of everything new. Stonehouse (2001) notes the following impacts of globalization on consumers. "The requirements of consumers to products and services become more homogeneous, although there can be found markets with national and regional characteristics. This arises primarily from the needs of consumers,

which, due to globalization, become more complex and wealthy. Global consumers expect to differentiate (and diversify) the supply of goods and services, and they are more sensitive (vulnerable) to the quality and technical characteristics, rather than price-sensitive, as it is considered" (Stonehouse, 2001). Sobczyk considers that "globalization of consumption is connected with the homogeneity of the consumers' needs in the majority of countries, as well as with the combination of patterns of consumption, purchasing behavior and fading of national and regional differences, perceived both as new opportunities and threats to society" (Sobczyk, 2014). It should be noted that such tendencies are more pronounced in Poland and less pronounced in Ukraine due to the heterogeneity of demographic characteristics of consumer markets (national, religious and age).

In most scientific sources, factors affecting consumer behavior are divided into external, internal and marketing factors (Babutsidze, 2012; Oklander, 2013; Światowy, 2006 and others). Internal factors are factors that do not depend on external influences but are caused by the personal characteristics of consumers. These are psychological factors including dominant needs, motives and values, types of personality, peculiarities of different demographic groups. The effects of demographic changes are becoming more and more visible: the proportion of elderly people is increasing; the number of full-fledged families decreases; the number of working women is increasing; the appearance of «female» marketing (Oklander, 2013).

Marketing factors affecting the behavior of consumers follows on from the main elements of marketing mix: commodity policy, pricing policy, sales policy, marketing communications, as well as special methods for modifying consumer behavior. Marketing factors and their relationship with external factors will be discussed in more detail below.

According to Ramya and Mohamed Ali (2016), consumer behavior or buyer behavior is influenced by several factors or forces. They are

- internal or psychological factors;
- social factors;
- cultural factors;
- economic factors;
- personal factors.

Thus, the researcher relates economic, social and cultural factors to external factors of influence on consumer behavior.

We identify external factors as factors having an important role in the behavior of the buyer and are independent of the personal characteristics (features) and marketing tools that influence the buyer. Then we are convinced that this classification should be supplemented by factors of scientific and technological progress and environmental factors. The first is objectively

active especially in high-tech industries (Pogorila, 2007). As for the second one, it is caused by an increase in the impact on consumers of environmental pollution and the care of their own health and quality of food. Existing research in different countries shows consumer growth in organic food products. This is confirmed by particular studies conducted by Arvola et al. (2008); Liu, Wang, Shishime, and Fujitsuka (2012).

According to Shamborovsky, the way in which people in the 21st century consume material and spiritual goods can be characterized as a global consumption culture, since the very concept of "culture" implies "practical realization of universal human and spiritual values in the course of civilization development of mankind" – such a phrase most successfully determines the quantitative, qualitative, spatial and dynamic process of satisfaction of human needs. Consumption culture is a socio-psychological characteristic, an individual manner, a person's behavior in the sphere of consumption, individualized forms of a certain style of consumer activity (Shamborovsky, 2013). Accepting the opinion of the author regarding the essence of the "consumer culture" category, we note that "global consumption culture" does not fully develop in transitional societies and economic systems, and does not acquire real content. After all, consumers' behavior and consumption culture in a particular country are formed under the influence of many factors – external and internal, primarily economic, political, social, environmental, scientific and technical, etc. (Figure 1).

In a stabilized economy with a long free market history, where all factors have had a certain time to establish internal equilibrium – we can identify factors with no specific preference given to any particular one. In a transitional economy, where all economic, social, cultural and psychological factors are transitioning as well – we should prioritize these factors, and even divide them into primary and secondary. Undoubtedly, in the transitive economy, consumption availability and economic freedom are the primary factors. The adherence to the principle of economic determinism makes it possible to classify external factors to the primary and secondary ones correctly. Many authors recognize that economic factors, primarily income, are the main determinants of purchasing behavior, in particular regarding the choice of the product at the appropriate price (Myers, Stanton, & Haug, 1971). The analysis of professional works on consumer behavior in modern Ukraine (Oklander, 2013); Rybachuk, 2015) allows us to conclude on the primacy of economic factors for most of the consumers (above 80% in Ukraine).

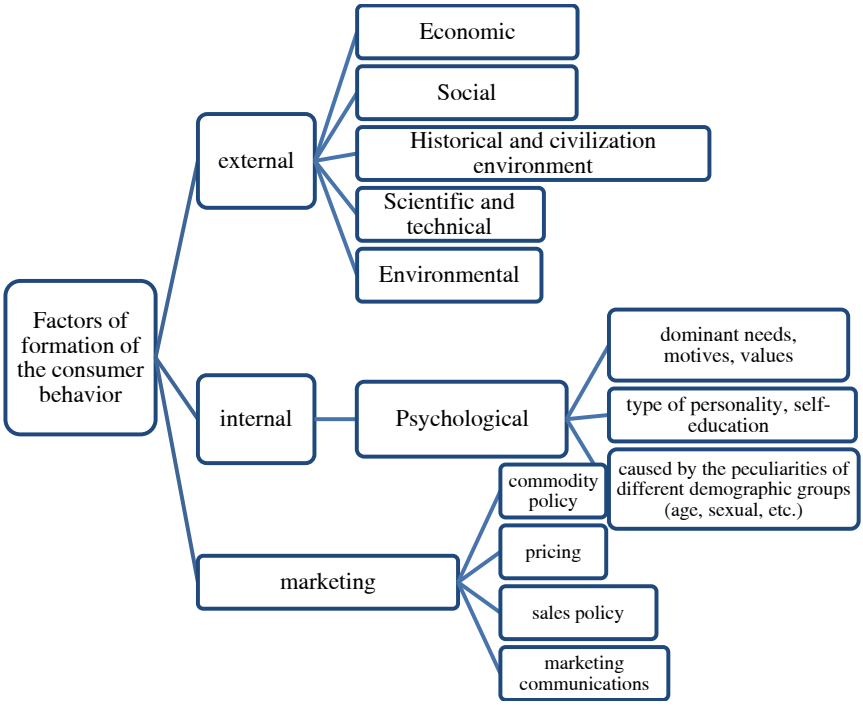

Figure 1. Factors of formation of modern consumer behavior patterns

Source: based on own research and Ramya and Mohamed Ali (2016); Rybachuk (2015); Oklander (2013).

Ramya and Mohamed Ali (2016) also confirm that consumer behavior is influenced largely by economic factors. Economic factors that influence consumer behavior are a) Personal Income, b) Family income, c) Income expectations, d) Savings, e) Liquid assets of the Consumer, f) Consumer credit, g) Other economic factors. Economic factors of formation of consumer behavior patterns, primarily the level of real incomes of population and the phase of the economic cycle, have the greatest impact on real and potential demand for different groups of goods and their ratios, as well as consumer expectations. During last two years, Ukraine has experienced a significant decline in real incomes of the population. The main factors that have influenced their level include: military conflict and an increased number of internally displaced persons (about 1.5 million people in 2016), reduction of GDP (in 2015, GDP fell by 10%), a high level of inflation (2014 - 25%, 2015 - 43%), acceleration of devaluation (during 2013-2016 - more than 200%) (Official site of the State Statistics Service of Ukraine), an increase in taxation, bankruptcy

of banks, etc. Reducing the level of incomes has led to an increase in self-sufficiency through labor migration, development of subsidiary farms, search for additional work and development of the shadow activities. According to the State Statistics Service of Ukraine, 4.5 million people during this period worked in the informal sector (Official site of the State Statistics Service of Ukraine). In addition, the cause of the high level of poverty is a highly uneven distribution and inefficiency redistribution in Ukraine, which testifies to ineffective social policy. The share of the population with per capita income below the minimum subsistence level during 2015 almost tripled and amounted to 50% (Official site of the State Statistics Service of Ukraine). In Ukraine, there are such negative phenomena as low income of population, negative imbalance in their structure, high regional level differentiation of incomes and wages, low level of wages in most industries and regions of the country, as well as arrears in their payments.

Social factors of formation of consumer behavior patterns include, first of all, consumer affiliation with a certain social class, stratum, group; gaining social status with the development of a corresponding attitude to the purchase process, etc. The socio-cultural environment of an individual is a sphere of self-realization, which transforms it from the sphere of the external world of objective influences into the inner world of the culture of the individual's life-creation, which can only be realized in the sphere of cultural symbols, meanings, senses, values and forms. Only as a cultural entity can a human being acquire the necessary abilities and universal qualities to realize himself as a subject of active function, including the process of choosing and buying goods of certain brands. The governing factors of formation of a consumption culture are primarily family, school and education. All of these components affect the process of socialization of the individual.

Libanova states the main attributes of belonging to the average class relate to material assets - property (primarily, real estate-housing, land, means of production), average income (determined by national standards), qualification, educational training and high social status, self-determination with the middle class (Libanova, 2003). In Ukraine, according to a survey conducted by the Razumkov Center in 2002, it was found that almost half of Ukrainians attribute themselves to the middle class. However, if we consider in further detail the basic criteria for classification into a particular class and social status, then it turns out that such an assessment does not correspond to the real state of things. If in 2007 the availability of stable income was reported by 37% of Ukrainians who consider themselves middle-class representatives, then by the end of 2014 this ratio was only 20%. In addition, in this group the percent of those who are striving to make ends meet significantly increased – from 3.4% in the crisis 2008 year to 6.3% in 2014. Interestingly, at the same time, the share of Ukrainians

who attribute themselves to the middle class of society has remained unchanged since 2008 (Rybachuk, 2015). Experts of the Razumkov Center say that among other things the psychological factor is actuated – i.e., people do not want to identify themselves within the "lower class."

Such self-identification affects consumer behavior patterns in the process of purchasing goods, services and in the consumption process. After all, consumers who previously classified themselves within the middle class with the appropriate status, income level and consumption standards, subconsciously seek to stay in it. This leads to the fact that they, in particular, advance excessive demands on the quality of goods, compared with their financial capacity.

Uneven distribution of income can be objectively estimated using the income concentration ratio (Gini index), the variation of which in Ukraine falls within the range of 20-26%, according to the classification of economies for OECD countries, which corresponds to a low degree of unevenness (Yurchyk, Samolyuk, 2016). Comparative analysis of the Gini coefficient in Ukraine and the EU, curiously enough, indicates a significantly lower level of unevenness in the distribution of income in the national economy, compared to the vast majority of European states. However, taking into account the shadow economy using the method of calculating the Gini Index for adjusted earnings – the calculation indicates an average or high level of differentiation of society.

Historical and civilizational environment characterized by specific economic, ideological, geopolitical relations and connections, material and spiritual culture, in combination with active socio-psychological factors creates a unique socio-psychological type of personality with an appropriate style of thinking, perception, social self-consciousness and well-being. The socio-psychological climate of such a society creates conditions for the formation of common features of the culture of consumption. Within this culture, there are subcultures – group (formal and informal) and individual consumption cultures that are characterized by greater or less autonomy, but they are formed due to the multitude of interactions and layers of behavior and activities of not only modern people but also from the experience of previous generations (Valdivia, 1986) .

Some of the most important factors influencing the consumer behavior model are scientific and technical factors, which leads to significant changes both in production and non-production sphere. In particular, the development of scientific and technological progress leads to changes in the culture of consumption in two directions: 1) reducing the time spent for the satisfaction of biological needs while reducing the difference in the quality of the corresponding goods for consumers with different financial capacity; 2) an appropriate increase in time spent for the satisfaction of secondary needs

(social and spiritual) (Pogorila, 2007), including the needs for belonging to the group, communication, self-realization.

New scientific knowledge generates new technology and a culture of consumption, which, in turn, raises the need for new items of consumption, stimulates the renewal of production. For example, new scientific knowledge about rational nutrition significantly changes the requirements for the structure and the quality of consumable products, and technology for their production and manufacturing.

Thus, the main priorities for quality and safety of food products in Ukraine, which are closely linked to the formation of consumer behavior patterns which are being formed today, are the following:

- control over the quality and safety of food raw materials and accompanying materials, foodstuffs, especially intended for children;
- control over the safety of imported products especially produced on the basis of genetically modified organisms (mandatory labeling of such products);
- further improvement of the regulatory framework, in particular, the development of national medical and biological requirements and sanitary norms of the quality of food raw materials and food products;
- provision of legal support to citizens in compensating them for material and moral damages in case of damage caused by the use of dangerous foodstuffs;
- organization of sanitary awareness of the population regarding prevention of food poisoning and alimentary prevention of the negative impact of environmental factors.

The main directions of influence of scientific and technological progress on consumption are the following (Pogorila, 2007):

- a significant increase in the volume of production of consumer goods;
- an increase in the number of variants of possible satisfaction of needs, escalation of complexity of satisfying the needs, which approximates the needs of different groups of people simultaneously with their differentiation by subjects of consumption;
- an increase of the interchangeability of material goods, the relationship of material and spiritual origin in consumption;
- minimization of labor costs of consumers for satisfaction of needs. This is facilitated by the law of variable proportions, or the minimum effective scale of production;
- creation of new items of consumption, which make it possible to raise this process to a qualitatively new level, i.e., makes these items of consumption more prestigious. In this case, the criteria by which the consumer decides to change the technology to satisfy his needs for a more modern one, by the use of new items of consumption, moving from the economic sphere to social or spiritual;

- retardation of physical wear and tear from the moral, as a result of reduction of life cycles of technology products.

Increasing levels of consumer consciousness and environmental responsibility leads to the emergence of a special innovation behavior which is characterized by qualitative changes in the structure of consumption and aimed at the satisfaction of needs using fewer tools and objects of labor (effective in terms of limited elements of natural resource potential through the replacement of natural resources by artificial) (Popova& Drozd, 2012). Intensification of consumer behavior involves the growth of absolute consumption per unit of time. In the presence of such behavior of consumers, it is necessary to note the positive effect, which involves the ability to simultaneously satisfy the needs, including in the field of recovery and maintenance of natural resource potential. On the other hand, such intensification will require additional costs, which will be socially justifiable only subject to increased environmental compatibility and quality of products.

The foregoing suggests certain differences in the formation of consumer behavior patterns in Ukraine and Poland (Table 1).

Table 1. Differences in the formation of dominant consumer behavior patterns in Ukraine and Poland

Poland	Ukraine
changing the structure of consumption in the direction of improvement of the quality of consumed products	changing the structure of consumption in the direction of increasing the share of expenses for the payment of utility bills, the impoverishment of nutrition
consumer hedonism (pleasure, luxury, as the goal of life, the main motive of behavior	search of utilitarianism, maximum utility of the product
ecologization of consumption	ecologization of consumption
ethical responsibility and balanced consumption	restriction of consumption of goods and services, caused by a decrease in real incomes of the population
deconsumption (restriction of consumption of goods and services)	virtualization, increasing the share of purchases on the internet
smart shopping	
virtualization	
homeocentrism	

Source: based on Sobczyk (2014) and on the results of own research.

The nature of choosing a pattern and a specific type of consumer behavior depends on a number of factors. The major factors should include cognitive (informative), emotional and volitional factors (Popova, 2012). The information factor allows consumers to compare products according to individual environmental characteristics. The creation of feelings at the level of the subconscious, the sense of involvement and responsibility for the environmental impacts of consumption is regulated by the emotional factor. The volitional factor is responsible for developing the ability of self-management, which in the context of providing sustainable development is

manifested in the consumer's pursuance of self-preservation, forcing him to conscious activity in the direction of rational nature use and reducing the negative impact on the natural environment. Having regard to the above, it is necessary to more actively use the tools of environmental marketing by producers, in terms of choosing a specific type of consumer behavior. The motive-forming factors of choosing a type of behavior should be considered a number of factors that characterize both the consumer's own position and external conditions of production of goods. This means that the main objective of the use of environmental marketing tools should be the formation of environmental behavior of producers and the active environmental position of consumers, which in combination will make it possible to achieve the sustainable development of the national economy.

As we have already noted, marketing factors are a special group of factors that also form consumer behavior. In particular, they include the product and its positioning, packaging, trademarks, branding, pricing policies, advertising (especially image-building), propaganda, public relations, direct sales, and others. According to Valdivia, the development of national markets, together with the phenomenon of mass media and advertising, took place at a furious pace, and at the beginning of the 21st century, it became a global reality (Valdivia, 1986).

The prioritization of consumption factors strives for previous customer segmentation which allows us to determine the beginning of marketing research and includes a large number of market segments that are intended for study. In countries with a transitive economy, customer segmentation is based on geography, income, gender features. On the basis of income segmentation, the higher and middle target segments are distinguished, for which it is advisable to apply a deeper segmentation - by lifestyle, consumption status, personality type, etc. Then final segmentation is formed on the basis of market conditions and opportunities of the firm associated with the definition of the most optimal segments. It helps determine the final stage of marketing research and identify a model of consumer behavior.

Competently designed and constructed marketing strategy, aimed at a specific target segment, indicates the choice path to the consumer among many alternatives, and forms the relation to the products of a particular manufacturer and its competitors. All of the above-mentioned marketing elements colossally affect the choice of the consumer and the formation of a consumption culture. Consideration of such an influence may be the subject of a separate study.

The formation of a marketing-mix in modern conditions is associated with the influence of external factors, especially with the level of real incomes of buyers. Therefore, the key element of a marketing-mix for most buyers in transition economies is the price. To confirm this, we conducted research of

retail buyers of agricultural products in the market "Shuvar" (Lviv, Ukraine). The results of the study are presented in Table 2.

Table 2. The division of retail buyers depending on the reasons for the purchase of food products in the wholesale market of agricultural products "Shuvar" (Lviv)

The reasons of the purchase	Groups of buyers depending on the period of purchase of food products on the market		
	more than 2 years	from 2 to 5 years	less than 2 years
Low price	53.2	59.6	65.0
High quality of products	26.6	19.5	18.2
Favorable location	26.4	17.7	20.5
Freshness of products	31.8	25.9	28.3

Source: based on a questionnaire survey of 220 retail buyers (2016).

The key conclusion is next. In recent years price has played a key role in the formation of customer behavior patterns. The reason is low purchasing possibility. Buyers pay lesser attention to the quality of products and its freshness. Moreover, even a disadvantageous location is not such a strong demotivator compared with dominant price value.

Demographic factors, namely the consumer's belonging to a certain generation (senior or younger), are extremely important factor in the formation of consumer behavior patterns.

In the course of the study, 400 residents in Kyiv of different ages, sex and education level were interviewed on the topic of consumption of food products, country of origin of the product, attitude towards genetically modified products, trust in advertising, etc. The results obtained clearly show the difference in the behavior of consumers of different ages (Figure 2).

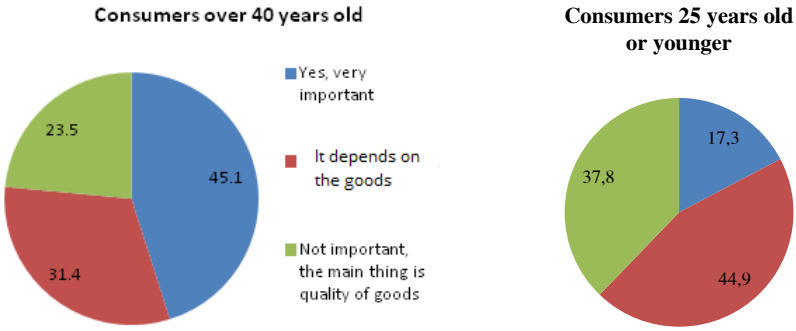

Figure 2. Significance of the origin of goods for buyers of different ages.

Source: based on own research.

Significance of the origin of products for the older generation is almost three times higher than for younger people. The reasons for this fact are quite diverse. However, the country of origin of the goods is a priority (Figure 3).

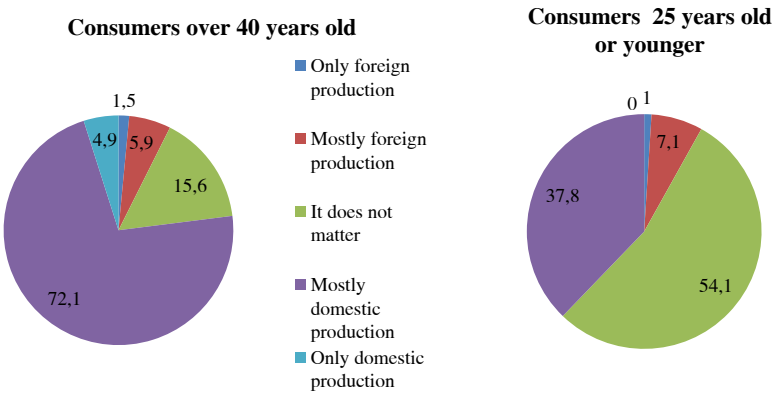

Figure 3. Preferences of buyers with respect to the country of origin of the goods

Source: based on own research.

Consumers from an older generation demonstrate a lack of trust on foreign producers, 72% of the respondents choose mostly domestic products, while for most consumers born in independent Ukraine (54%), the country of origin does not matter. This is explained by the fact that after the collapse of the USSR, the flow of low-quality foreign products from China and Eastern Europe has destroyed the trust of the older generation regarding goods of foreign production. As for other issues, the views of respondents mostly converge, which is explained by the relatively short time span after the collapse of the Soviet Union and the influence on the younger generation of people who grew up in the USSR. Thus, under the influence of socialization, another mentality of young people in Ukraine was formed.

The basis of modern models of consumer behavior should be the new economic reality. The development of market relations in modern Ukraine takes place with numerous obstacles of noneconomic nature. The result that we have for today does satisfy the majority of the population. Corruption and arbitrariness of power, a huge share of the shadow economy, as well as a low standard of living, hinder the development of those forms of consumption, which in turn contribute to the development of the economy and create comfortable living conditions for the population. After all, for people whose views and

beliefs were formed during the Soviet era, there emerge fundamentally new problems: inefficient use of monetary resources, consumer choice, perception of advertising, etc. (Petrushenkov, 2001).

Political and economic factors have already set the direction and the ultimate goal for formation of new consumption patterns. When buying one or other product in a particular store, from one or other seller, consumers contribute to the prosperity of some industrial and trading companies and to the bankruptcy of others. However, it should be noted that in Ukrainian society the institutionalization of personal consumption takes place, which is a process of forming a set of norms, values, rules of conduct in relation to personal consumption The results of consumer behavior surveys and the patterns of consumption are the basis for the following conclusions. Consumer behavior patterns in a particular country are shaped by many factors - external, internal, and marketing. To the external should include, first of all, economic, political, social, environmental, scientific and technical. Internal factors reflect the influence of the psychological aspects of the consumer, in particular, the dominant needs, motives, values, type of personality, self-education, psychological peculiarities of different demographic groups (age, sex, etc.).

A special group is marketing factors, whose impact on consumer behavior is extremely powerful. These factors include the product and its positioning, packaging, trademarks, branding, pricing policies, advertising (especially image), propaganda, public relations, direct sales, and others.

The degree of readiness for change and perceptions of the realities of a market economy varies significantly among different age and demographic groups. Particularly highlighted are the generation (Y and Z), which has grown up in new social reality.

5. Conclusion

The results of the study of consumer behavior and factors of consumption pattern formation provide the basis for the following conclusions. Consumer behavior patterns in a particular country are formed by many factors – external, internal, and marketing. External factors should include, first of all, economic, political, social, environmental, scientific and technical. Internal factors reflect the influence of the psychological aspects of the consumer, in particular, the dominant needs, motives, values, type of personality, self-education, psychological peculiarities of different demographic groups (age, sex, etc.). A special group is formed by marketing factors, whose impact on consumer behavior is extremely powerful. These factors include the product and its positioning, packaging, trademarks, branding; pricing policy (key

element for most buyers in modern conditions), sales policy, advertising, public relations, direct sales, and others.

In a transitional economy we prioritize external factors and classify them on the primary and secondary ones. We determine economic factors like income, consumption availability and economic freedom as the primary factors and main determinants of purchasing behavior, in particular regarding the choice of the product at the appropriate price.

During the last two years, Ukraine has seen a decline in the real incomes of the population. The main factors that influenced this level include military conflict and an increased number of internally displaced persons, a reduction in GDP, a high level of inflation, acceleration of devaluation, etc. Reducing the level of incomes led to an increase in self-sufficiency through labor migration, development of subsidiary farms, search for additional work and development of the shadow activities. In addition, the causes of the high level of poverty are the irregularity of distribution and inefficiency of redistribution in Ukraine, which testifies to ineffective social policy.

Social factors of formation of consumer behavior patterns include, first of all, consumer affiliation with a certain social class, stratum, group; gaining social status with the development of a corresponding attitude to the purchase process, etc. The socio-cultural environment of an individual is a sphere of self-realization, which transforms it from the sphere of the external world of objective influences into the inner world of culture and consciousness, which can be realized in the sphere of cultural symbols, meanings, senses, values and forms. A human being acquires the necessary abilities and universal qualities to realize himself as a subject of active function, including the process of choosing and buying goods of certain brands. The governing factors in the formation of a consumption culture are primarily family, school and education. All of these components affect the process of socialization of individuals.

Demographic factors, namely the consumer's belonging to a certain generation (senior or younger), are an extremely important factor in the formation of consumer behavior patterns. The results of the research clearly show a difference in the behavior of consumers of different ages as to origin of the product, attitude towards genetically modified products, and trust in advertising.

The degree of readiness for change and the perception of market economy realities varies significantly among different age and demographic groups. This is particularly distinguished in generation (Y and Z) which as grown up in a new social reality.

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STAKEHOLDERS ENGAGED IN THE STRATEGY OF SMART SPECIALIZATIONS - IDENTIFICATION OF ROLES AND CATEGORIZATION BASED ON SELECTED REGIONS IN POLAND

***Sławomir Olko*[1]**

Abstract

The purpose of the paper is the presentation of stakeholders roles in the process of determining and modifying smart regional specializations. The paper uses the method of stakeholders identification and their role based on active observations, open interviews and analysis of publicly available strategic documents concerning the development of such regions. The stakeholders approach is rarely used in the strategic processes of regions. The originality and value of the paper consists in the application of a stakeholders analysis which is used in the strategic analyses of companies to evaluate regional development strategy based on smart specializations. The performed process of stakeholders identification and categorization shows that in the practical approach of determining the smart specializations of a region, two groups of stakeholders can be distinguished: cooperating and assisting ones. The analysis of stakeholders was performed in six selected regions of Poland that can be characterized by the greatest number of companies in the following provinces: Mazowieckie, Śląskie, Wielkopolskie, Dolnośląskie and Pomorskie.
Keywords: *smart specializations of regions, stakeholders, regions development strategy, Poland.*

1. Introduction

One of the essential elements of societies' development is the ability to use public sources which on the one hand increase the quality and satisfaction of citizens and on other represent investment in the future, especially within the

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field of science, education, technology and innovation. Within the European Union, a special role within this scope is played by regions which are obliged to agree within open consultation processes, the so called smart specializations, which significantly contribute to public support concentration. Within the undertakings and projects wherein entities want to receive regional funds (Regional Operational Programmes), it is necessary to show conformity with smart specializations. Specializations are specified within strategic documents: strategy of regions development or Regional Innovation Strategies.

A very important element of agreeing on smart specializations is the utilization of knowledge and the will of internal stakeholders: operating within regions of companies, scientific institutions and networks of such entities. There is a typical management paradox within this area: wide, open and participation-based system of co-deciding about the strategy of smart specializations is satisfactory to stakeholders. However it is very labor-intensive and long-term; limited, minimum number of stakeholders simplifies the decision-making process but brings up questions concerning lack of entities input for which smart specializations are specified. Already in the Sixties, Pugh et al. (1968) proposed the analysis of organizational structures known as the Aston Group approach. One of the dimensions of this analysis was the dimension of centralization, i.e. the level of decision centralization and the scope of inclusion of lower levels of management into the decision-making process. Now, especially within public administration, we may speak of the governance phenomenon which „pertains to self-organized, intra-organizing networks that can be characterized by interdependence, exchange of resources, rules of engagement and significant independence from the state" (Kjær, 2004). Self-governments of the regions try to satisfy these conflicting premises of engaging stakeholders applying various procedures and instruments engaging the stakeholders into decision-making processes. This dilemma is a research problem, which is presented in this paper from the empirical standpoint. Presuming that the wider the scope of engaging stakeholders and the degree of their engagement, the better the specified smart specializations strategy contents will be.

Such a formulated research problem leads to the following research question being the essence of analyses presented in this paper:

RQ1: How the regional self-governments used stakeholders knowledge within the process of specifying and developing smart specializations?

Based on the analysis of conduct of the selected self-governments in Poland and analysis of the strategic documentation of such regions, the method of engaging stakeholders into the processes of determining smart

specializations was presented. In order to implement a cognitive objective, one tried to qualify stakeholders according to an approach presented by Reed et al. (2009). Learning the scope of cooperation with stakeholders and applied cooperation instruments allows one not only to implement the cognitive objective but also allows formulating practical conclusions related to the implementation of regional development strategy using the stakeholders.

The paper uses a qualitative method of multiple case study, selecting regions that can be characterized by the greatest measures of company numbers (intentional selection). The following methods of data harvesting were used to collect information:

- query and analysis of available documents (all cases);
- interviews with stakeholders representatives (in provinces: Śląskie, Mazowieckie, Pomorskie);
- active observation (Śląskie).

2. Literature background

Smart specialization in the EU strategic documents is given as the main element of regions' development strategy: "…the national or regional innovation strategies which set priorities in order to build competitive advantage by developing and matching research and innovation own strengths with business needs in order to address emerging opportunities and market developments in a coherent manner, while avoiding duplication and fragmentation of efforts.

A smart specialization strategy may take the form of, or be included in a national or regional research and innovation (R&I) strategic policy framework.

Smart specialization strategies shall be developed through involving national or regional managing authorities and stakeholders such as universities and other higher education institutions, industry and social partners in an entrepreneurial discovery process" (EU Regulations, 2013).

Authors, when investigating the essence of smart specializations, underline that both a theoretical approach and the practice itself (developmental strategies of countries and regions) should mean defining a competitive edge based on owned resources of knowledge and competences of regional entities (Foray & Van Ark, 2007; Foray & Hall, 2007; Foray, 2009; Kardas, 2011). Considering such a thorough definition of smart specialization category and strategy of smart specializations, both in theory and practice (for the purposes of implementing regional strategies), one may say that there is no need to define this category. This is justified because the quoted authors underline the diversity of smart specialization strategies contents as well as the context and process of strategy formulation.

Premises concerning the selection of smart specializations specified in the so called RIS3 Guide – a guide for key actors of a region developed by advisers and scientists, which however has the power of shaping innovative policy - show that:

- smart specializations should not necessarily be focused on one discipline, multi-sector approach;
- the focus should not only be on product innovations, but on organizational, marketing, process, service and social, too;
- it is not only important to develop general technologies, but to apply the technology within sectors important for the region. (RIS3 Guide, 2013).

Local and regional development depends on the cooperation of entities belonging to the sector of companies, science and technology creating local and regional networks of entities of various degree of formalization. Members of such networks are mostly stakeholders of regional innovation strategy and developmental strategies implementation. The analysis of cooperation roles in the development process considers both the institutional networks and social ones (Strahl, 2010; McCann & Ortega-Argilés, 2013; Carayannis & Campbell, 2009). There are three categories among entities cooperating in favor of regional development: administration, companies and science, known as a triple helix (Etzkowitz & Leydesdorff, 1995). Fellnhofer (2017), it emphasizes that in order to attain a high correspondence between strategic results and social expectations, it is necessary to use all channels of information flow that rationalize decision processes. Among these channels, the author underlines the role of Internet consultations wherein small and medium-sized enterprises can take part.

A very important premise emerging from the documents shaping the policy of smart specializations (regional and national) is the assumption of structural changes dynamics related to development. Determining smart specializations is related to the final change of the economic structure of the region, which can take place according to the following models:

- transformation - conversion from an existing to a new sector based on the existing resources and competences (endogenous approach);
- modernization - technological enhancements within the existing sectors based on common technologies;
- diversification - widening the operations to new sectors based on the utilization of synergy effects;
- radical transformation - creating a new sector based on some available resources and competences (RIS 3 Guide).

The term „Stakeholders" was implemented and popularized by Freeman, who defines it as follows: „any group or individual who can affect or is affected by the achievement of an organizations purpose." Adopting such a wide interpretation of stakeholders for the purposes of a regions

development strategy will be related to the fact that the group of stakeholders will include: regional and local authorities, remaining regional and local state administration entities, companies, scientific, research and development entities, organizations of the mentioned entities, and social organizations representing civil society.

Regional clusters are an important stakeholder for determining and developing smart specializations. Contemporary understanding of cluster is conditioned by cluster policy implemented at national level, which defines what the cluster is or should be. Knop (2015a) performed an analysis of relationships between cluster specializations and smart specializations in the case of creative industries. Relying on the smart specialization on the regional clusters potential is. However, a very important element strengthening the role of stakeholders representing the specialization because the cluster is treated as a basic, self-organizing social entity, legitimizing the social dialogue, which is the essence of rational developmental processes (Olko, 2016).

Among many definitions of a cluster, it is worth noticing the one adopted by the Polish Agency for Enterprise Development which is the leading unit implementing cluster policy in Poland: „Cluster - geographical concentration of independent entities, representing specified economic specialization, cooperating and competing with each other within the scope of the value chain. Cooperation within a cluster is of formalized nature, it is implemented in the vertical and horizontal dimension and oriented at achieving the assumed common goals. The cluster represents the source of benefits and creates a new value for all types of entities participating in it such as companies, universities and other scientific entities, business environment institutions, public administration and the remaining supporting organizations" (Hołub-Iwan & Wielec, 2014). This definition is important because it forms the cluster policy implemented at the central level, within the scope of criteria of projects evaluation, criteria of key clusters selection at the central and regional level as well as cluster management standards promoted by central institutions. Within most standards concerning clusters management, including the European Secretariat for Cluster Analysis (ESCA) promoted in the EU, CSR is present as a basis of operation given in the strategic documents and practical implementations (Knop, 2015b).

3. Research approach and methods

The paper uses an approach to strategic analysis based on stakeholders which is rarely used in the strategic processes of regions. Freeman developed the concept of strategic management which uses the information on intentions and needs of stakeholders (1984). In his concept, the author defines a stakeholder as:

„any group or individual who can affect or is affected by the achievement of an organizations purpose." There are the following groups of stakeholders: local social organizations, owners, consumers representatives, clients, competitors, media, employees, suppliers and their organizations (SIG – Sourcing Industry Group), environmentalists, authorities (local, regional, central). Freeman does not limit the types or number of stakeholders who may be present in practice. Within developed approaches, the stakeholders are presented on two levels: a level of cooperating organizations (primary stakeholders) and a level of secondary stakeholders, the influence of whom is less intensive or only temporary. The latter includes: authorities, consumer advocate group, special interest group and media (Freeman, Harrison, & Wicks, 2007).

Within recent years, among the theoretical approaches to the stakeholders analysis, one may observe an approach that binds operations concerning stakeholders with ethical aspects: mutual relationships with other organizations and impact on environment (Friedman & Miles 2006; Phillips, 2003).

Reed et al. (2009) performed a complex analysis of theoretical and methodical approaches to the stakeholder analysis, considering in particular the undertakings and projects within the scope of natural resources protection. According to the authors, the stakeholders analysis process may be divided to three basic phases: identification of stakeholders, wherein one determines whether the entity or group has sufficient influence so it could be qualified as a stakeholders; differentiation and qualification of stakeholders, wherein one qualifies stakeholders among the group of influence; and the phase of examining the relationships between stakeholders. Depending on whether we analyze the stakeholders from the standpoint of a single organization or characterize a wider phenomenon (e.g., regional scale), we select the methods of identification, categorization and examination of relationships between stakeholders. During the field studies within a region, a wider context of entities analysis is employed. Even though the entity responsible for shaping the region development strategy is the regional self-government, the analysis of stakeholders should use a wider context of the analysis of relationships between entities within a region and in supra-regional scale. This is the main premise of a holistic governance approach which pertains to „self-organized, intra-organizing networks that can be characterized by interdependence, exchange of resources, rules of engagement and significant independence from the state" (Kjær, 2004).

According to Reed et al., a complex approach to a stakeholders study covers their identification, categorization and analysis of relationships between stakeholders. Categorization is the assignment of qualitative variables of nominal features to stakeholders, i.e., the unequivocal assignment of stakeholders to a specified set. The following categories are proposed

here: internal stakeholders and external stakeholders (environment entities), stakeholders from closer environment (microenvironment) and further environment (macroenvironment), entities closely cooperating and entities of secondary relationships (Freeman et al., 2007).

Methods of stakeholders analysis use variables that characterize the stakeholders or characterize the relationships between the analyzed organization and a stakeholder. Among the basic variables manifesting these relationships, one may point out: force of impact and degree of interest (Bryson et al., 2004). These variables are used to analyze practical undertakings within a region (Mushove & Vogel, 2005; Reed et al., 2009). Penc-Pietrzak (2003) proposes to use four variables in the analyses, which can characterize each stakeholder: attitudes in relation to the analyzed organization (positive or negative), degree of activity, force of impact, and degree of interest. The combination of the aforementioned methods results in combined variables: attitude weighed with activity and force of impact weighed with the degree of interest.

Atkisson (2010) proposes to categorize the stakeholders based on the role they play within developmental and innovative processes. His own model, known as amoeba, is applied mostly to analyse developmental processes and processes of changes in local and regional environments, and distinguishes the following groups of stakeholders: controllers - entities wielding public authority, being in the centre of processes of changes and decision making, and groups strongly striving for development: innovators, change agents, transformers, mainstreamers; groups being the centres of resistance against changes: laggards, spiritual recluses, reactionaries, iconoclasts, curmudgeons. As the author admits himself, this practical approach is based on the identification of roles showed by Rogers (2003) in the innovative processes, and helps to understand the „change agents" the logic of interrelated stakeholders, who frequently implement opposing goals. Both these approaches are rooted in the social changes theories. Each innovation or developmental phenomenona are in essence changes having their followers, adversaries and neutral parties.

The paper focuses first and foremost on the identification of regional stakeholders based on generally available information. In the previously presented methodical approaches, there are no detailed methods of stakeholders identification except for interview (focused or partially structured) or the snowball method (Reed et. al., 2009). Current observations related to developing regional innovation strategy show that during strategic document preparation processes there are two main stakeholders environments:

- cooperating stakeholders - analogically to the nature of primary stakeholders (Freeman et al., 2007), directly engaged in the process of specifying smart specialization;

- assisting stakeholders - passively cooperating stakeholders, e.g., participating in consultation meetings, providing information or proposals to key projects.

Current observation of stakeholders engagement participating in the determination of smart specialization shows that this variable should be the basic variable that categorizes stakeholders. Thorough analyses may consider additional categories, but leaving the proposed basic category. Because of that, this categorizing variable was used in the analysis presented in the paper.

Six regions, characterized by the most significant degree of companies' sector development were selected for analysis purposes. As the measure distinguishing this feature, the number of companies was selected (without physical persons running economic business - see Table 1). This measure is related to the role of companies in the regional development. These are the provinces (in the order of the differentiating measure size): Mazowieckie, Śląskie, Wielkopolskie, Małopolskie, Dolnościąskie and Pomorskie. At the same time, these are provinces of recognized scientific and innovative potential, wherein expenditures on research and development are the highest in the country.

Further, the characteristics of the selection process of smart specializations of the selected provinces and the role of stakeholders in their development are presented. According to the adopted methodology, information about identification and categorization of stakeholders is presented. The identified primary and secondary stakeholders in the selected provinces are given in Table 2.

4. Results and discussion

4.1. Mazowieckie Province

The first Regional Innovation Strategy (RIS Mazovia) was adopted in 2008. Its main purpose was creating the system supporting innovativeness, among other things through building and maintaining a cooperation relationship network and creating durable tools supporting innovative operations. In 2015, the RIS Mazovia was updated. The Regional Innovation Strategy for Mazowsze up to 2020 has been developed according to guidelines concerning strategy in aid of smart specialization. This meant strengthening the role of stakeholders in programming, implementing, monitoring and evaluating. Smart specialization leads to a concentration of available resources on a limited number of economic objectives, identified during the process of „entrepreneurial discovery." Smart specializations for Mazowsze are specified in the Regional Innovation Strategy for Mazowieckie Province 2013 - 2020 in Annex No. 1.

Table 1. Selected developmental measures of regions in Poland

Province	Number of companies (without physical persons running economic operations)	Number of entrepreneurs per 10 000 citizens	Internal expenditures on R&D per 1 citizen in 2016 [PLN]
Mazowieckie	809,239	1,508.1	1,284
Śląskie	468,740	1,028.1	264
Wielkopolskie	421,616	1,211.0	311
Małopolskie	380,294	1,124.4	947
Dolnośląskie	368,678	1,269.7	372
Pomorskie	293,970	1,269.5	536
Łódzkie	244,916	985.4	281
Zachodniopomorskie	222,758	1,304.1	110
Kujawsko-Pomorskie	195,368	937.5	139
Lubelskie	177,289	831.0	293
Podkarpackie	170,893	803.2	359
Warmińsko-Mazurskie	125,271	872.1	115
Lubuskie	112,664	1,107.4	82
Świętokrzyskie	111,971	893.7	107
Podlaskie	101,032	851.4	150
Opolskie	100,337	1,010.4	102

Source: Central Statistical Office. Retrieved from stat.gov.pl.

In the RIS for Mazowsze, it was assumed that its implementation as well as implementation of smart specialization would be supported by working groups, dedicated to individual specialization fields. Creating the working groups would allow the participation of stakeholders in managing and monitoring the RIS as well as a detailed orientation of support within the scope of specialization areas, according to the current needs of the economy. It was assumed that the leading role would be vested in entrepreneurs representative within the groups, in this case - in case of such readiness – the appointment of the stakeholders representative (e.g., cluster, discipline organization, etc.) to be the leader coordinating the working groups work. It is also envisaged to appoint additional, task working groups.

Within the works concerning the constitution of smart specializations, one assumed works within working groups, which should consist of entrepreneurs representatives, scientific institutions and business environment institutions as advisers. The task of the working groups should be:

- developing priority directions of research (research agenda);
- cooperating in creating implementation programs for RIS;

- possible participation in RIS monitoring process - verification of smart specializations;
- participation in the process of updating smart specialization;
- consulting support instruments within the scope of specializations (e.g., assumptions of contests, criteria of project - proposals evaluation, conditions of support of smart specialization areas within the Regional Operational Programme for Mazowieckie Province 2014 – 2020).

It was assumed that the nature of working groups should be open and public. The recipient of the working group arrangements should be the RIS Management Institution, performing the observer role within consultation processes. It is assumed that work within working groups has continuous character, depending on the participant's engagement.

The self-government of the province adopted the principle that with the full responsibility of the Province Authorities, the major burden related to RIS developing and selecting smart specializations rests on units of the Marshal Office through effective communication with the final beneficiaries of the operations. To that end, a RIS communication plan is prepared, assuming that proper information and promotion operations will allow obtaining detailed information on operations of the province in order to raise competitiveness of the region within the scope of innovation and innovativeness. It was planned that within a long-term perspective, 2015 - 2020, this will allow for creating a recognizable and positively identifiable brand of Mazowiecka Sieć Innowacji (Mazovian Innovation Network).

4.2. Śląskie Province

The process of smart specializations selection within Śląskie Province was based on exhaustive social consultations with the participation of representatives of scientific institutions, companies and business environment institutions operating within the region (Brzóska & Olko, 2017). Smart specializations of the province are specified in the Regional Innovation Strategy for Śląskie Province 2013 - 2020 (adopted in 2012) and the Resolutions of the Śląskie Province Sejmik of 19 March 2018, which included two new specializations: green economy and emerging industries.

Within Śląskie Province, since the beginning of developing and implementing the regional innovation strategies, the RIS implementation consulting bodies have been established: RIS Steering Committee and the Silesian Innovation Council. The Regional Innovation Strategy Steering Committee (RIC SC) has been established by the Province Administration based on the Resolution No. 1247/271/II/2005 of 28.06.2005 according to the

stipulations of the Regional Innovation Strategy for Śląskie Province 2003-2013 adopted based on the Sejmik Resolution No. II/11/2/2003. The Regional Innovation Strategy Steering Committee (RIS SC) is a body providing opinion and advisory services of the Province Administration in cases related to programming, coordinating, implementing, monitoring and evaluating the policy of the province development within the innovation scope. The Steering Committee consists of 28 members: vice-marshal, 3 representatives of the Marshal Office, 13 representatives of scientific entities, 1 representative of a company.

Within Śląskie Province, except for the smart specializations, regional specializations have been identified, specified in the Technology Development Programme, i.e.: transport and transport infrastructure, materials production and processing, nanotechnologies and nanomaterials, machine industry, automotive, aviation and mining industry, ICT, environment protection technologies, technologies for the power industry and mining as well as medical technologies.

Śląskie Province has developed an interactive map of actors[2] of the regional innovation system, which identifies most of the primary and secondary stakeholders as well as external stakeholders (national and foreign), affecting the processes of innovative region development. Among the group of actors, it is worth mentioning the role of clusters: Medsilesia, having the status of the National Key Cluster and Silesian Nano Cluster - co-creating the Nanotechnological and Nanomaterial observatory.

4.3. Wielkopolskie Province

Smart Specializations of Wielkopolskie Province are specified in the Regional Innovation Strategy for Wielkopolska 2015 - 2020. Identification of specialization within Wielkopolskie Province was based on the endogenous potential of the region. Study of the dominating disciplines was performed based on statistical data, calculating the coefficient of location and analysis of the displacement of shares per number of companies, employment and gross value added. Moreover, the scientific and research potential of scientific entities within the region based on publication effects of the regional scientific entities was analyzed. According to the methodology of entrepreneurial discovery given in the RIS3 Guide, one performed studies shared by the beneficiaries: entrepreneurs and clusters. The most important stages of the entrepreneurial discovery process in Wielkopolska included:

- individual through interviews with the management personnel of companies within preliminary areas of region specialization;

2 The map is available at the address: http://mapa-ris.slaskie.pl/

- works of the working groups for smart specializations;
- social consultations within regions;
- first meeting of the Smart Specializations Forum.

The works concerning studying and emerging smart specializations were shared by the Poznan University of Economics and Business and Innovation Observatory of Wielkopolska – an opinion and advisory services body created as a consortium at the Marshal Office. Research studies among entrepreneurs related to the verification of smart specializations were also conducted by the Poznan Scientific and Technology Park. The RIS agrees, that after its enacting the process of entrepreneurial discovery will be continued within the scope of Wielkopolska Smart Specializations Forum. Even though the entrepreneurs and clusters participated within the direct studies, they cannot be qualified among primary (direct) stakeholders.

4.4. Małopolskie Province

Smart Specializations of Małopolska have been presented in the Regional Innovation Strategy for Małopolskie Province 2014 - 2020. The following parties participated in its development:

- councillors of Małopolksie Province;
- board of Małopolksie Province;
- task force for development of Małopolskie Province RIS 2020,
- strategic expert for development of Małopolskie Province RIS 2012 - 2020;
- employees of the following Małopolskie Province Town Office departments: Economic Development, Regional Policy and Operational Programmes Management;
- opinion-making institutions and supporting the process of Małopolskie Province RIS 2020: Innovation Council of Małopolska, Economic Council of Małopolska, Information Society Council of Małopolska, Common Commission of Territorial and Economic Self-governments of Małopolska, Forum of Commune Heads, Mayors and Presidents of Małopolska;
- entrepreneurs, economic and social organizations, territorial self-government entities as well as citizens of Małopolska participating in the Małopolskie Province RIS 2010.

The Małopolskie Province RIS 2020 documents have been edited by the Cracow University of Economics, which is the major stakeholder engaged in the strategy development.

The process of selection and analysis of smart specializations has been subordinated to recommendations formulated in the RIS3 Guide and covered the following stages:

1) Analysis of the regional context and potential of innovation.

2) Creating a strong management structure with the participation of various stakeholders.
3) Development of a common vision of the region's future.
4) Selection of a limited number of regional development priorities.
5) Preparation of proper set of policies and programs.
6) Considering the mechanisms of monitoring and evaluation.

The process of selecting the areas of smart specializations of Małopolskie Province was implemented according to recommendations of the methodology concerning the development of research and innovation strategy in favour of smart specializations and at the same time was based on well established, due to long-term application, principles and practices in cooperation with key stakeholders of the innovative policy of the region. According to RIS, these stakeholders include economic, scientific and supporting institutions (financing, advisory, technology transfer) of Małopolska as well as public administration bodies. Among them, the key role is played by the self-government of Małopolskie Province, having financial and institutional (among other things opinion making councils) instruments creating regional policy of research and innovation.

One of the smart specializations of the region - life science - is in conformity with the Life Science Cluster, which since 2016 has the status of the National Key Cluster.

4.5. Dolnośląskie Province

The basic document specifying the strategy of innovative development in Dolny Śląsk is the Regional Innovation Strategy for Dolny Śląsk 2011 - 2020 together with Implementation Plans. The last accepted Implementation Plan concerns 2017 - 2018. Upon the order of the Marshal Office of Dolnośląskie Province, the updating process of the Innovation Strategy for Dolny Śląsk consisting in the development of the aforementioned documents, was performed by a consortium consisting of: Wrocław University of Science and Technology, Centre of Technology Transfer and Zachodniopomorska Grupa Doradcza Sp. z o.o. from Szczecin. These documents were developed based on the works of the Implementing Team, three Working Groups and Steering Committee consisting of ca. 60 regional experts representing the most important entities of the Dolnośląski system of innovation such as: entrepreneurs, territorial self-government entities, scientific and research entities, universities, business environment institutions, economic relationship networks representatives and others.

The method of determining smart specializations of Dolnośląskie Province was based on the identification of these areas of activity, where

the interaction of scientific and economic operations takes place (Strategic frameworks, 2015).

Within the Dolnośląskie Province, as the only one of the analyzed entities, was the National Key Cluster – Nutribiomed, coordinated by Wrocławski Park Technologiczny S.A. The cluster is related to two smart specializations: high-quality food as well as the chemical and pharmaceutical sector.

After updating smart specializations, Dolnośląskie Province at the beginning of 2018 started preparation of the province development strategy until 2030.

4.6. Pomorskie Province

Within Pomorskie Province, one employed the rank and file process of defining smart specializations. It was assumed that they are reported within contest mode by the interested economic and scientific environments, and the regional authorities select these which have the greatest developmental potential. The competition started on 14 May 2014 and ended on 9 April 2015 with the selection of smart specialization in Pomorskie Province. According to the Regional Innovation Strategy of Pomorskie Province, the selection process of smart specialization is of a repeatable nature. It will be started by the Administration of Pomorskie Province every two years, as a rule, starting from 2013. As a result of the competition processes, four smart specializations were specified, which are related to technologies. Based on the Resolution No. 72/110/16 ZWP of 26 January concerning the consent to conclude agreements in favor of Smart Specializations of Pomorskie Province, agreements were concluded with each of the four areas of Smart Specializations of Pomorskie Province. The agreements were concluded by the Administration of the province and within the following specializations:

- offshore as well as port and logistic technologies - 76 units (scientific entities, companies, supporting institutions);
- interactive technologies within the information-saturated environment - 68 entities (scientific entities, companies, Interizon - National Key Cluster, supporting institutions);
- eco-effective technologies within production, transfer, distribution and consumption of energy and fuel as well as within construction industry - 108 entities (scientific entities, companies, supporting entities);
- medical technologies within the scope of civilization diseases and aging period - 93 entities (scientific entities, companies, supporting institutions).

Considering the scope of entities participating in the agreements and their declaration concerning support of smart specialization based development, this

stands alone as being the widest and most active participation of stakeholders in the process of implementing smart specializations within the country.

4.7. Discussion of the results

Within all analyzed regions, the key role concerning shaping the developmental policy based on smart specializations is played by the marshal offices, which are the most important stakeholders responsible also for administrative decisions (resources allocation) as well as implementation of projects supporting research, developmental and innovative operations. On the list of key stakeholders (Table 1), regional self-government was omitted. However it should be taken into consideration in the analyses of relationships between stakeholders. Only one of the analyzed regions - Dolny Śląsk - used, in its works concerning development of RIS and selecting smart specializations, an external advisory group - shown in the table as a stakeholder, however, the role of such an entity ends at the moment of adopting the strategy. In the remaining cases, the role concerning developing the regional innovation strategy as well as determining and studying smart specializations is performed by cooperating scientific institutions. An exception, in this case, is Mazowsze, wherein no direct cooperation with a scientific entity was found during the development of smart specializations. Within all regions, it is possible to identify secondary stakeholders who are beneficiaries of the developmental operations: companies, clusters, scientific entities and business environment institutions. The works do not include the basic entities of the territorial self-government (cities, communes) or other state administration bodies. As participants of the works concerning selection of smart specialization, there are economic chambers, discipline-related associations and employers unions representing the stakeholders.

5. Conclusions

Formulating smart specializations and their implementation in the practice of region management requires the engagement of stakeholders thematically related to specializations. Regions implement this function in different ways and detailed conclusions can be summarized as follows:

1) Within all analyzed regions there are representatives of three main innovative environments (triple helix): self-government, science and companies with the most noticeable activity of entities from the science and companies sector.

Table 2. Smart specializations of regions and identified stakeholders

Province	Smart specializations	Primary stakeholders	Secondary stakeholders
Mazowieckie	safe food smart management systems modern services for business high quality of life	no primary stakeholders identified	companies, scientific entities
Śląskie	medicine energy ICT green economy emerging industries	2 higher universities, scientific institute, business environment institutions; scientific entities and business environment institutions creating the network of regional specialist observatories	companies, scientific entities, clusters (MedSilesia KKK, Śląski Klaster Nano)
Wielkopolskie	bio-raw materials and food for aware consumers, interiors of the future, industry of the future, specialist logistic processes, ICT based development	Poznan University of Economics, Innovation Observatory of Wielkopolska, technological park	companies, scientific entities, business environment institutions
Małopolskie	life science, sustainable energy ICT, including multimedia chemistry production of metals and metal components (excluding machines and devices) electrotechnics and machine industry, creative and free-time industry	university - University of Economics in Cracow	companies, scientific entities, business environment institutions, economic and social organizations
Dolnośląskie	chemical and pharmaceutical industry, spatial mobility, high-quality food, raw materials and recycled materials, production of machines and devices, materials machining ICT	university - Wrocław University of Science and Technology, advisory group	companies, scientific entities, Nutribiomed – National Key Cluster

Province	Smart specializations	Primary stakeholders	Secondary stakeholders
Pomorskie	offshore as well as port and logistic technologies; interactive technologies within the information-saturated environment; eco-effective technologies in production, industry, distribution and consumption of energy and fuels and in construction sector; medical technologies within the scope of civilization diseases and aging period	participants - 4 agreements supporting smart specializations (scientific entities, companies, National Key Cluster – Interizon)	companies - beneficiaries of regional programmes, remaining scientific entities, cities within the region

2) The undisputed central role (formal and practical) within all analyzed regions is played by the Marshal Offices as the regional self-governments responsible for determining development plans and smart specializations. However, one must pay attention to the existence of the differentiated role of cells and departments within the existing structure of the offices. Detailed analysis of relationships between stakeholders should also consider the differentiated roles and rates of the Marshal Office entities.
3) Application of stakeholders division to primary and secondary based on theoretical premises has been confirmed in practice. With reference to these basic groups of stakeholders, different relationships management, information exchange and stimulation of trust instruments between representatives of these institutions are applied. At the same time, roles assigned in the literature to primary and secondary stakeholders are in conformity with the roles resulting from the implemented studies.
4) It is possible to notice a differentiated approach to selection and relationships with primary stakeholders: starting with the large independence in the development of smart specializations strategy (Mazowieckie Province) to the wide cooperation with a significant number of stakeholders (Śląskie and Pomorskie Province). Pomorskie Province, as the only one among the analyzed provinces, builds formal coalitions (arrangements) of entities around the smart specializations.
5) Each of the analyzed regions rationalizes the decision making processes through the appointment of advisory bodies (steering committees, social councils). Members of these bodies are representatives of regional stakeholders.
6) The regions underline the role of the cluster in the developed innovation strategies, however as the primary stakeholders, clusters appear only

in Pomorskie Province (Interizon - National Key Cluster). In Śląskie, Dolnośląskie and Małopolskie Province, clusters can be identified as the secondary stakeholders (MedSilesia and Śląski Klaster Nano in Śląskie Province, Nutribiomed in Dolnośląskie Province and Klaster Life Science in Małopolskie Province). Within the remaining provinces, clusters are not as active as the environments related to smart specializations.

7) Among the secondary stakeholders, low activity is manifested by local self-governments and their organizations. Analysis of strategic documents does not show the share of these entities in the process of determining smart specializations and fulfilling specified roles within this scope.
8) The cognitive limitation of the paper is its concentration on only one phase of the stakeholders analysis - identification within selected regions. Another step of the analyses related to stakeholders, according to methods given in the source literature, should be the analysis of relationships between stakeholders, selecting entities of the most important competences within the scope of specialization and the greatest force of influence.
9) Directions for further studies of the author within the scope of the presented research problem are related to using the network of entities and consortia creating regional specialist observatories. Rationalization of regional decisions should consist in the professionalization of methods that include stakeholders into the process of determining smart specializations. The positive experience in Śląskie Province within this scope is a very good example which will be presented in further papers.

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Biographical note

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AN ASSESSMENT OF CUSTOMERS' POSITION AND AWARENESS IN THE CREDIT MARKET

***Ewelina Pawłowska-Szawara*[1]**

Abstract

The aim of this paper is to determine consumers' position and awareness in the credit market. Also, it is to define the reasons why households run into debt and the influence of this on consumers' economic situation. Also, the article presents models of institutional solutions for sanctions and bankruptcy. Moreover, it contains an analysis of the instances when the rights of consumers were infringed regarding credit services advertisements. Research methods include a critical analysis of the literature on the subject, a descriptive analysis, an overview of legal acts and a desk research method which consists of collecting and analyzing existing data as well as own research. The experimental analysis proves that the simplification and standardization of the information about the product enable customers to make decisions which are more profitable for them. The right to information and proper education is one of the main and inalienable customer rights in the EU. A conscious consumer would then be a more well-matched partner capable of strengthening his position in a credit market. Consumer education is an institutional source of information. Thus, it contributes to the way consumers act in the financial market by reducing any unfavorable proceedings which infringe their rights. Analyses presented in this paper allow one to clearly determine how households tend to behave in financial markets, as well as to foresee their behaviors. This is particularly significant from the point of view of the whole banking sector due to the fact that, on one hand the percentage of households in debt is diminishing, while on the other hand an increase in the value of debts can be observed. The issue of indebtedness of households requires constant observation due to the change in thei economic environment and may also require more attention and research in the future.

Keywords: *consumer, indebtedness, consumer bankruptcy, consumer credit.*

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1. Introduction

The change in the way banks' credit activities are perceived, together with a real increase in household incomes have affected the scale of household indebtedness. What is more, one of consequences of Poland's accession to the European Union was the general improvement of economic outlook within the first few year after accession (see more in Wałęga, 2013, pp. 768-770), which had a direct effect on the improvement of customer confidence (Belk, 2010). Indebtedness of Polish consumers, which is a consequence of them taking credits, affects their economic situation in two ways (Schuchardt et al., 2007). Firstly, consumers spend the resources from credits on durables (e.g., cars or household appliances). Thanks to this they can afford higher consumption than their income allows (see more in Melicher & Norton, 2005, p. 3). Loans are also taken out to improve housing conditions, i.e., they are used for renovations and modernizations of apartments and houses or as a financial contribution which is paid to a housing association for a flat. On the other hand, loan installments constitute yet another expense for consumers (Hoffmeyer-Zlotnik & Warner, 2009). The expenses of those who take out loans are usually higher than the expenses of those who are not in debt (Bywalec, 2012). Households which are in the most difficult financial situation usually bear the highest costs of liabilities compared to their income (Swart, 2007). This is due to the fact that, from the financial institutions' point of view, these clients belong to the highest risk group (Kapoor, Dlabay, & Hughes, 2004). The best way to improve the poor households' situation is to enhance their income-earning capacities instead of letting them take out more loans.

The aim of this article is to determine the consumer's position and their awareness in the credit market. The paper presents models of institutional solutions for sanctions and bankruptcy. Moreover, it contains an analysis of the instances when consumer rights were infringed in the advertisement of credit services. Research methods include a critical analysis of the literature on the subject, a descriptive analysis, an overview of legal acts and a desk research method which consists of collecting and analyzing existing data as well as own research.

The first part of this paper describes factors which influence the scale of households' debt. The second part, in turn, presents the notion of personal bankruptcy in Poland as well as in other EU countries. The third part depicts the importance of the breach of consumer rights in credit advertisements. It identifies the position and awareness of the consumer in the credit market, too. The article is concluded by final remarks.

2. Literature background

Credits constitute a popular source of funding for household consumption. There are many factors which influence consumer debt caused by taking credits. To these belong determinants of a supply and demand nature, where the first ones are the results of credit institutions' proceedings and the latter ones depend on the borrowers' situation (see more in Wałęga, 2013, p. 102). To factors of a demand, nature belongs the increase in the population's wealth which results in consumers' willingness to improve their standard of living by increasing consumption (e.g., through the purchase of durables). The supply factors are, in turn, connected with the banks' credit policy (e.g., in the form of simplified loan-granting processes). Another way to divide factors responsible for household indebtedness is the division into macro- and microeconomic ones. The macroeconomic factors are:

- current interest rate – the lower it is, the cheaper and more accessible credits are, which is due to the fact that lower instalments increase borrowing capacity (Williamson, 1981, pp. 1537–1568);
- income – the amount of income constitutes one of the most significant variables in the scoring models used by banks to assess the risk of a borrower's insolvency (Campbell, 2006, pp. 1553–1604);
- current and predicted economic situation - Duesenberry (1952, pp. 255-257) indicated in his research the correlation between the level of household consumption and the level of the economic environment's consumption;
- the introduction of stricter criteria for the granting of credit. This factor affects the level of consumer indebtedness as stricter criteria mean an increased borrowing capacity (Białowolski & Dudek, 2007, pp. 25-26);
- rivalry among banking institutions. Strong competition has forced banks not only to increase the number of distribution channels but also to modernize them as well as to speed up credit application processes (NBP, 2008, p. 92).

In practice, there are two main microeconomic reasons why households run into debt. Mainly, these are either the willingness to improve living standards or the need to address emergency situations. The first one can be regarded in two ways. Firstly, consumers of good financial standing take credits to pay for higher class goods (such as travel expenses, expensive household appliances or holiday homes) or to pay for capital goods (such as securities). Both of the above can be referred to as credits for convenience (Durkin, Elliehausen, Staten, & Zywicki, 2014).

On the other hand, though, less affluent consumers take the so called credits for needs to meet their basic consumer needs (i.e., food, clothing,

household equipment or healthcare). The situation when a credit is taken to address an emergency needs to be considered in two ways, that is in a positive way (where the credit makes some profit) and in a negative way (when the consumer is forced to take a credit to pay off some unexpected expenses). The first instance is about gaining on a bargain purchase. The negative category is related to sudden and unplanned expenses of households (such as an illness, an accident, a theft or a house fire).

It was relevantly difficult for households to obtain credits in the 1970s and at the beginning of the 1980s. The customer finance market was deregulated at the end of the 1970s which resulted in easier access to credits for natural persons. An increase in household debt was observed at the same time. The early 1990s recession in Europe brought about a rapid growth of household indebtedness and, consequently, made it difficult to handle it. At that time many European countries came up with regulations on consumer insolvency (see more in Szpringer, 2005, p. 20).

An increased consumer interest in credits taken to finance their current consumption has become the reason for the rapid growth in indebtedness. The amount of credits taken in France in 1984-1988 increased by 158%, whereas in Germany the number of credits doubled in 1984-1994 (see more in Kilborn, 2007, pp. 6-9 and Reifner, Kiedilainem, Huls, & Springeneer, 2010, pp. 14-15).

Denmark was the first of the EU countries to regulate consumer insolvency. This happened in 1984. The countries that followed were France (in 1990), Great Britain (1990), Finland (1993), Sweden (1994), Austria. (1994), Germany (the regulations were introduced there in 1994, but they came into life only in 1999) and Holland (1997) (Reifner, Niemi-Kiesiläinen, Huls, & Springeneer, 2010, pp. 10–11). Consumer insolvency was introduced in Portugal, Luxembourg and Spain at the beginning of the XXI century. The majority of Central-Eastern European countries adopted relevant laws at the end of the first decade of the XXI century. As at 10.02.2018, the consumer can declare insolvency in 27 out of 28 countries of the EU. The only EU country with no such possibility is Bulgaria.

In order to decrease excessive debt, it is necessary to carry out informative and educative activities, as well as to increase consumer protection, improve consolidation systems, payment of debts and introduce better supervision over credit intermediaries. Consumer insolvency is not regulated at EU level. It means that by the date this paper was written there is no consistent legal model which would regulate the issues discussed. There are two primary models of consumer insolvency in the EU, which are judicial and extrajudicial ones (Szpringer, 2006). As the globalization moves forward, current insolvency regulations get more and more complicated, which respond to the demand of the financial sector (Braucher, 2008).

The consumer's decision to be subjected to insolvency proceedings is the result of their mounting debt which leads to their insolvency. That, in turn, is understood as permanent loss of possibility to pay obligations (Świecka, 2008). The main purpose of the declaration of insolvency is to provide the insolvent consumer with the possibility of making ''a fresh start'', which is understood as freeing them from excessive debt (provided they meet certain criteria) and allowing them to return to function normally both in the society and in the financial market.

In Germany, insolvency proceedings for consumers were regulated for the first time by Insolvency Regulations (Insolvenzordnung, referred to as InsO in abbreviated form) from 5 October 1994. Those regulations introduced the new institution of consumer insolvency to the German law (§§ 304-314). General provisions on insolvency proceedings are of supportive nature in consumer proceedings. Debt repayment proceedings, which apply after the insolvency proceedings have ended, were regulated in a separate part of Insolvenzordnung (§§ 286-303). The Act contains a definition of the term ‹›consumer››, who is a natural person who does not run his own company (§§ 304 ust. 1.). The notion ''consumer'' encompasses all kinds of the employed, the unemployed, freelancers and people who do not have their own business.

In Austrian Law, insolvency and debt repayment proceedings were regulated for the first time for natural persons together with other kinds of proceedings by Imperial Regulation of 10.12. 1914. That was a regulation on the introduction of insolvency and arrangement law (Konkursordnung). An amendment to that Act was made in 1993 and it came into life 1 January 1995 (Konkursordnung-Novelle, 1993). The next review of provisions took place in 2002 (Fink, 2003). Insolvency proceedings pertain to all natural persons who submit appropriate application for it, no matter if they run their own companies or not.

Debt repayment was defined in France by an Act from 31st December 1989 (Loi Neiertz), which entered into force on 1st March 1990. The Act has been amended multiple times, that is in 1995, 1998, 2003 and 2010 (Ledan, 2006). The provisions of the Act are currently included in the Consumer Code (Code de la consommation). Debt repayment proceedings are in France of sui generis nature which means that one of its variations is close to legal proceedings while the other one indicates certain elements of a settlement procedure (Klopp, 1992). The aim of the Code is to write off debts of natural persons (in particular - consumers) who are insolvent. Only natural persons whose liabilities are not the result of their professional or business operations could be entities in legal proceedings (art. L330-1).

The models of consumer bankruptcy vary significantly in the EU countries mentioned above. The basic difference depends on whether the bankruptcy has been declared judicially or non-judicially. The other differences are:

- the period of consumer rehabilitation (this is the time when the recovery of debts is suspended and the right of the consumer to manage their own assets is limited);
- availability (e.g., the possibility to declare bankruptcy only in case of 'involuntary' debt);
- legal effects (including debt write- off).

The bankruptcy process is also connected with educative activities in most of the EU countries. These are aimed at raising consumers' awareness about effective management of household assets. The European law puts more and more pressure on consumer protection in the financial services market. However, debt recovery by creditors remains the key objective for insolvency procedures (Gerhardt, 2009).

Insolvency procedures are a relatively new notion in EU regulations. They have not been thoroughly addressed yet, even though there have been a large number of publications on that subject. Thus this issue might cause some terminological as well as content-related misunderstandings which might have serious practical implications. Prerequisites to declare consumer bankruptcy are differently formulated among the EU countries. In countries where an extrajudicial stage of insolvency proceedings exists, it is required to provide documents proving that negotiations with the creditor have failed.

Regulations on consumer insolvency were introduced to Polish law as late as on 31 March 2009, which is later than in other EU countries discussed. They were introduced under bankruptcy and rehabilitation law as well as the Act on court costs in civil cases (Ac from 5 December 2008). The term ''consumer insolvency'' is not present in the Act mentioned, but it is commonly used in practice as one that refers to regulations on insolvency (art. 4911–4912). In the light of the above Act persons who are not consumers also have the right to be declared bankrupt. An amendment, which was added on 31 December 2014 to the law on consumer bankruptcy, liberalized conditions for declaring bankruptcy by removing some legal and financial barriers. For instance, it has led to the lowering of court fees as well as the costs of declaring bankruptcy. Also, it has set salaries for insolvency administrators to be several times lower than salaries for bailiffs. Polish insolvency law seems to be quite restrictive compared to the laws of that time in other countries of the European Union as it allows persons to be subject to insolvency proceedings only when the debt results from the debtor's involuntary activities. It also makes the debtor obliged to sell his house or apartment and does not specifically provide for any agreement with creditors (Czarpacka, 2013).

Consumer insolvency should be regarded as an absolute necessity. It is not about avoiding taking credits, because they are strong economic drivers of growth and contribute to the increased well-being and prosperity of society.

3. Research approach and methods

Consumer protection means comprehensive activities done to strengthen consumer position and to protect consumer rights (Pawłowicz & Penczar, 2010, p. 7). Consumer position on the credit market is closely connected with consumer policy (OECD), which should be followed as it formulates the guidelines for further activities and strategic interests which ensure tight consumer protection. Because consumers lack information, it is necessary to grant them particular legal and institutional protection. This lack of information is understood as no specialist legal and commercial knowledge about how credit products function. The reasons for increasing consumer position, awareness and protection are mainly as follows (Kieżel, 2007, p. 10):

- impediments to access clear information caused by aggressive marketing strategies of credit institutions;
- lack of adequate knowledge and experience on the side of consumers, which consequently leads to the fact that they are no equal partners for banking institutions;
- restrictions in consumer representation which are the result of weak consumer movement and difficulties to access political and commercial authorities;
- no real influence on credit arrangements' conditions from the customer side.

Sales of financial and credit products, similarly to any other products, are supported by various forms of advertisement. The literature on this subject also mentions a separate type of advertisement which is the advertisement of credit services. Its basic purpose is to boost sales of financial products, i.e., credits (Grzegorczyk, 2003). What is more, credit advertising is of particular importance because of the role it plays in the decision making process on signing up credit agreement. However, banks do not always fulfill the duties imposed on them by the Act on consumer credit (Dz.U. 2011 Nr 126 poz. 715). This can be concluded from the analysis of the decision of OCCP's Chairman, who indicated many irregularities in that area (Nr DDK 3/2016). General regulations on how financial offers should be presented can be found in „Kodeks postępowania w dziedzinie reklamy" (''The code of conduct for advertisement'', igrz.home.pl). According to that document, the consumer must not be misled in any way by the financial institution (Rutkowska-Tomaszewska, 2011). One of the most basic consumer rights is the right to clear and full information about the product.

The obligation to provide information should help make the consumer a more equal partner for a professional in the credit area.

According to the definition of advertisement contained in the Broadcasting Act (13 Article. 4 item 17),''an advertisement is understood as a commercial communication that comes from a public or private operator in connection with their professional activities, aiming to promote sales or payable use of their goods or services; self-promotion is also a form of advertisement". In the doctrine one expressed a view that, taking into consideration the provisions of 2008/48/WE directive (Dz.U. UE from 22 May 2008 . L 133/ 66-92), the notion of an advertisement should be interpreted in a very broad way as it should encompass also other materials of a commercial nature (Chruściak et al., 2012). The main characteristics of an advertisement is that it contains information which encourages potential consumers to use the offer presented. The Act on Consumer Credit contains the material scope about the obligation to supply information in credit advertisements. The above rule indicates that the creditor or the credit intermediaries are obliged to provide in the credit advertisement the following information:

- credit interest rate together with the separation of fees included in the total amount of credit;
- the total amount of credit;
- RRSO, that is APRC - Annual Percentage Rate of Charge.

What is more, credit institutions are obliged to convey to the consumer information on the duration of the credit agreement, the total amount to be paid, the amount of installments as well as the amounts of all advances in case of a credit agreement with deferred payment.

Conclusions from analyses carried out among financial institutions in 2011 (after MiFID came into life) by a Deloitte consultancy are quite disturbing. They prove that the client, when talking with a loan adviser cannot count on obtaining reliable information about the kinds of risk that a given credit entails. According to research, advisors recommended financial products to customers without any previous customer profiling in up to 80% of cases.

Irregularities in consumer credit advertising in Poland were pointed out by the UOKiK (OCCP) Chairman at the beginning of 2016. According to UOKiK's accusations, information presented by chosen banks in TV spots was depicted in a way that made it impossible for potential customers to read and comprehend because of the font size or the very short time when the information was presented. UOKiK has indicated that some of the TV advertisement campaigns did not comply with the requirements of the Act on consumer credit. To those companies belong Alior Bank („Gwarancja najniższej raty" campaign), Bank BGŻ BNP Paribas („Orzech odsetkowy" campaign), Euro Bank („Warto sprawdzić jakość i cenę. Kredyt gotówkowy

z atrakcyjnym oprocentowaniem już od 5,7 proc." campaign) and Credit Agricole Bank Polska (kampania „Kredyt prostoliczony za 10 zł"), (https://uokik.gov.pl). The Office's objections were mainly about the way the credit costs were presented. Information that is most vital from the consumer's point of view, such as interest rate, total amount to pay off or RRSO (APRC) were depicted in a quite incomprehensible way, with the use of a small font and it was shown for a period of time that was too short to read it. For instance, in a TV spot that lasted 30 seconds in total the information required to be disclosed by law was to be seen by consumers for only 2 seconds. It is impossible for potential customers to get acquainted with even a part of information, not even to think of comprehending it entirely being given such a short period of time. The UOKiK Chairman concluded (DDK 3/2016, DDK 4/2016, 7/2016, 6/2016, 5/2016) that the Act on consumer credit states that the consumer credit advertisement should be visible, comprehensible and clear. Moreover, it is the duty of the creditor to choose the means of communication is such a way that this legal obligation is met.

According to the Act on unfair trading practices, if a customer was misled and tricked into taking a credit, which they otherwise would not have decided to take, they can file their claims against the creditor (Dz.U. 2007 nr 171 poz. 1206).

4. Discussion and results

Credit institutions are obliged to provide vast amounts of information about credit products they offer. Due to the fact that consumers have limited knowledge and skills they are not always able to interpret credit information correctly.

Research conducted by the Eurobarometer (2011) in EU countries which was carried out at the European Consumer Summit shows that the level of consumer skills and awareness is worryingly low. Analyses point to the lack of consumer knowledge at every stage of financial transaction, that is before signing the credit agreement, during the term of the agreement and after its termination. Unfortunately, consumers face difficulties even doing basic calculations. Only 45% of respondents were able to provide correct answers to three questions about consumer issues. The survey was conducted by researchers such as N. Chater, R. Inderst (2010) among 6,000 consumers coming from eight EU countries and describes the decision making process in credit market among retail consumers. The conclusions from the survey are as follows:

- there is no understanding of the variable interest rate which means that consumers do not realize that their debt and, consequently, the installments they have to pay will go up in case of an increase of interest rates;

- consumers do not compare offers. Only about 33% of consumers compared credit products offered by more than one banking institutions or have given a thought on more than one product from more than one financial institution. Only 27% of respondents have reviewed offers available on the market to get the best credit offer.

It turns out in practice that wide-scale information activities aimed at customers do not guarantee that they will use this information (Garman & Forgue, 2008).

Most Poles have a very general knowledge about financial products available on the market. Both quantitative and qualitative studies carried out by TNS Polska for OCCP (UOKiK, 2015) show that consumer knowledge about financial products is quite superficial. A common banking account that is a current savings and settlement account (ROR) belongs to the most known and comprehensive products for consumers (as agreed by 92% of respondents). Investment products are the least known to consumers because they are based on investment and, according to respondents, they require much knowledge and commitment.

In that respect, solutions presented by OCCP (UOKiK) on consumer policy strategy, which are about the further increase in the amount of information given to borrowers (2014), seem to be disputable. The escalation of informative burdens imposed on credit institutions can lead to asymmetry of information, and, consequently, to an increase in costs of services (Kieżel, 2005). In the opinion of the author of this paper, the higher cost of credit services together with social exclusion may have a negative impact on consumers' willingness to use financial services. In such a situation an increase of educative activities, e.g., in schools for consumers seems to be justified. There is evidence that consumers often fail to make the right choices because of asymmetry of information. Various actions are taken to increase consumer protection.

Specific information requirements regarding credit services entail high risk as well as low consumer awareness and low levels of knowledge. The consumers right to information constitutes a key element in the correct functioning of consumer turnover. The amount of information and the way it is presented in consumer credit advertising do not seem to be proper. When handed a paper advertising leaflet, the consumer can read it thoroughly many times and can study it for an unlimited time. In the case of TV spots, however, understanding the legal information and getting acquainted with the marketing message at the same time is practically impossible. In such a situation the suggestion of some experts should be considered; as according to them the advertisement of banking services should be either banned completely or at least banned when it is in the form of TV spots (Góral, 2012).

Based on the analysis of financial decision-making processes as well as on the analysis of variables influencing certain consumer behaviors in the area of behavioral finance, it would be possible to some extent to direct and justify regulatory intervention in the market. Experimental research conducted in the EU proves it is the simplification and unification of information about the product which enables consumers to make better financial decisions. The right to education and information constitutes one of the main and inalienable consumer rights in the EU. A conscious consumer could then strengthen his position in the credit market. Consumer education is an institutional source of information. Thus it contributes to the shaping of their activities in the financial market by reducing adverse events which infringe consumer rights (see more in Sherraden, 2013, pp. 1-43).

5. Conclusions

Consumers should have as much knowledge as possible about the goods and services they purchase. It is also of importance that customers have knowledge about their rights which can, in turn, improve their position when dealing with banking institutions. Reading consumer credit agreements minimizes the risk of consumer rights infringement. Failure to read the consumer credit agreement thoroughly leads to a lack of knowledge about terms and conditions accepted by the debtor (see more in Szczepaniec-Puchalska, & Szymańska, 2013, pp. 138-140). The subject of financial responsibility has taken much relevance in recent years due to the dynamic development of financial markets as well as due to demographic and economic changes. Consumer needs are changing; new and more complicated products emerge from the financial sector. Consequently, there is a need for consumers to possess certain knowledge, skills and competencies. Systematic and dynamic changes which happen in the financial services market reaffirm the importance of financial awareness (see more in Przybytniowski, 2016, pp. 93–125). The lack of basic commercial knowledge is the cause of consumers' lack of interest in the functioning of the financial market, and therefore it makes them more vulnerable to total financial exclusion. Gaining financial knowledge allows consumers to identify chances and dangers that the functioning of the banking market entails, and consequently, to make conscious choices, especially when it comes to their finances.

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COMPLIANCE WITH THE PRINCIPLES OF OPENNESS AND TRANSPARENCY OF PUBLIC FINANCES BY POLISH LOCAL GOVERNMENTS BASED ON AN EXAMPLE OF LARGE CITIES

***Marzena Piszczek*[1]**

Abstract

The principles of openness and transparency of public finances are considered to be the most important and fundamental principles for budget economy. Compliance with both these principles is a prerequisite for efficient public control of the management of local finances, and thus for efficient spending of public funds.

The purpose of this article is to analyze the statutory provisions on openness and transparency of public finances in order to answer the question as to what extent direct implementation of such provisions guarantees efficient spending of public funds and communication with the local community. To this end, an analysis of financial data was performed about the execution of the budget, for the last budget year available at the official websites of the largest Polish cities, as well as of data available on the website of the Ministry of Finance on budgeting practices employed by Polish local governments.

In addition, the article presents the core features of a task budget whose execution may contribute to better and more efficient communication with the local community, as well as to better comply with the principles of openness and transparency. However, this requires the implementation of reporting standards with such a structure and format of information that will be comprehensible and clear to the citizen.

Keywords*: openness, transparency, finances of local governments, task budget.*

1. Introduction

The application of the principles of openness and transparency of public finances is an important prerequisite for efficient public control of finances

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of the state or local government. These are the principles which are believed to be extremely important in the public finance system not only in Poland but also abroad. The importance of the issue is seen in the fact that the struggle for maintaining the highest fiscal transparency standards has been joined by the most prominent institutions, including the International Monetary Fund, the Organisation for Economic Co-operation and Development, as well as such initiatives as Global Initiative for Fiscal Transparency. Those organizations aim to foster good practices in openness and transparency of public finances, in the evaluation of public spending, public procurement, fiscal policy, financial accountability, etc. through, among other things, facilitating access to budget data and promoting their efficient use in decision-making processes. The solutions postulated, in spite of their very universal character, are not always practical. Therefore, there is much to improve in terms of the efficiency and reasonability of government's or local governments' actions with regard to said principles.

Although following the IMF standards is voluntary, public finance sector entities should strive to comply with them. They should make sure to have the IMF standards included in their own good practices. It is also noteworthy that no national standards in that respect have been created so far. In addition, one needs to note that the term 'fiscal transparency' means both openness and transparency of public finances. Openness and transparency are two different features of the public finance system, though they are significantly interlinked. Without public finance transparency, actual public finance openness is not possible. The application of these principles, due to their relevance for the fiscal policy followed, by the state or the local government has been legally established. What is more, a majority of reports on or rankings of public finance openness and transparency focus on finances of the state and the public finance sector as such. Only a few papers in the literature on the subject tackle the problem of openness and transparency at local government level.

The purpose of this article is to present statutory regulations regarding the principles of openness and transparency in the local government sub-sector as well as to answer the question as to what extent their application ensures reasonable spending, efficient communication with the electorate and users of local services, effective control of the local government finance sub-sector, and to what extent their application in their current form may contribute to increasing the efficiency of spending by local governments.

The core idea of this paper is that the principles of openness and transparency of public finances in the form suggested by the present legal solutions are insufficient (formal openness) for efficient management in the local government sub-sector. That is why they need to be supplemented by extended standards of reporting, especially in the sphere of finance and

budget, and by using adequate management tools, such as contemporary budgeting methods whose structure not only supplements the principles of openness and transparency, but also makes it possible to obtain more reliable information about unit costs of services, the basic indices and measures of efficiency and effectiveness of operations, as well as reliable information on the actual processes taking place in the local government sub-sector (material openness). Only such information is fully open and transparent.

2. Literature background

The principles of openness and transparency are discussed in a plethora of books and papers in the foreign literature on the subject, but in few of them in the Polish literature on the subject. Even though J. Bentham, a philosopher, taught transparency in government at the turn of the 18th and 19th centuries, as he considered it to be a prerequisite for the rule of law in government (or in an organisation) revealing corruption and mismanagement, the very idea in a broader context re-surfaced in the 90s of the 20th century. One of the first nations which decided to implement transparency into their public management principles was New Zealand, which up to this day has remained at the top in the budget transparency rankings worldwide. Later on, New Zealand was joined in its transparency efforts by i.a. the United Kingdom and the United States of America[2]. There are numerous definitions associated with transparency, both in a broader extent and a narrower one. The broader extent includes the holistic context of the issue, in which citizens, the media, and financial markets can observe governments' strategies, governments' activities and their effects, connected with which are such notions as e.g. fiscal transparency and fiscal policy. In the narrower extent, however, the principles of openness and transparency relate to selected areas of government operations, including e.g. tax transparency or budget transparency. The most frequently quoted definitions of fiscal transparency are those proposed by Kopits and Craig (1998) who singled out three dimensions of transparency: an aggregate level, detailed data and information, and behavioral (ethical) aspects. Heald (2003) also considered fiscal transparency in a broader perspective, in respect of the micro- and macro-dimensions of incomes and expenses in a budget. In addition, in the Western literature on the subject, the issue of openness and transparency of public finances is often associated with optimum re-distribution, which renders it possible to optimally allocate rare resources for alternative solutions. At this point, it is worth mentioning interrelations between the said principles and the principal-agent theory, the issue of

2 The United Kingdom published *The Code for Fiscal Stability* in 1998 and the United States published *Memorandum on Transparency and Open Government* in 2009.

asymmetry and lack of information, fiscal illusion, moral hazard, and pension seeking. Besides the unquestionable contribution of Kopits and Craig to the topic, fiscal transparency and its effect on public finance management were also studied by Petri (2013), Prechmand (2002), Alt, Lassen and Rose (2006), Wehner and de Renzio (2013), Hameed (2005), and Bastida and Benito (2007) (cf. Malinowska-Misiąg, 2016). Other available Polish publications include the article by Wajda-Lichy (2006) about the tendency of fiscal authorities to violate the principle of transparency in macro-economic policy as well as the articles by Dziemianowicz and Wyszkowski (2013), and Gliniecka (2015). The last of the significant publications is the one edited by Malinowska-Misiąg (2016). However, all of them are about openness and transparency primarily from a perspective of the state, thus – the macro-dimension of the issue. References to local governments, if any, are in the context of provisions of law applicable to the finances of both the state and local governments at the same time.

A considerably smaller number of papers on the same topic may be found in relation to the local government sector. In foreign literature on the subject, one may find publications by such authors as Sedmihradska (2015), Bronic, Ott and Urban (2012), Jorge, Moura e Sa, Pattaro and Lourenco (2011), Boubeta, Santias and Alegre (2010), Profeta (2008), Piotrowski, and Van Ryzin (2007), whereas in the Polish literature there are no examples. This article is aimed to i.a. trigger a discussion about this issue, which is important for the local government sector in Poland, thus reducing the current gap in this field.

3. Research approach

A research method used in this article is a critical analysis of the literature on the subject, good practises in openness and transparency recommended by international institutions, normative documents regarding the public finance sector, in particular the Public Finance Act (Dz.U. of 2013, item 885) and the Regulation of the Minister of Finance on the Reporting Obligations of Public Finance Sector Entities (Dz.U. of 2018, item 109). There were also used results of the survey addressed to all the LGUs concerning budgeting approaches employed, posted on the website of the Ministry of Finance (www.mf.gov.pl). With the use of available Public Information Bulletin websites, an analysis of data was performed about the execution of the 2017 budget posted on the websites of large cities (Polish metropolises), in terms of whether financial and supplementary information as it is today complies with the principles of openness and transparency, as well as to identify links with the efficiency and reasonability of local governments' actions and activities.

4. Disscussion and results

4.1. Good practices in openness and transparency of public finances

The issue of openness and transparency of public finances is multi-dimensional and is perceived to be one of the most significant aspects of efficient macro-economic policy, ensuring long-term economic stability. It is noteworthy that these principles are so universal they apply to both monetary policy and fiscal one.

A need for transparency of public finances is specially voiced and emphasized by such international organizations as IMF, OECD, INTOSAI or IFAC. Following the applicable international standards is supposed to help increase the efficiency of the public sector as well as foster healthy public finances within the state.

Openness means free access for all curious citizens and institutions to public sector data. On the other hand, transparency is understood as a situation where the applicable principles of financial management and reporting in the public sector allow one to actually learn about the financial condition of the entire sector. Therefore, transparency of public finances complements openness in such a sense that when openness of public finances equals full access to information, transparency is supposed to guarantee that such information is understandable and complete. These principles complement each other, and the definitions of formal openness and material openness (cf. Kosikowski, 2005) are well-settled in the literature on the subject and in practice perfectly reflect the core aspect of the problem: it is not only about the availability of information, but also about the need for such information to allow one a reliable assessment of processes and phenomena taking place in the public finance sector or in the local government sub-sector, as well as about the possibility to draw conclusions based on the foregoing as to the past and future management actions and to evaluate them in terms of various criteria (e.g. cheapness, efficiency, effectiveness, availability or purposefulness). The principles of openness and transparency are most frequently associated with finances of the state; however, considerable financial flows are noted in the local government sub-sector. Nowadays, it is difficult to imagine the state functioning without the local government finance system despite numerous critical remarks about task decentralization vs. deconcentration, or about the very structure of that sub-sector. Many recommendations for the public finance sector may also apply to local governments.

An example of such recommendations is *Code of Good Practices on Fiscal Transparency* published in 1998 by IMF and revised in 2007 which highlights the following four fundamental principles:

- clarity of roles and responsibilities;
- open budget processes;
- public availability of information;
- assurances of integrity.

Due to the fact that since 2007 there have been efforts to update it, and as a new Fiscal Transparency Code, it puts more emphasis on the quality of published information as a more objective basis for establishing a level of fiscal transparency effectiveness. In addition, it reflects the latest progress in public finance management and includes new principles for the role of society in budget processes. This code is based on four pillars and deals with the following areas:

- fiscal reporting;
- fiscal forecasting and budgeting;
- fiscal risk analysis and management;
- management of income from resources.

It is worth noting that new Fiscal Transparency Evaluations, FTEs, are to present exact quantitative analyses of comprehensiveness and quality of fiscal information published and the main sources of fiscal risk.

Another crucial document relating to the best practices for transparency are *Best Practices for Budget Transparency* by OECD (2002) which consist of three parts:

1) Budget reports.
2) Specific disclosures.
3) Integrity, control, and accountability.

In 2015, *Best Practices for Budget Transparency* were revised and included in *Recommendations on Budget Governance* which provide for a comprehensive and integrated set of guidelines for budget preparation and management as well as their links to other aspects of good public management.

When discussing good practices in openness and transparency of public finances, one must not omit initiatives of the International Budget Partnership which every two years since 2006 has been publishing a Budget Transparency Assessment. An *Open Budget Index* was created to evaluate the quantity and type of information on budget documents made available to the public. A position of a state in the ranking depends on answers to the questions included in *Open Budget Questionnaire (OBQ),* which was designed on the basis of the aforementioned good practices of IMF, OECD, and INTOSAI.

In the OBQ carried out in 2017, Poland was ranked within the *"limited information"* group (range of points from 41 to 60) and got 59 points out of 100 (the previous survey carried out in 2015 was more favorable: Poland was

awarded 64 points). Of great importance is the fact that over 80 percent of all the questions are directly about budget documents, which means that the structure and quality of budget information are, as it turns out, one of the most essential information bunches subject to evaluation that should be considered with particular care.

4.2. The principles of openness and transparency in Polish law

The principles of openness and transparency discussed below result from legal standards, and are rules of applicable law and not general budget principles considered in theory to be timeless postulates.

Undoubtedly, one needs to begin an analysis with the Constitution of the Republic of Poland, Art. 61.1, according to which a citizen shall have the right to obtain information on the activities of bodies of public authority as well as persons serving public functions (Dz.U. of 1997 No. 78, item 483, as amended). The subsequent items of this article, i.e., items 2 and 3, specifically provide that the right to obtain information shall ensure access to documents and entry to settings of collective bodies of public authority formed by universal elections, with the opportunity to make sound and visual recordings. Limitations upon said rights may be imposed by statute solely to protect freedoms and rights of other persons and economic operators, public order, security or important economic interests of the state.

Similar provisions may be found in the Act of 6 September 2001 on Access to Public Information (Dz.U. of 2014, item 782, as amended). Pursuant to it, there are numerous areas about which information can be obtained, from internal and external policies, through information on entities operating in the public sector, information on various public data (e.g., about official documents) to information on public property. Naturally, the lawmakers have provided grounds for limiting access to information especially in the Classified Information Protection Act of 5 August 2010 (Dz.U. of 2010 No. 182, item 1228). Additionally, the aspects of openness and transparency of public finances are governed in other laws and regulations, including regulations on local governments, i.e. the Act of 8 March 1990 on the Local Government of Communes and Municipalities (Dz.U. of 2013, item 594, as amended), the Act of 5 June 1998 on the Local Government of Counties (Dz.U. of 2013, item 595, as amended), and the Act of 5 June 1998 on the Local Government of Voivodeships (Dz.U. of 2013, item 596, as amended) which highlight the openness of authorities' activity and the transparency of financial operations.

The principles of openness and transparency in Polish law are discussed first and foremost in Chapter 4 Section I of the Public Finance Act of 27 August 2009 (PFA) (Dz.U. of 2013, item 885), which means that the legislature

perceive them as one of the most general principles to be followed in public finance distribution, i.e., primarily within the state budget and budgets of local government units. As noted by Gliniecka (2015), the principle of public finance management transparency complemented by the principle of openness affects the reliability and predictability of financial operations. Thanks to the provision of information on decision-making processes as well as proper communication with society, choices and decisions of those who spend public funds are more understandable, which stabilizes expectations towards them and increases the efficiency of a financial policy adopted.

Said Chapter 4 governs finances of both the state and local government units (LGUs). Article 34 of the PFA relates to the application of the principle of public finance management openness. The basic indications are about the openness of the budget debate in the Sejm and the Senate, budget debates at LGUs, and debates over reports on state budget and LGU budget execution. In addition, Article 34 points to the obligation to publish much information, e.g., amounts of state or LGU subsidies, subsidies from state special purpose funds, aggregate data on public finances, the openness of a debate over a draft resolution on a long-term financial forecast for an LGU. Public finance sector entities are also obliged to notify the public of the following, among other things: the extent of tasks executed and services rendered by an entity as well as an amount of funds provided for their execution or rendering; terms of payment for services rendered, a list of entities from the public finance sector that received a subsidy from public funds; information on funding or a loan or on release from the repayment obligation; results of financial operations audits or reports on audit plan execution for the previous year. Additionally, at the LGU level, the process of open and registered adoption of resolutions by the executive body of an LGU needs to be maintained regarding public finance management (Art. 34.6.11) or the provision of councilors within a given LGU with accounting documents and records as well as information on financial operations audit results.

One of the aspects of the principle of openness is the obligation to inform the public about issues deemed important in terms of social control. They include, for instance, information on budget execution (see Art. 37 of the PFA) which needs to be made available to the public by the executive bodies of LGUs each quarter – it is quarterly information about the execution of a budget of a local government unit, including about a possible deficit or surplus, and about any exemptions of non-tax budget amounts due, subsidies received from LGU funds, suretyships and guarantees granted (and entities to which they were granted), legal and natural persons and organisational units without legal personality that were granted exemptions, deferrals or reliefs in respect of taxes or fees, or whose payments due were divided into instalments

for amounts exceeding PLN 500, providing amounts exempted and reasons for such exemption, as well as information on legal and natural persons and organisational units without legal personality that were granted public aid.

It is noteworthy that Art. 38 and 38a of the PFA obligates the Minister of Finance to post in Monitor Polski (Official Gazette of the Republic of Poland) the following, among other things: an amount of the state public debt and its relation to GDP as at the end of the year and the half-year, the amount which is significant for budgeting by LGUs in the next budget year.

The principle of openness is inseparably connected with the principle of transparency. In practice, it is applied through a system of budget classification, i.e. classification of incomes, expenses, revenues, and expenditures. Pursuant to Art. 39 of the PFA, public incomes, public expenses, and revenues referred to in Art. 5 of the PFA *definition of public funds and public incomes* item 1.5, and items 1.2 and 1.3, are classified by the following, subject to item 2: parts and chapters – identifying the type of activity; sections – identifying the type of income, revenue or expense and funds referred to in Art. 5 of the PFA *definition of public funds and public incomes* items 1.2 and 1.3. Revenues referred to in Art. 5 *definition of public funds and public incomes* item 1.4 and expenditures referred to in Art. 6 of the PFA *intended purpose of public funds, catalogue of public expenditures* item 2, are classified by sections identifying the source of revenue or expenditure. The Minister of Finance defines by way of regulation a detailed classification of incomes, expenses, revenues, expenditures, and funds referred to in Art. 5 of the PFA *definition of public funds and public incomes* items 1.2 and 1.3, taking into account the Polish Classification of Activity (in Polish: Polska Klasyfikacja Działalności, PKD) (Dz.U. of 2007 No. 251, item 1885, as amended). The Minister of Finance may specify in the regulation a classification of expenses with greater detail for internal and external security tasks, considering the specifics of entities performing such tasks. In Poland, there is a law in regard to the foregoing that was amended in 2017 and recently in 2018 (Dz.U. of 2017, item 1421 and Dz.U. of 2018, item 767).

The article which directly affects the transparency of public finances is Art. 40 of the PFA that refers to the accounting principles of public finance sector entities, including local governments. The main principles in that regard are applied by said Act to charts of accounts for the state budget, budgets of LGUs, budgetary units, self-government budgetary establishments, state special purpose funds, and state budgetary units seated outside the Republic of Poland, where the following should be taken into consideration:

1) Incomes and expenses are recognized upon their payment, regardless of the annual budget they relate to.

2) Also recognized are all the settlement stages preceding the payment of incomes and expenses, and when it comes to expenses and costs – the involvement of funds as well.
3) Interest on outstanding amounts is accrued and recognized not later than at the end of every quarter of a year.
4) Assets and liabilities denominated in foreign currencies are valued not later than at the end of every quarter of a year.

These particular accounting principles for entities referred to above apply to keeping records of budget execution, of budget execution by tasks, of fixed assets being the property of the State Treasury or LGUs, to valuation of individual assets and liabilities, and to preparation of financial statements and to their recipients.

At the same time, the Act obligates the Minister of Finance to publish by way of regulation the aforementioned accounting principles and charts of accounts for tax bodies of LGUs; similarly, the Minister of Finance notifies by way of regulation accounting principles and charts of accounts for tax authorities subject to the Minister Finance in terms of collection and settlement of taxes, fees, profit contributions of state-owned companies, one-man State Treasury companies, and state-owned banks, as well as other non-tax budget amounts due, to collection, identification or establishment of which are authorised tax authorities – taking into account the need to ensure transparency of charts of accounts and the nature of activity operated by such entities. All of the above is done to comply with the principle of transparency.

An enormous area that affects both the extent of and compliance with the principles of openness and transparency is reporting by public finance sector entities (PFSE). Pursuant to Art. 41 of the PFA, PFSEs are obliged to draw up reports on the execution of public funds management processes (Art. 3 of the PFA). The foregoing is described in detail in the Regulation of the Minister of Finance and Development dated 9 January 2018 on Budget Reporting (Dz.U. of 2018, item 109). Said regulation identifies types, forms, times, and methods of reports and their preparation, e.g., on execution of budgets of LGUs, of financial plans of budgetary units and self-government budgetary establishments, on incomes and expenses on receipts referred to Art. 163 and 223 of the PFA, on amounts of funds on bank accounts of LGUs; as well as types and drafting rules of reports on obligations resulting from PPP agreements entered into based on separate laws by public finance sector entities. There are numerous regulations in this respect, since there are a lot of entities to which reporting recommendations are offered. Since this paper focuses on LGUs, the recommendations of the Ministry of Finance and Development offered to units that are directly subject to it are taken into consideration to an extent applicable to the reporting obligations of LGUs.

Thus, one should mention here Art. 182 of the PFA pertaining to auditing the compliance with the Budget Act by the Sejm. Art. 182.2 of the PFA obligates the Council of Ministers to provide the Sejm and the Supreme Audit Office (in Polish: Najwyższa Izba Kontroli) by 31 May of the following year with reports on compliance with the Budget Act and, among other things, with reports on incomes and expenses associated with public administration tasks performed by local government units and other tasks entrusted to LGUs under separate laws, as well as with aggregate data on execution of budgets of LGUs. The latter, i.e., LGUs, is referred to also in Art. 182.5 which describes in detail what should be included in such aggregate data, providing they should be gathered separately for each LGU level:

1) Incomes by major sources.
2) Expenses by parts.
3) Expenses by major types.
4) Revenues and costs of self-government budgetary establishments.
5) Overview of execution of budgets by local government units.
6) Surpluses or deficits noted by local government units.

In addition, at the national level, expenses by tasks have to be notified, which is obligatory for the state, dividing expenses by multiannual plans. LGUs are not obliged to report budgets by tasks. Moreover, the state is required to discuss and describe expected and incurred expenses as well as expected and achieved measures of task execution levels by budget tasks. The Council of Ministers also includes in a report information on debt, suretyships, and guarantees of the public finance sector as well as a statement of compliance with the principle according to which the state public debt may not exceed 60% of the annual GDP in a given budget year.

The subsequent Art. 183 of the PFA obligates the Minister of Finance to provide the Sejm committee competent for budget affairs and the Supreme Audit Office by 10 September of a given year with information on the compliance with the Budget Act in the first half-year.

4.3. Openness and transparency in budget reporting by local governments

It would seem that quite extensive recommendations regarding openness and transparency in the Polish legal system should suffice to satisfy needs and expectations of citizens in terms of information, for such information should not only be reliable but also explanatory in areas interesting for citizens and businessmen or possible national and foreign investors. For example, it is crucial how much a local government spent on third-party services, e.g., repairs or energy, how much it spent in total on tasks it performed, but most importantly, which efficiency parameters it achieved. To answer the foregoing,

one needs to have an adequate manner of budget planning and execution developed. That is because legally required reports nowadays do not include efficiency or purposefulness parameters, except for selected aspects related to special purpose subsidies for tasks entrusted to local governments by public administration authorities.

One also needs to remember that the local government finance sector in Poland, like the entire public finance sector, is characterized by great diversity in terms of organizational forms of entities of that sector, their financial independence, and manners of settlement against the LGU budget. This undoubtedly means that the principle of transparency might be slightly weakened from a perspective of its pragmatic application, which is influenced by the following: multiplicity of various institutions appointed at the local government finance level, multiplicity of various bodies, different legal circumstances under which they operate, as well as different rules of operation. The local government sector includes i.a. multiple entities, funds, legal persons, units without legal personality, and entities operating a partially commercial activity (e.g., cultural institutions). Among them, the most important group consists of only local governments – almost 3000, out of which there are 2478 communes and municipalities, 380 counties (in Polish: powiat), with 66 cities with county rights and 16 voivodeships. Local governments vary from each other to a great extent due to numerous quantitative and qualitative factors, to name a few: income potential, population potential, location, ability to take on commitments, investment attractiveness, etc. There is a simple index, according to which tax incomes per 1 resident in the richest municipality in Poland are nearly PLN 32 thousand, whereas in the poorest one – only about PLN 390 per 1 resident; it is a vast span – though only in terms of incomes between the same type of units as communes and municipalities – but, in fact, it also implies all the other indices that decide on the growth of those units (cf. the ranking of communes and municipalities at samorząd.pap.pl). One has to remember that not only financial factors are a source of differences between local governments, but also their structure, the number of units brought to life, their types, etc.

At the local government level, there are created diverse self-government budgetary units, e.g., nurseries, kindergartens, schools, municipal police units, social welfare homes, and road administration authorities. Those units are associated with the LGU budget by the gross budgeting approach. The second large group with many units includes self-government budgetary establishments, among which there are, e.g. municipal plants, waterworks and sewage plants, municipal waste treatment plants, cleaning providers, and municipal cemeteries. Self-government budgetary establishments play a considerable role in municipal engineering and provision of public utilities. They are also mentioned in the Municipal Engineering Act (Dz.U. of 1996 No.

9, item 43) as a special type of municipal engineering, and they are associated with the LGU budget by the net budgeting approach. Each of these approaches – gross and net ones – vary from each other significantly and it undoubtedly affects the way of presenting data as well as the very way of executing the financial plan by those units. Detailed rules in this regard are set forth in the Regulation of the Minister of Finance on Financial Operations of Budgetary Units and Establishments (Dz.U. of 2015, item 1542).

As far as financial management is concerned, of importance are also independent healthcare institutions managed by the local government sector which include the following: hospitals, sanatoria, clinics, healthcare centers, and emergency services. Although they have been legally transformed into independent establishments, one has to remember that in the event of insolvency, their liabilities and commitments are assumed by the founding body, in this case – by the local government, which may influence the general debt ratio of the LGU. Within the local government sector, there also operate self-government cultural institutions, that is LGU-founded museums, theatres, philharmonics, cultural centers, and libraries. Again, there are diversity, differences, and a situation where public activity of those institutions meets commerce.

This diversity and multiplicity make it more difficult to analyze the distribution of tasks among local government entities, financial relations between them, methods of funding them, and their spending. Each of the aforementioned entities, at least, as a rule, follows the recommendations of the Ministry of Finance regarding financial operations; however, each of them operates as per detailed guidelines and regulations issued by the Ministry, which naturally limits and hinders data analyses. Of particular importance here is a problem related to compliance with the statutory requirements referred to in Art. 243 of the PFA, i.e., the so-called individual debt ratio (Dz.U. of 2013, item 885) which alone is very controversial and whose structure and final value are subject to numerous restrictions and exclusions. In this area, the principle of transparency is a great challenge for LGU financial authorities.

If, what follows from the analysis, there are multiplicity of entities, diversity of legal regulations to abide by, rules for the operation and extent of their activities, budget reports limited in information yet numerous, then in such a situation local government authorities should provide a coherent, accurate, transparent, and reliable message about LGU finances that would allow every citizen to control activities within financial policy. It is the right of every citizen to know about what their money is spent on, money they pay as taxes and other fees. Especially crucial aspects of management of public finances, including finances of local governments, are associated with statutory regulations on efficiency, purposefulness, and reasonability of funds spent. Unfortunately, currently, reporting on public finances, also in respect of

local governments, does not meet those requirements. Its only flaw is the very limited availability of information on the condition of the entire public finance sector, also with regard to the local government sub-sector. The Ministry of Finance publishes detailed information on the execution of financial plans only for the central budget, the EU fund budget, and budgets of LGUs, as well as limited information about the finances of special purpose funds, executive agencies, budgetary institutions, and state-owned legal persons.

However, at the LGU level, there are similar information barriers and even though the LGU executive body is obliged to publish – as per the principle of openness – various information on the condition of the LGU, it is very difficult to use such information because it is scattered across different reports and files, and is classified by various types. In addition, as far as the Ministry of Finance and information on state budget execution are concerned, it is complained that data are most frequently published as PDF files. Thus, citizens may not, even if they want to, compare or analyze information as they want or need (e.g., to estimate business risk), since this file format does not allow for such operations.

In such situations, the main channel of distribution of statistics around the world are interactive databases that allow for downloading data in a few formats, for automatic generation of charts, and for comparison of data by criteria specified by users. They often include additional information which helps the user understand statistics, e.g., methodology descriptions and links to similar publications. Neither the Ministry of Finance nor the Central Statistical Office in Poland have such databases, and the use of such IT tools could considerably change the quality of public information. This remark also applies to the failure to present statistics using applications or eye-catching data visualizations.

When discussing the principles of openness and transparency, one cannot omit an important aspect of Polish budgeting practice, namely the structure of budget classification. The principles followed in the classification, in respect of incomes or expenses, affect the quality of information the user obtains. The Polish classification of incomes, followed while planning or executing a budget including reporting obligations, does not raise major doubts. It identifies inflows from individual taxes, non-tax inflows (as divided into dividends, customs, fees, fines, interest and other non-tax incomes, LGU contributions), and EU funds. This information is sufficient for the reader. Classification of expenses is much less transparent. Despite expenses having many more categories when compared to incomes because expenses are grouped by economic groups, parts, sections, chapters, and tasks (for the state budget), they are general and it rather indicates a financial flow type.

Therefore, a citizen who wants to learn about what public funds are spent on does not get clear information.

In this context, trying to find any relations between expenses incurred and effects achieved, i.e., compliance with the principles of efficiency and purposefulness of spending, is even more difficult. Meanwhile, both of these principles are indispensable for reasonability of actions. Having regard to the fact that our classification is presented by object and subject, in practice, it means an overlapping of functions, tasks, and authorizing officers, which might render it difficult to understand. Therefore, the principle of transparency in question may not be applied, although it should at least, in general, be applied exactly through the budget classification system.

The analysis of the method of presentation of financial data made available on the Public Information Bulletin official websites (cf. Table 1) confirms that this aspect is not standardized, even within a single city. Some information on, for instance, the very authority is presented differently, as is information on budget-related units. It is virtually impossible to compare cities, except for data by budget classification which – as proved earlier – is very capacious and does not provide information by types on what their money is spent, that may be found by a citizen. The analysis of the method of presentation of data on budget execution was performed for 2017. Analysed were Polish metropolises which are characterized by considerable spending on on-going and property tasks and which are considered to be the most advanced ones in terms of financial management and also due to better human resources. All of the information has been obtained from the Public Information Bulletin official websites.

5. Towards a better model of budgeting and greater budgeting standardisation

To counteract a situation where the principles of openness and transparency are not complied with, numerous coordinated actions need to be undertaken at the level of both state budget and local government budget. An action, which was supposed to be a response to inefficiency of certain groups of public spending and to a lack of transparency of the state budget, consisted in, e.g. the implementation of a statutory obligation to create task budgets. This obligation at the state level has existed since 2009. Art. 2 of the PFA (Dz.U. of 2013, item 885) specifies how to understand state budgeting by tasks.

Table 1. List of practices in presentation of data by Polish metropolises – based on 2017 budget execution reports

City /	Spending as at 31 December 2017 in PLN	Data presentation method	Measures of product, result or efficiency
Białystok	1,895,419,422.00 including on property: 428,664,871.00	The city does not present information by tasks. There is a list of units / an amount per unit, without tasks. There are scope and amounts for selected budget classification scales.	No No task measures
Bydgoszcz	1,838,187,315.00 including on property: 232,256,609.43	There is a table showing including a list of tasks and amounts per task by plan/ execution/ % of plan execution for on-going and property (investment) tasks. For budget classification scales (below chapters), there are tasks and amounts, sometimes scope as well. There is information on budget execution by functions, detailing on-going and property spending. Functions show tasks, sub-tasks, and objective measures by plan/ execution over the year.	Yes
Gdańsk	2,430,238,728.00 including on property: 440,656,364.00	The city presents its spending by functions, tasks, sub-tasks with objectives and measures for on-going and property tasks. There are measure names, but no measure values/ (product/result indicator). In a separate file, there is information on the values of measures for a given year by plan/execution. It is difficult to navigate, but there is a lot of information. Chiefly product measures, rarely mentioned cost-effectiveness.	Yes
Katowice	1,609,843,683.90 including on property: 146,186,030.96	Extensive information, 751 pages! Tables by activity classification by plan/ execution. There is information on on-going tasks of the county and the municipality; there are indicators/measures by plan/execution.	Yes

City /	Spending as at 31 December 2017 in PLN	Data presentation method	Measures of product, result or efficiency
Kraków	5 014 847 758,00 including on property: 628,480,956.00	The city publishes a list of tasks; in-kind expenditures and expenses related to retention of jobs are presented – amount in total, without measures. There is the only task for such units operating within the budget as nurseries or schools, namely: operation of the unit; as well as tasks of city districts. Departments – running and investment expenses, including expenses associated with retention of jobs, amount in total. For educational economics complexes (in Polish: *zespoły ekonomiki* oświaty), running expenses, including, e.g. nurseries – core activity, amount in total, then a list of nurseries. For certain strategic objectives, such as activation of the labor market in Kraków, there are operational objectives, tasks, result and product indicators, but no measures.	No No measures beside tasks Selected measures for selected tasks
Lublin	2,110,395,035.56 including on property: 344,386,279.70	Budget presented by standard budget classification, sometimes there are names of selected tasks, plan by the budget resolution, amended plan, and execution for the basic categories, e.g., running expenses, including remuneration and related costs, benefits for natural persons, subsidies, debt management, other running expenses; spending on property.	No No tasks measures
Łódź	3,941,746,169.00 including on property: 495,759,501.00	There is no list of tasks. Information on budget execution in the descriptive part is highly correlated with the budget classification arrangement, as part of which every scale comprises a list of main expenses divided into spending of the commune/municipality and the county.	No No task measures
Poznań	3,348,446,194.71 including on property: 439,779,198.61	Apart from the budget classification, the city publishes information on process and project tasks executed by amount per task/ plan/ main expenditure groups. A kind of a preview makes one expect certain information, but those expectations are not met, expectations regarding, e.g. a task unit cost. Classification of educational establishments by tasks and good task standardization look much better, although there are not provided measures.	No No task measures

City /	Spending as at 31 December 2017 in PLN	Data presentation method	Measures of product, result or efficiency
Rzeszów	1,198,396,117.74 including on property: 229,927,841.47	The city publishes information on spending in the budget classification divided into running expenses, detailing expenses incurred by budgetary units for salaries, related costs, spending on statutory tasks, subsidies, expenditures from EU funds, benefits for natural persons, debt management, and property costs, further detailing investment expenditure, investment procurement, subsidies for investments, purchase of and subscription for shares, and contributions to companies. There is no division by tasks.	No No task measures
Szczecin	2,229,976,135 including on property: 333,942,580	There is standard information, that is information on budget execution by budget classification, but the city also publishes budget execution by tasks – even for two years as the only city in the group of the analyzed cities. The explanatory section includes: task names, task objectives, and measures. Information for subordinate units is not presented by tasks.	Yes There are task measures, mainly product measures, but no efficiency measures
Warsaw	13,789,826,629.81 including on property: 1,457,956,421.00	Extensive information, 1224 pages! Information presented by tasks, divided into on-going and property tasks for the municipality, the county as a whole by core areas. Tasks are complex. However, for subordinate units, the city does not uphold this information standard, though it creates task measures by plan/execution.	Yes
Wrocław	4,125,221,167.81 including on property: 653,393,163.36	The city publishes all legally required information, although it does not present such information by tasks either for the authority structure or for subordinate units.	No No measures

Source: own compilation based on data available at the Public Information Bulletin websites for individual cities.

Pursuant to said Act; it is a list of state budget expenses or finance sector unit's costs, respectively, created by state functions being individual areas of state actions and activities, as well as the following:

a) budget tasks grouping expenses by objectives,
b) budget sub-tasks grouping actions aimed at executing task objectives, as part of which such sub-tasks were defined – together with a description of objectives of such tasks and sub-tasks as well as with base and target measures of state objective execution levels, constituting specification (in figures, quantities or descriptions) of

the base and target level of effects from spending. Tasks within such a budget are grouped into 22 state functions, e.g., internal security and public order, Polish science, labor market, foreign policy, etc. It seems that the adopted classification by functions is the closest one to public information of a civic character. Unfortunately, information on spending in a budget by tasks as well as a tabular appendix to that information are still not created in a format that would be satisfactory, and still, identification of expenses by functions requires a certain amount of work. What is more, it seems that people responsible for the budget were focused primarily on compliance with the statutory obligations and satisfying the needs of authorizing officers rather than on transparent presentation of information to society (Sawulski, 2015). Nevertheless, one may certainly claim that the first step in the right direction has already been made.

At the local government level, there are no such requirements regarding budgeting by tasks, though it does not mean that Polish local governments do not have any experience in that regard. The first city that decisively began reforming the budget sphere was Kraków, soon to be followed by other cities based on its experience; all of that resulted in a task budgeting methodology (see e.g., Filas, Piszczek, & Stobnicka, 1999; Pakoński, 2000; Filas, Levitas & Piszczek (2002); Owsiak, 2002; Lubińska, 2009).

In spite of numerous advantages of such a form of budgeting and considerable efforts in the mid-90s and later when it comes to fostering said methodology, task budgeting is put into planning practice extremely rarely. A survey carried out in May 2013 by the Ministry of Finance confirmed little interest in task budgeting when compared to the entire LGU population, but it also showed a profound weakness of budget planning in local governments (www.mf.gov.pl).

Meanwhile, the implementation of task budgeting in LGUs may lead to a variety of measurable effects, both as savings and as increased quality of LGU financial management. In addition, it is worth mentioning that task budgeting offers more possibilities in terms of serving specific functions. Task budgeting is a tool for better communication with local communities, and this allows for better compliance with the principles of openness and transparency of public finances which are the main subject of the discussion. Of unquestionable importance are also the benefits from the change in i.a. allocation of funds, the very way of budget planning, and use of certain market mechanisms to evaluate tasks.

Moreover, from the perspective of the principles of openness and transparency, the possibility to generate information on unit costs of services or tasks – which is a standard in task budgeting – renders it possible to satisfy the need of every citizen to know how much of their money is spent and on what.

6. Conclusions

The principles of openness and transparency are fundamental in terms of society's control over spending of public funds. Their structure, place in the legal system, and applicable standards of reporting and communication with the citizen are crucial when it comes to assessing outcomes achieved by the authorities, to their social accountability, and to allow the citizen to exercise their basic right to obtain information on public funds spending.

The following conclusions may be drawn after having analyzed the currently applicable laws and regulations as well as practices employed by Polish local governments:

1) Despite quite extensive regulations guaranteeing access to and openness of public information, as well as numerous reports that are legally required to be drafted, the citizen may face actual problems with obtaining the most relevant, yet the most basic information, i.e. information on unit costs of services provided or tasks performed by the local government within its territory.
2) Lack of information on unit costs of tasks and on other task execution parameters, e.g., availability of services or product measures, calls into question the compliance with not only the principles of openness and transparency but also the principle of efficiency of spending by a local government.
3) Non-standardised data, even within a single city, renders information not only incomprehensible but often also useless for the user, since the user may not e.g. compare data over time and across units.
4) Multiplicity and variety of units within the local government sector and various budgeting approaches employed by them do not contribute to a better understanding of spending. The budget classification is of little help because, even though it is presented by subject/object with incomes and expenses shown in great detail, it does not generate information arranged as fit for the user.
5) Multiplicity and size of budget reports posted at the websites of the cities under analysis (Warsaw – pages 1224, Katowice – 751, and none of those reports had fewer than 350 pages), but with limited and inefficient information and lack of access to interactive databases, this result in no actual possibility to generate reports arranged as fit for the user.

All of the foregoing drawbacks call into question the compliance with the principles of openness and transparency of public finances.

This situation could be improved by introducing either a legal obligation or a good budgeting practice requiring LGUs to implement such a form of budgeting that would eliminate said drawbacks or at least reduce their adverse effects on social control. Task budgeting at the local government level

described above, originating from a programme budget, is a perfect tool that may help the budget serve its functions better, including the communication function, as well as ensure better control over spending. Therefore, it can lead to better compliance with the principles of openness and transparency of public finances. Moreover, more detailed information on unit costs of services – which is possible due to the arrangement of information by tasks – will allow for better compliance with the principle of efficiency and purposefulness of public funds spending; and it will render it possible for the citizen to actually participate in selecting and evaluating authorities, as well as allow for a more efficient allocation of limited financial resources. However, this requires decisiveness, as well as determination and willingness, by the state and local government authorities to make these changes.

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TRADE CREDIT IN POLISH COMPANIES AN EMPIRICAL ANALYSIS OF MACROECONOMIC FACTORS INFLUENCING PAYMENT DELAYS

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Abstract

Trade credit, a commonly used financing method in enterprises is the subject of many studies in literature. Surprisingly less attention is paid to the payment delays and backlogs and its causes. The main aim of the article is the empirical analysis of macroeconomic factors influencing payment delays and backlogs in Poland in the years 2009-2017. Based on data delivered by the KRD Economic Information Bureau and Macroeconomic Data Bank (BDM) an econometric model was constructed. To find the final data set a backward elimination type of stepwise regression was used. Due to the nature of the macroeconomic data, models with time lags of one and two quarters were analyzed. The rate of economic growth, conducted monetary policy and gross capital expenditures have a significant impact on payment delays. There were no statistically significant correlations between delays and the financial results of enterprises and the exchange rate. It is also worth emphasizing the possibility of predicting the occurrence of late payments in the economy. The best results were obtained for one-quarter of delays. Watching economic

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growth and monetary policy (the NBP reference rate or money supply) is particularly useful in forecasting payment delays.
Keywords: *trade credit, payment backlogs, payment delays, macroeconomic factors.*

1. Introduction

Trade credit (deferred payments), is an instrument commonly used in commercial relations between enterprises. Trade credit is a situation when a buyer purchases goods from a supplier, paying him at a later date. The use of trade credit can have many positive effects on the functioning of enterprises, but can also pose a threat to the liquidity of enterprises in the event of payment backlogs. Payment backlogs can inhibit development, incur losses, cause problems with liquidity and at worst lead to bankruptcy.

The aim of the article is the empirical analysis of macroeconomic factors influencing backlog payments in Poland in the years 2009-2017. It consists of three parts. In the first section desk research of the literature related to trade credit and backlog payments is discussed. The second section focuses on the research method and data. In the last section, the results are presented and discussed.

2. Literature background

Trade credit is perceived as one of the most important sources of external short-term financing along with financing from financial institutions. In literature, there are two main approaches explaining this phenomenon, concentrating on microeconomic and macroeconomic factors. According to the first thread, Petersen and Ryan (1996) identify the following three groups of theoretical explanations for trade credit:

- Financing advantage theories of trade credit –suppliers may have an advantage over financial institutions, like banks, in offering credit, because of advantages in information acquisition (collecting information about the business condition of buyers and hence about their creditworthiness faster and more cheaply), in controlling the buyer by threatening to cut off future supplies, and advantages in regaining values from assets that are supplied by repossessing and reselling the goods in cases where the buyer defaults (Schwartz, 1974; Petersen & Rajan 1997; Ng, Smith, & Smith 1999);
- Transaction cost theories - trade credit can lower exchange costs when payments are accumulated and the obligations are paid periodically, support cash management (Schwartz, 1974; Ferris, 1981) and reduce

warehousing costs when firms experience high variability of demand (Emery, 1987). Thus firms with a more variable demand extend more trade credit than companies with stable demand (Long, Malitz, & Ravid, 1993);

- Price discrimination through trade credit – trade credit may be used to price discriminate (especially in situation when price discrimination is legally forbidden). Trade credit offered to certain buyers can be perceived as price discrimination. Hence it reduces the input price for the buyers and lowers the effective price of the good. Empirical evidence on the use of trade credit as an alternative way to practice price discrimination is presented in the work of Pike et al. (2005) and Ng et al. (1999).

There are many empirical studies, whose aim is to justify the theory of trade credit. One of the goals of the empirical models is to determine the factors affecting the demand for trade credit. In these models, the most frequently proposed potential determinants of trade credit are short-term bank loans, inventories, liquid assets or cash flow, and enterprise size (sales revenue, number of employees, total assets value).

The other approach concentrates on macroeconomic variables (Marzec & Pawłowska, 2012). It is assumed that the use of trade credit depends on the business cycle of the economy and it has been argued to be counter-cyclical (the use of trade credit increases during economic downturns and decreases during economic growth). Meltzer (1960) was the first to argue that trade credit firms substitute bank credit with trade credit during money tightening. Also, Nilsen (2002) proves that the use of trade credit is a substitution to bank credit and depends on monetary policy. During the periods of contradictory monetary policy in particular small companies use more borrowings from their suppliers which is very often the only way for them to raise money. Additionally, although the author assumes that large companies will use less trade credit in the periods of tight monetary policy, research findings are contrary, which leads to the conclusions that credit constraints affect more companies than it was previously assumed. The model of Burkart and Ellingsen, (2004) explains why this cushion against tight monetary policy is provided by most suppliers (not only wealthy as previously assumed) and suggests that the cushion against tight money is important for companies with a medium level of wealth. The empirical studies of using trade credit by Polish enterprises were performed by Zawadzka (2009), Białek-Jaworska and Nehrebecka (2015), Marzec and Pawłowska (2011; 2012) The results of the analysis conducted by the authors listed last, confirm that the substitution rate between the trade credit and the bank loan was higher during the period of the financial crisis compared to the periods of economic recovery.

Although the use of trade credit may have many positive effects on the functioning of enterprises and the whole economy, it can also pose problems in the event of delays in payment. Delays in payment may result in payment backlogs, which are understood as problems with the timely payment of own liabilities due to the lack of receipt of receivables on time. Delays in payment and payment backlogs, in particular, can generate high costs for enterprises both financial and non-financial, which are difficult to measure. Apart from the costs associated with maintaining the liquidity or payment monitoring, payment delays and backlogs can negatively influence firms' development by reducing the level of investments and employment, cause price increase and impede the launching of new products on the market (Bojnec, 2002; Białowolski 2011; Grodzka, 2007, Białowolski & Łaszek, 2017). Payment backlogs worsen the financial performance of the company, contribute to problems with liquidity and can even lead to bankruptcy. The correlation between the phenomenon of payment backlogs and the scale of bankruptcies of enterprises in Poland is very high (Grabowska, 2014). A study of 30 companies from the construction sector in Poland confirms that payment backlogs were a significant reason for bankruptcies irrespective of the type of operations of the company (Zielińska-Sitkiewicz, 2013). The negative impact of payment delays from customers on liquidity was identified in research on 25 enterprises operating in the installation and heating market (Roszkowska-Hołysz, 2013). Late payments and notably payment backlogs may have a particularly severe impact on the economic activity of small and medium-sized enterprises (Grodzka, 2007, Białowolski & Łaszek, 2017).

As delays in payment cause many negative consequences for enterprises providing trade credit, the EU and national legislators introduced effective legal measures that are designed to reduce the occurrence of this phenomenon. On 16 February 2011, the European Parliament and the Council adopted a directive on combating late payment in commercial transactions (Directive 2011/7/EU), which was to be implemented into EU country law by 16 March 2013 at the latest. In Polish law, the issues related to late payments are regulated by the provisions of the Act dated March 8, 2013, on payment dates in commercial transactions (Ustawa ..., 2013). The Late Payment Directive recommends that where the debtor is a public authority the period for payment should not exceed thirty days (with some exceptions), and the period in business-to-business transactions should not exceed sixty days.

The scale of the problem of payment delays and backlogs in European Union member countries is portrayed in reports elaborated by Intrum Justitia, which gathers data from 10,468 companies across Europe. According to the last survey in European Payment Report Intrum Justitia (2017), companies in Europe are becoming less worried that late payment of their contractors may

contribute to the deterioration of the conditions for running their businesses or limiting their growth. On the other hand, threats to doing business resulting from delays in payments are still indicated as significant by many respondents in many countries (by 27% in 2017 compared to 33% in 2016. Respondents are also asked if they are familiar with the Late Payment Directive of the EU. It is worth emphasizing that only 31% are acquainted with the directive (in Poland only 8% of respondents) and those who were assessing the implementation of the directive as having little positive effects on payment condition improvements (only 17% see a positive impact). The report also includes information about the European Payment Risk Index (EPRI), which specify the risk related to payments in individual countries. The index takes into account payment morality, the risk of late payment and the impact of delays in payments for business. The indicator can take values between -2 (very high risk) and 2 (very low risk). Taking into account the value of this synthetic index, Denmark is at the top of the ranking (0.59), along with Lithuania (0.51) and Austria (0.49). The worst performers in this regard are countries such as Portugal (-1.08), Greece (-0.66) and Italy (-0.56). The index value calculated for Poland is 0.11, slightly above the European average.

According to the latest data of the quarterly survey on payment backlogs in micro, small and medium enterprises on a sample of 500 companies selling with deferred payment, problems with delays of at least 60 days for payments in the last 6 months (from recipients of goods and services), were experienced by 52% of enterprises in the third quarter of 2017, compared to 45% in the first quarter of 2017, despite the high growth rate of the Polish economy (BIG InfoMonitor, 2017).

An important milestone in the analysis of corporate receivables was the creation of a database by KRD Economic Information Bureau and the Conference of Financial Companies in Poland based on the "Receivables of Polish enterprises" survey, conducted quarterly since the first quarter of 2009. The Index of Companies' Receivables (ICR) reflects the state and opinions of entrepreneurs regarding six areas related to receivables: state and forecasts of problems with the enforcement of payments, average percentage of outstanding receivables in the company's portfolio, average overdue period of receivables, percentage of companies in the economy that can not regulate their payments in a timely manner (due to problems with late payment of liabilities by contractors), as well as the average percentage of costs related to payments backlogs from customers / contractors. Analysis of the overall Index of Companies' Receivables (ICR) elaborated by KRD Economic Information Bureau and presented in Table 1, indicates improvements when compared to the values of the first years of analysis. In January 2018, the ICR increased to reach the highest value in the history of the study - 92.1 points. In the first

quarter of 2018, the improvement of the ICR was particularly influenced by the reduction of concerns about the timely payment of receivables by customers, the current assessment of receivables portfolios by Polish enterprises and the shorter average waiting period for delayed debts. However, the other three components, on the basis of which the index is created, may indicate the deterioration of the situation of Polish companies. Particularly alarming is the increasing scale of payment backlogs, the slight increase in the average level of outstanding receivables within the portfolio of receivables, as well as an increase in the share of costs that businesses incur as a result of payment delays (Białowolski, 2018).

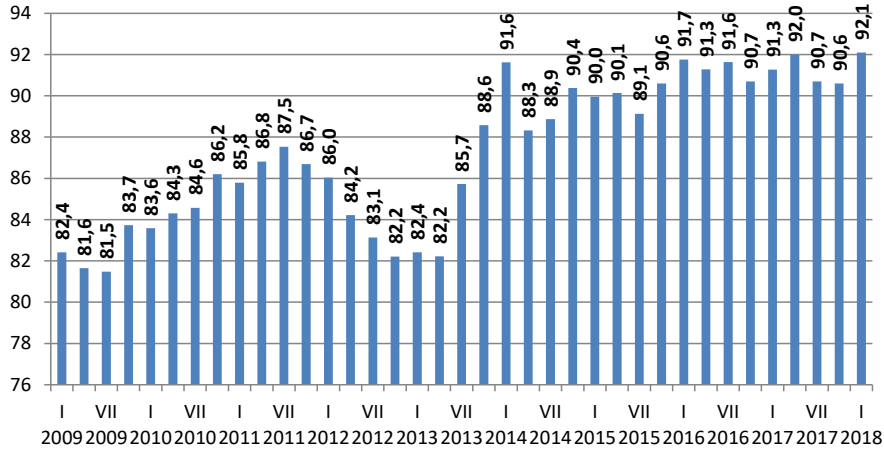

Figure 1. The Index of Companies' Receivables

Source: based on data from KRD Economic Information Bureau and Białowolski (2018).

Although the trade credit nature is well explained and there are many studies about payments delays, surprisingly less attention is paid to the causes of payment delays and backlogs. Previous studies suggest that the factors affecting the risk of payment delays and backlogs or non-payment are of a macroeconomic nature (mainly phase of business cycle), (Białowolski & Łaszek 2017) or are associated with insufficient availability of funds and the financial problems of the contractor, formal insolvency of the buyer or simply can be used intentionally for financial advantage (as a form of financing) (Atrium, 2016; Intrum Justitia, 2017). This study is focused on the empirical analysis of macroeconomic factors influencing backlogs and payment delays. Apart from "standard" factors (production, changes in production, monetary policy), investment dynamics,

exchange rate and the financial situation of the enterprises in the non-financial sector are added as potential explanatory variables.

3. Research approach and methods

The aim of the research is to build an econometric model explaining the impact of macroeconomic variables on payment delays. To achieve the goal, the following model is used as a frame of reference,

$$\widehat{Payment\ delays}_t = \beta_0 + \beta_1 \cdot Macroeconomic\ variable\ 1_t + \beta_2 \cdot Macroeconomic\ variable\ 2_t + \ldots \quad (1)$$

where:

β_i reaction coefficient (i= 1, 2, …);

β_0 intercept;

t – time lags; (t=0,-1,-2)

The analyses were based on quarterly data for Poland. The period of investigation is from 2009 (first quarter) to 2017 (first quarter). The initial set of variables is presented in Table 1. The authors assumed Q1 and Q2 to be potential dependent variables and Q3-Q11 to be independent.

Table 1. Initial set of variables

Variable code	Variable
Q1	The Index of Companies' Receivables
Q2	Share of delayed payments in trade credit as total
Q3	Gross Value Added (constant prices, corresponding period of the previous year=100)
Q4	Money supply of M3 (end of period, Mio. PLN)
Q5	Gross domestic product (current prices)
Q6	M3/GDP
Q7	Reference rate (end of period)
Q8	PLN/EURO official exchange rate of NBP (for 100 EUR)
Q9	Financial liquidity indicator of the third degree (from the beginning of year to the end of period)
Q10	Gross turnover profitability rate (from the beginning of year to the end of period)
Q11	Gross fixed capital formation (corresponding period of the previous year=100

Q1 and Q2 variables were suggested to represent payment backlogs and were delivered by the KRD Economic Information Bureau.

All independent variables (Q3-Q11) were acquired from Macroeconomic Data Bank (BDM), a statistical database gathering indicators characterizing the macroeconomic and social situation of Poland (accessed 10.02.2018). The data represent the following areas:

- Level of production (Q5);
- Economic growth (Q3);
- Monetary policy (Q4, Q6, Q7);
- Investment dynamics (Q11);
- Exchange rate (Q8);
- Financial situation of the non-financial sector companies (Q9 and Q10).

Table 2 summarises the basic statistics of the analyzed data.

Table 2. Basic statistics of initial data set

	Arithmetic mean	Median	SD	Kurto-sis	Skewness	CV
Q1	82.70	82.41	10.72	-1.19	0.06	13%
Q2	24.58	24.54	2.21	-0.99	0.09	9%
Q3	103.06	103.20	1.32	-0.15	-0.42	1%
Q4	940379.82	932005.50	174891.77	-0.98	0.25	19%
Q5	408678.33	406888.20	50136.33	-0.23	0.19	12%
Q6	2.29	2.23	0.23	-0.61	0.39	10%
Q7	2.95	3.25	1.16	-1.41	0.04	39%
Q8	419.84	418.79	14.22	-0.43	0.06	3%
Q9	146.72	147.00	3.43	-0.01	-0.62	2%
Q10	4.91	5.00	0.59	2.56	-0.83	12%
Q11	102.31	102.20	10.05	-1.10	-0.24	10%

To find the final dataset, we decided to employ stepwise regression, which includes regression models in which the choice of predictive variables is carried out by an automatic procedure. In the research, a backward elimination type of stepwise regression is used. Backward elimination involves starting with all candidate variables, testing the deletion of each variable using a chosen model comparison criterion, deleting the variable (if any) that improves the model the most by being deleted, and repeating this process until no further improvement is possible. The final set of variables include Q1 as a dependent variable and Q3, Q6, Q7, Q11 as independent.

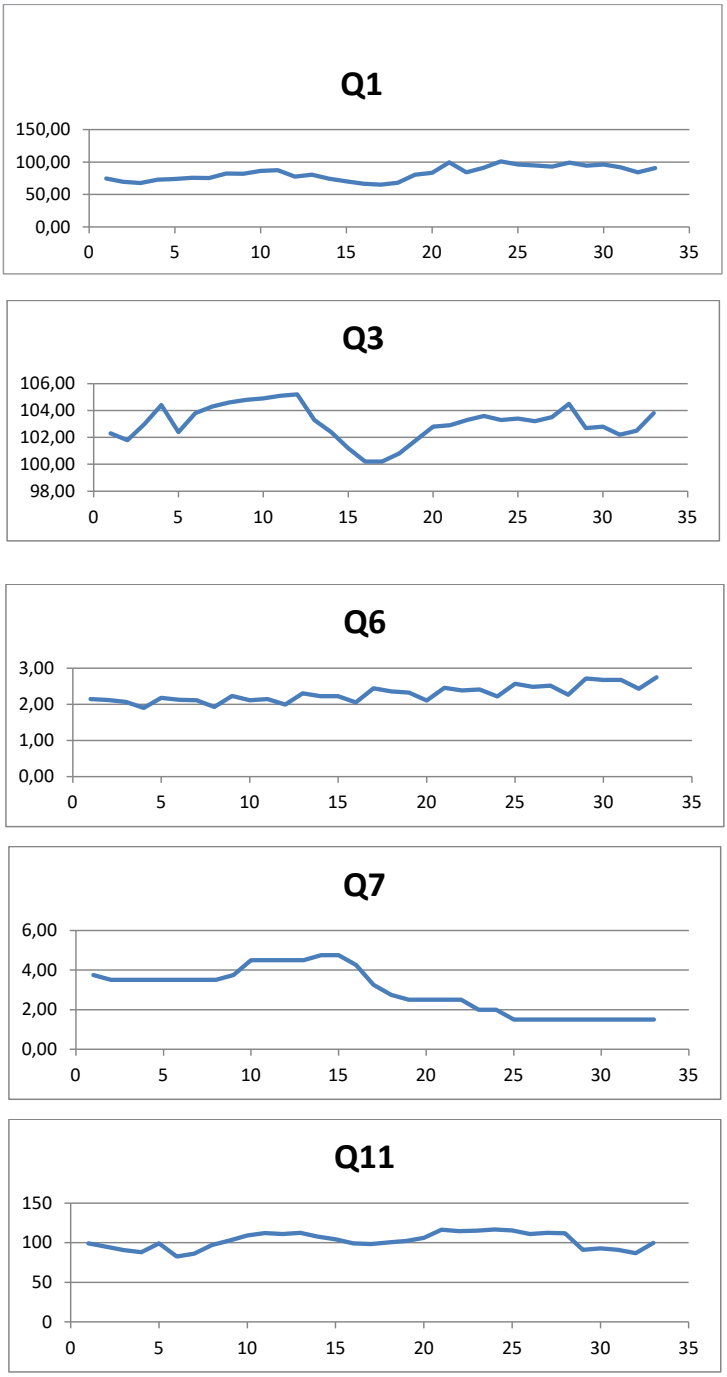

Figure 2. Final variables

The individual charts show some analogies in the runs compared to the series model. Q6 is a typical seasonal multiplicative series, which determines a certain upward trend, Q3 and Q11 have chart changes similar to the Q1 chart, while Q7 seems to have a course opposite to Q1 (correlation coefficient R=-0,69, p < 0,001).

4. Discussion and results

The model for the time lag=0 is estimated as follows.

$$\widehat{Q1} = -342.87 + 3.637 \cdot Q3 + 12.331 \cdot Q6 - 4.652 \cdot Q7 + 0.354 \cdot Q11 \qquad (2)$$

All coefficients are statistically significant using p-value at level 0.05 (Table 3). In addition, results for determination level is appropriate (Table 3). Economic growth (Q3, changes in GVA), relative money supply (Q6, M3/GDP) and investments growth (Q11) are factors decreasing the level of payment delays and backlogs. The level of National Bank of Poland's reference rate has a negative impact on payment delays and backlogs.

Table 3. Regression results without time lag (t=0) and determination statistics for t=0 model

	Coefficients	**Standard error**	**t Stat**	**p-value**
Intercept	-342.87	73.38	-4.67	0.00007
Q3	3.6366	0.67	5.45	0.00001
Q6	12.3306	5.61	2.20	0.03626
Q7	-4.6516	1.07	-4.37	0.00016
Q11	0.3543	0.08	4.20	0.00025
Determination				
Multiple R		0.92		
R squared		0.84		
Adjusted R squared		0.81		
Standard error		4.62		
Observations		33		

It can be considered that 81% of the variation of Q1 is explained by the regression model. The R2 coefficient is significantly different from 0 (test F=36.07 ; df (4;28) ; p=1.14 *10-10 <0.0001).

The residual components standardized in this model are characterized by kurtosis equal to -0.658 and skewness of 0.085. There are no outliers (all

absolute values are <3). Thus, the pre-residues have a distribution close to normal (Jarque-Bera test, JB = 0.635, p = 0.73, the distribution of model residues can be considered normal). In addition, there are randomly predicted Q1 values (test Z = -0.487 p = 0.627, the arrangement of signs is random). The normal distribution of the residues is also confirmed by the Shapiro-Wilk test (W = 09755, p = 0.644> 0.05).

Two next models (variations) were constructed to analyze the influence of independent variables on Q1 assuming a potential time lag of one quarter. The choice of variables proved to be quite complicated (using the same variables like in t=0 model a high coefficient of determination was obtained, but there was a suspicion of positive autocorrelation of the residual component). The procedure of a backward elimination type of stepwise regression was employed again. Two models, equivalent in quality, were obtained (equation 3 and 4). The first of these explains Q1 through delayed variables Q3, Q4 and Q7. In the next model, the variable Q4 was changed to the variable Q5.

The first model with delayed variables has the form:

$$\widehat{Q1} = -306.85 + 3.77 \cdot Q3_{t-1} + 1.86 \cdot 10^{-5} \cdot Q4_{t-1} - 5.32 \cdot Q7_{t-1} \quad (3)$$

Based on the data of one-quarter delay, economic growth (Q3, changes in GVA), money supply (Q4, M3) are factors decreasing the level of payment delays and backlogs. The level of National Bank of Poland's reference rate (Q7) has a negative impact on payment delays and backlogs.

Table 4. Regression results for time lag t=-1, for Q3, Q4, Q7 and determination statistics for t=-1 with variables Q3, Q4, Q7

	Coefficients	**Standard error**	**t Stat**	**p-value**
Intercept	-306.85	72.84372	-4.2124	0.00024
Q3t-1	3.77	0.683534	5.5145	6.81*10-6
Q7 t-1	-5.32	1.261035	-4.2166	0.00023
Q4 t-1	1.86*10-5	8.66*10-6	2.1494	0.04039
Determination				
Multiple R	0.90			
R squared	0.81			
Adjusted R squared	0.78			
Standard error	5.01			
Observations	32			

Note: the R2 coefficient is significantly different from 0 (test F=38.64 ; df (3;28) ; p=4.36 *10-10 <0.0001). All coefficient are significant at p-level 0.05 (Table 4).

Standardized residual components in this model are characterized by kurtosis K=1.341 and skewness A=0.776. There are no outliers (all of them in absolute value are <3), therefore, due to high kurtosis, it seems that residues may not have a normal distribution. However, the Jarque - Bera test gives the value of the test statistic JB=5.61 (p=0.060). Hence the distribution of model residues can be considered normal. The remainder occurs randomly to the next predicted values of Q1 (randomness test Z=0.210, p = 0.834, the arrangement of signs is random). There is no autocorrelation of the residual component (Durbin Watson's test d=1.68> dU=1.65, therefore no autocorrelation at the significance level of p=0.05). The consistency of the variance was checked and confirmed by the Goldfeld-Quandt test for the first 13 and last 13 residues in the model (n=32), obtaining the value of the test statistic F=2.64 (p-value=0.082> 0.05). Therefore, there are no grounds to reject the hypothesis about the homoscedasticity of model residues. In summary, the model meets the assumptions of the least-squares regression.

Another model with delayed variables has the form:

$$\widehat{Q1} = -275.05 + 3.47 \cdot Q3_{t-1} + 4.63 \cdot 10^{-5} \cdot Q5_{t-1} - 6.26 \cdot Q7_{t-1} \qquad (4)$$

In the parallel model, the level of production (Q5, nominal GDP) is replacing money supply (Q4, M3), two other variables' impact on payment delays and backlogs is similar to that identified in the previous model.

Table 5. Regression results for time lag t=-1, for Q3, Q5, Q7 and determination statistics with variables Q3, Q5, Q7

	Coefficients	**Standard error**	**t Stat**	**p-value**
Intercept	-275.05	70.0847	-3.9246	0.0005
Q3t-1	3.47	0.67837	5.1197	2.00*10-5
Q7 t-1	-6.26	0.968144	-6.4627	5.32*10-7
Q5 t-1	4.63*10-5	2.21*10-5	2.1013	0.0447
Determination				
Multiple R	0.90			
R squared	0.80			
Adjusted R squared	0.78			
Standard error	5.01			
Observations	32			

Note: the R2 coefficient is significantly different from 0 (test F=38.34 ; df (3;28) ; p=4.76 *10-10 <0.0001). All coefficient are significant at p-level 0.05 (Table 5).

The standardized residual components in this model are characterized by a low kurtosis K=0.245 and an equally low skewness A=0.360. There are no outliers (all of them in absolute value are <3), therefore, due to kurtosis and skewness, the rest may have a normal distribution. In addition, the Jarque - Bera test gives the value of the test statistic JB=0.7724 (p=0.6796). Hence the distribution of model residuals is considered normal. Residues occur randomly for consecutive predicted Q1 values (randomness test Z=0.00, p=1.00, the arrangement of signs is random) and the exact number of negative and positive residues is exactly the same. There is no autocorrelation of the residual component (Durbin - Watson's test d=1.76> dU=1.65, therefore no autocorrelation at the significance level of p=0.05). The variance constant was checked and confirmed as before by the Goldfeld-Quandt test for the first 13 and last 13 residues in the model (with the total number of observations n=32), obtaining the test statistic value F=1.69 (p-value=0.223>0.05). Therefore, there are no grounds to reject the hypothesis about the homoscedasticity of model residues.

In summary: the models determined are quite similar in terms of determination coefficients, but it seems that the last model presented is the most accurate. Forecasting on its basis should give the most reliable Q1 values, but it is also worth using other models for comparison. In addition, these models are "tailored" to the currently collected data, and only an analysis of future real values of Q1 can be a basis for the review and evaluation of the usefulness of the designated models.

Variables delayed by 2 quarters maintained quite large correlations with the corresponding delayed variables by 1 quarter, and the correlation with the explanatory variable was not significantly stronger. Extending the last model Q1 (Q3t-1, Q5t-1, Q7t-1) with the variables Q3t-2, Q5t-2, Q7t-2 we will get:

Thus, it would seem that Q5t-2 and Q7t-2 are highly and significantly correlated with Q1. However, high and significant correlations with variables Q5t-1 and Q7t-1 appear in parallel. The variable Q3t-2 does not seem to matter in this set due to the irrelevant correlation with Q1. In addition, the introduction of a delay of 2 quarters automatically reduced the sample size from 33 to 31, which in this case may also affect the model's character and significance of other factors.

5. Conclusion

The models presented in the study showed that problems with late payments and backlogs in Polish enterprises are highly dependent on macroeconomic variables. The model assuming no time lags showed a significant meaning of the rate of economic growth, conducted monetary policy and gross capital expenditures

growth in explanation of delayed payments, what is in general consistent with the theory of trade credit and payment delays causes.

Table 6. Correlation coefficients between lagged variables

	Q3(t-1)	**Q5(t-1)**	**Q7(t-1)**	**Q3(t-2)**	**Q5(t-2)**	**Q7(t-2)**
Q1	0.3789	0.5732	-0.7610	0.2258	0.5047	-0.8210
	p=0.036	p=0.001	p=0.000	p=0.222	p=0.004	p=0.000
Q3(t-1)		-0.0289	0.0740	0.7765	-0.2012	-0.0830
		p=0.877	p=0.692	p=0.000	p=0.278	p=0.657
Q5(t-1)			-0.5739	-0.0775	0.5913	-0.5766
			p=0.001	p=0.679	p=0.000	p=0.001
Q7(t-1)				0.2032	-0.5900	0.9665
				p=0.273	p=0.000	p=0.000
Q3(t-2)					0.0391	0.0448
					p=0.835	p=0.811
Q5(t-2)						-0.5428
						p=0.002

Surprisingly, there were no statistically significant correlations between delays and the financial results of enterprises (gross profitability and liquidity) and the exchange rate. It is also worth emphasizing the possibility of predicting the occurrence of late payments in the economy. The best results were obtained for a one quarter time lag. Monitoring data on economic growth and monetary policy (the NBP reference rate or money supply) allows us to predict the direction of changes in payment delays and backlogs. Due to the limited time range of the data, the results should be treated with caution. It seems reasonable to update the built-in model from time to time to maintain its credibility, and hence its use in prediction. Further work on the impact of macroeconomic variables on payment delays should concern the testing of the models presented in an industry, size of the company and regional layout.

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/DLG/2016/10, concluded with the Ministry of Science and Higher Education under the program named "Dialog".

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THE RELATION BETWEEN PROFITABILITY AND LEVERAGE FOR POLISH COMPANIES DURING A FINANCIAL CRISIS

Elżbieta Wrońska-Bukalska[1], Anita Radman-Pesa[2]

Abstract

The paper refers to the problem of the relationship between profitability and leverage. This is a major part of any capital structure decision. The aim of the paper is to identify whether the relationship between profitability and leverage is positive or negative. It must be noted that the trade-off theory assumes a positive relation, while pecking order theory assumes a negative relation. We also assume that because of financial crisis specificities, declining profitability will be accompanied by declining leverage. In our work, to identify the relation, we employed correlation coefficient techniques. Moreover, to model the relation, we utilized univariate regression analysis. Furthermore, we conducted three levels of analysis: for aggregated data of the companies of the whole Polish economy, for firm-level data of companies listed on WSE and for firm-level data of panel companies listed on WSE. Our analysis covers the period of 2005-2016. We found positive relationships between ROE and leverage and negative relationships between leverage and ROA. We think that these relations might be explained by the effects of financial leverage and the fact that the owners' rate of return (ROE) is higher than the cost of debt. The originality of our research lies in including different measures of profitability (esp. ROA and ROE) and the effects of financial leverage (EFL) as the explanation for the inconsistency in research on the relation between profitability and leverage. Our results are an important contribution to a debate on the relationship between profitability and leverage, and might explain both positive and negative interaction by connecting this relation with the effects of financial leverage and the relation between cost of capital and the rate of return.

Keywords: *leverage, profitability, financial crisis.*

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1. Introduction

The problem of company capital structure is a very puzzling issue that is not fully resolved. We tackle the problem of capital structure partially by referring to the relationship between leverage and profitability. We think that profitability is one of the most important factor affecting the leverage, yet profitability also depends on the leverage. However, there is no consensus on the relationship between profitability and leverage - some research shows positive relationships and some negative relationships. The aim of our paper is to identify whether the relation between profitability and leverage is positive or negative.

In our work, we tried to identify whether the relation between profitability and leverage is positive or negative on the basis of trade-off theory and pecking order theory. In doing so, we took into account the specific financial crisis which generated profitability decline. We also employed the financial effects of financial leverage. We assumed that to find positive interactions between profitability and leverage means that declining profitability during financial crisis is accompanied by declining leverage.

The analysis covers the period of 2005-2016 via two sub-periods: 2005-2010 and 2011-2016. In the work, we conducted analysis on three levels: based on aggregated data for all the companies of the whole Polish economy, based on companies listed on WSE and based on panel data of companies listed on WSE. In so doing, we employed several measures of profitability (ROE and ROA) and leverage (total liabilities ratios and financial liabilities ratios). We also implemented correlation coefficient techniques to identify the relation. Furthermore, we implemented the univariate regression analysis to model the relation between the leverage and profitability.

Our results are an important contribution to the debate on the relationship between profitability and leverage, and they might explain both the positive and negative interactions connecting profitability and leverage with the effects of financial leverage and the relation between cost of capital and the rate of return. The originality of our research lies in including different measures of profitability (esp. ROA and ROE) and the effects of financial leverage (EDF) as the explanation for the inconsistency in research on the interaction between profitability and leverage.

The rest of the paper is organized as follows: section 2 refers to the theoretical background of the relation between profitability and leverage; section 3 contains the review of recent research on profitability and leverage during financial crisis, and shows the development of the hypothesis; in section 4, we present the methodological background of our research; section 5 contains our research findings and section 6 provides some conclusions and discussion.

2. Literature background

2.1. Profitability and leverage under TOT and POT

The most important theories referring to the issue of capital gain are Trade-Off Theory (TOT) and Pecking Order Theory (POT). Trade-off theory is based on tax and debt load (Modigliani & Miller, 1958, Modigliani & Miller, 1963), bankruptcy and financial distress costs and debt (Warner, 1977), and agency theory and debt (Jensen & Meckling, 1976). TOT suggests that firms set an optimal capital structure that balances the tax advantage of debt financing (i.e., debt tax shields), the costs of financial distress and the agency costs of debt. Herein, optimal capital structure is a combination of debt and equity that allows the reaching of the highest value of the firm.

The most important factor affecting the advantages of tax shields and the costs of financial distress and the agency costs of debt is profit and company profitability. Profitable companies are less exposed to bankruptcy and agency cost and can take advantage of tax benefits associated with debt use. The most profitable firms also have capacity for a higher level of debt and can take advantage of debt tax shields (Fama & French, 2002). These arguments justify the assumption of a positive relationship between profitability and debt.

Pecking order theory was developed by Donaldson (1961), Myers and Majluf (1984) and Myers (1984) and later extended by Lucas and McDonald (1990). The subject of study was the asymmetric information between managers and investors of public companies. Herein, managers have more information about the true value of the enterprise and enterprise risk compared to outside investors. According to POT, firms finance their activities in a specific order: internal funds from profits, short-term securities, debt, preferred stock and common stock last.

Pecking order theory generally explains why profitable firms have lower leverage ratios. The more profitable firm is, the greater is its capacity to accumulate retained profits, and so there is less need to turn to external finance. This means that companies with lower profitability will turn to debt more often and will use external financing (especially debt) more often. A negative relationship is therefore expected between profitability and debt. The theory of capital structure indicates both positive and negative relationships between profitability and leverage. This inconsistency is also present in empirical research. Some empirical evidence tends to support pecking order theory. This can be seen in the works of: Sogorb-Mira (2005), Ramalho and Silva (2009), González and González (2012), Rajan and Zingales (1995), Fama and French (2002), Kayo and Kimura (2011), Psillaki and Daskalakis (2009), Titman and

Wessels (1988), as well as Seifert and Gonenc (2008). Furthermore, Mazur's (2007) investigation of Polish firms between 2000 and 2004 confirms the superiority of pecking order theory.

Amongst the researchers supporting the primacy of trade-off theory are Schwartz and Aronson, (1967), Taggart (1977), Marsh (1982) and Opler and Titman (1994). A further group of researchers report inconclusive findings. For example, Haan and Hinloopen (2003) assert that both pecking order and trade-off theory are empirically important in explaining capital structure. Moreover, Gaud, Hoesli, and Bender (2007) claim that capital structure decisions cannot be reduced to only one theory. The prevailing support of pecking order theory leads us to think that it is more probable to find negative relationships between profitability and leverage. It is especially true that there are more studies on debt level and profitability that show negative interaction, esp. Rajan and Zingales (1995), Fama and French (2002), Velnampy and Niresh (2012), Abeywardhana (2015), Singh (2016), Režňáková, Svoboda, and Polednáková (2010), as well as Shubita and Alsawalhah (2012). However, both theories and existing empirical research seem to miss an important element of analysis on profitability and leverage.

To describe fully the relation between leverage and profitability, it is important to identify the effects of financial leverage (EFL). The effects herein might be positive and negative. Positive effects are present when profitability on equity (ROE) is higher than profitability on assets (ROA) and higher than the cost of debt after tax (kd(1-T)). Positive effects mean that companies can use leverage quite safely and any additional debt will lead towards increasing the ROE (Gritta, Adams, & Adrangi, 2006). This means that the measure of profitability is important - and the results might depend on the measure (ROE or ROA) implemented. We think that the profitability might decrease or increase, might be high or low, but if ROE is still higher than ROA and than the cost of debt after tax, the company might be interested in increasing the leverage so as to gain the positive effects of financial leverage. This might also mean that increasing profitability accompanied by a negative relation between ROE and ROA and the cost of debt after tax, might be related with decreasing leverage because of the negative effects of financial leverage. It is also important to note that the analysis of effects of financial leverage shows that the relation between debt and profitability is a two-way relatio: the use of debt might have an impact on profitability and the profitability might have an impact on the debt use.

2.2. Leverage and profitability during a financial crisis

Uncertainty and risk rise during a crisis. That is why a crisis can have negative impact on demand and profitability and can increase the volatility of earnings of banks and non-financial corporations. Prasad, Puri and Jain (2015) show that in their sample countries, a financial crisis led to immediate drops in the profitability of firms, but the profitability levels at the end of 6 years after the crisis were still not at the pre-crisis levels. Bris, Koskinen and Pon (2004) show that all firms from their sample become more fragile after the crisis and that their profitability had declined. Claessens, Tong and Wei (2011) examined how the 2007-2009 crisis affected firm performance. They found that the crisis had a heavy negative impact on company performance. Brun, Chai, Elgg, Esteban, Gastel, Körting, Momo, Nigro, Poiares, Servant, Solera, and Vivet (2013) analyzed the impact of the financial crisis of 2007-2009 on profitability in the corporate sector in six European countries (Belgium, Germany, France, Spain, Portugal and Italy). They too found that most non-financial companies suffered a profitability slowdown.

We expect to find a downward trend in profitability, but diminishing profitability is not the only aspect of a contracting economy: companies trying to survive difficult times diminish their investment spending and dividend payment in order to keep the business running (Campello, Graham, & Harvey, 2010).

Much research shows that in a crisis and post-crisis, bank-lending constraints limit access to credit (European Investment Bank, 2014; Artola & Genre, 2011; Ferrando & Greisshaber, 2011; Holton, Lawless, & McCann, 2012). The ECB Bank Lending Survey (2014) indicates that credit standards for corporates continued to be tight even after a financial crisis. Overall, banks have tightened credit standards continuously since 2007, with slight net easing in mid-2014 for the first time in this period (European Investment Bank, 2014; Ivashina & Scharfstein, 2010). Indeed, some research indicates that even recently, some enterprises (especially small and medium enterprises) were still faced with difficulties in raising capital (Casey & O'Toole, 2013; Gjorgieva-Trajkovska & Jovanova, 2013).

It seems that during and after a financial crisis, the amount of credit channeled to non-financial companies always declines. Following the 2008 crisis, within the Euro area, corporate indebtedness ratios only started falling in the later stages of the recession (European Central Bank, 2013). Brun et al. (2013) analyzing the impact of the financial crisis of 2007-2009 on leverage ratio in the corporate sector in six European countries (Belgium, Germany and France, Spain, Portugal and Italy) found only increasing equity ratios (decreasing leverage). The Eurozone was also not the only area affected, Demigruc-Kunt, Martinez-Peria and Tressel (2015), using a dataset covering about 900,000

firms across 80 countries over the period 2004-2011, found that firm leverage declined both in advanced economies and in developing countries.

We think that the relationship between profitability and leverage might depend on the macroeconomic context. We thus expect to find a downward trend in leverage during a financial crisis. Taken together, we assume that declining leverage is accompanied by declining profitability. This means that we assume a positive relation between profitability and leverage. This interaction is consistent with TOT theory. Moreover, after a crisis, when the economy is rapidly growing, we assume a growing profitability that is connected with declining leverage. At this time, net profit is enough to finance investment projects, and there is no need to take bank loans or issue bonds. This relation is consistent with POT theory.

3. Methodology

We conducted our analysis on the existing data for Polish companies. In so doing, we conducted three stages of analysis:

- we employed the aggregated data for the companies of the whole Polish economy;
- we employed the data for the companies listed on the Warsaw Stock Exchange (WSE);
- we employed panel data for the companies listed on the Warsaw Stock Exchange.

All the data cover the period 2005-2016. The data for the companies of the whole Polish economy comes from statistical books – there are app. 50,000 companies obliged to provide information to the government's statistical office. The data for companies listed on WSE comes from Emis/Notoria. There are 4123 observations (year-company) in total for the listed companies. The data for the listed companies excludes companies acting within the financial, banking and insurance markets.

The panel data were restricted to the companies that were listed on WSE for the whole period of 2005-2016. We found 2052 observations (year-company) for the panel data of listed companies (12 years and 171 companies). The panel data excludes companies acting within the financial, banking and insurance markets.

We employed several ratios as the variables included in the analysis:

- proxy for leverage - debt ratio – calculated as the relation of total liabilities (long and short-term, operating and financial liabilities) to total assets;
- proxy for leverage - financial ratio – calculated as the relation of financial liabilities (long and short-term bank loans, bonds, and lease) to total assets;

- proxy for profitability - ROA – calculated as the relation of net profit to total assets;
- proxy for profitability - ROE - calculated as the relation of net profit to equity;
- proxy for the effects of financial leverage - EFL- difference between ROE and ROA.

Additionally, we present the data for the total value of financial liabilities in billions PLN for companies of the whole economy and in millions PLN for listed companies.

We also included the data for the WIBOR (Warsaw Interbank Bid-Offer Rate). This is important because all bank loan and bond contract interest rates are set against WIBOR (WIBOR + 3 percentage points).

To test the research hypotheses, we calculated the correlation coefficient between leverage ratios (debt ratio and financial ratio) and profitability ratios (ROA and ROE) and between leverage ratios and the difference between ROE and ROA (EFL). The correlation coefficients are calculated for the whole period of 2005-2016, but also for two sub-periods: 2005-2010 (pre-crisis and crisis period) and 2011-2016 (post-crisis period). What is more, we employed univariate linear regression analysis to describe the model of the relationship between profitability and leverage.

4. Research findings

The initial step of our analysis was to investigate the relation between profitability and leverage for companies of the whole economy (Table 1). The ratios were calculated on the aggregated data presented by the Polish government's statistical office.

Table 1. Descriptive statistics of leverage and profitability for companies of the whole economy (%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Debt ratio	39.7	39.4	37.6	39.5	38.6	38.3	40.1	39.1	40.0	40.4	40.3	41.5
Financial ratio	9.8	10.3	10.0	11.4	10.7	9.7	9.6	14.2	15.2	15.7	15.8	16.0
Value of financials	103.7	119.2	136.1	173.0	167.4	163.4	176.8	270.0	354.9	389.1	414.8	440.5
ROE	8.1	9.9	10.2	6.9	8.2	8.6	9.4	7.1	7.7	7.4	7.3	8.3
ROA	4.9	6.0	6.4	4.2	5.0	5.3	5.6	4.3	4.6	4.4	4.3	4.9
EFL	3.2	3.9	3.8	2.7	3.2	3.3	3.8	2.8	3.1	3.0	2.9	3.5
WIBOR	6.6	4.5	4.2	5.75	5.7	4.3	4.1	5.0	4.0	2.7	2.1	1.7

Source: authors' own calculations based on the data from Polish statistical office.

Herein, the debt ratio is quite stable and shows a weak upward trend - the total liabilities stand for only app. 40% of total assets. The value of equity grew by 150% over the 2005-2016 period, while the value of total liabilities grew by 172% and total assets by 160%. Hence, liabilities grew faster than total assets and thus liabilities achieved an increase in the percentage of total assets. It is important to note that financial liabilities (bank loans, bonds) grew very quickly - in 2016, the value of financial liabilities was four times higher than in 2005 - almost doubling its share within the ten year period.

Furthermore, ROA and ROE decreased but were still positive values. The difference between ROE and ROA also decreased while keeping a stable level of 3 percentage points. The difference between ROE and ROA was positive for the whole analyzed period. This situation underlines the positive effects of financial leverage and justifies the safe use of debt. In addition, during this period, profitability decreased and leverage increased. A negative relation between profitability and leverage, is expected. Table 2 presents the correlation coefficients for the companies of the whole economy.

Table 2. Correlation coefficients for companies of the whole economy

	2005-2016			2005-2010			2011-2016		
	ROE	ROA	EFL	ROE	ROA	EFL	ROE	ROA	EFL
Debt ratio	-0.368**	-0.476**	-0.169**	-0.533**	-0.599**	-0.488**	-0.346**	-0.237**	-0.469**
Financial ratio	-0.602**	-0.649**	-0.499**	-0.586**	-0.587**	-0.574**	-0.751**	-0.818**	-0.644**

Note: significant at * $p < 0.1$, ** $p < 0.05$, ***$p<0.001$.

The negative correlation coefficient demonstrates that the lower the profitability (ROA and ROE), the higher the leverage. This is consistent with POT theory, assuming that having similar investment and dividend payments, companies with lower profitability will turn more often to debt financing. What is more, because ROE is higher than ROA and the cost of debt after tax, there are positive effects to financial leverage. This situation might explain the increasing level of debt and financial liabilities of the companies listed on the WSE.

It must be understood that these are the results of analysis based on aggregated data. These data do not allow us to conclude on the relation between profitability and leverage. Hence, we applied the second and third step of our analysis on firm-level data. The second step in our analysis is thus to investigate the relationship between profitability and leverage for listed companies. Table 3 presents the data for leverage and profitability for companies listed on the WSE (mean and median).

Herein, we can see that the debt ratio of listed companies is higher than that for the whole economy. In addition, a downward trend can be seen till

2010 and then an upward trend till 2016. Still, the changes in debt ratio are not significant.

Table 3. Descriptive statistics (mean and median) of leverage and profitability for the companies listed on WSE (%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Debt ratio	53.3	49.4	47.0	52.4	50.0	49.2	50.1	50.2	49.8	51.7	54.7	58.9
	53.7	50.1	48.6	48.9	48.1	47.1	48.6	48.0	47.1	49.6	48.8	51.5
Financial	14.8	14.4	16.0	19.8	20.6	20.3	21.4	22.2	21.4	22.4	24.7	25.2
ratio	10.1	9.2	11.7	15.7	17.0	16.4	17.6	19.1	17.9	18.6	18.5	19.1
Value of	2,620.1	1,516.3	3,291.8	4,306.0	4,960.0	4,978.1	4,972.3	4,332.9	3,861.1	3,829.8	3,502.5	4,485.7
financials	9.5	14.1	25.2	34.2	31.8	38.5	47.9	61.5	55.9	52.2	54.2	58.6
ROE	27.1	23.7	14.4	14.5	13.2	12.7	10.1	12.6	13.5	10.4	10.4	12.2
	17.8	17.5	16.2	8.6	6.6	8.7	9.4	7.1	6.5	6.6	8.0	7.7
ROA	8.9	12.0	10.0	8.5	8.4	8.3	4.8	7.6	7.3	6.2	7.0	7.9
	7.7	8.7	8.7	4.2	3.3	4.2	4.6	3.3	3.4	3.4	3.4	3.4
EFL	18.1	11.6	15.1	14.5	10.7	14.3	5.1	4.6	4.2	3.6	9.3	6.4
	7.1	7.1	6.5	3.0	2.5	3.3	3.4	2.4	2.7	2.8	2.8	3.2

Source: authors' own calculations based on hand-collected data.

Furthermore, the value of total assets, equity, total liabilities and financial liabilities grew intensively – the value of total assets, total liabilities and equity increased four times within the ten year period. The highest rate of increase is to financial liabilities (bank loans, bonds), wherein the median value increased five times and the ratio increased by 10 percentage points. This means that Polish listed companies invested in growth, but at a similar pace of growth, and all the basic elements of the balance sheet led to small changes in the debt ratio.

We can also see that profitability decreased over the time period, but only till 2011, and then we can see a stable low level of profitability. However, even five years post-financial crisis, profitability did not regain the pre-crisis level. In addition, throughout the period, the difference between ROE and ROA decreased almost all the time, but the difference between ROE and ROA was consistently positive, hence revealing the positive effects of financial leverage throughout the whole analyzed period, and explaining the increasing level of liabilities of the panel sample.

In micro-analysis, we can find decreasing profitability and decreasing leverage in the period of 2005-2010 and then increasing profitability and increasing leverage in the period of 2011-2016. A positive relation between profitability is expected, however. Table 4 presents the derived correlation coefficients for companies listed on the WSE.

We also found a positive relationship between ROE and leverage and between the difference between ROE and ROA and leverage. This means that a higher ROE and a greater difference between ROE and ROA and higher

leverage, yet the relation between ROA and leverage is negative. This situation implies that the lower the ROA, the higher the leverage.

Table 4. Correlation coefficients for the companies listed on WSE

	2005-2016			2005-2010			2011-2016		
	ROE	**ROA**	**EFL**	**ROE**	**ROA**	**EFL**	**ROE**	**ROA**	**EFL**
Debt ratio	0.038*	-0.411**	0.050**	0.052*	-0.377**	0.060*	0.063**	-0.457**	0.098**
Financial ratio	0.049**	-0.313**	0.058**	0.067*	-0.152**	0.071**	0.079**	-0.413**	0.110**

Note: significant at * p < 0.1, ** p < 0.05, ***p<0.001.

This relation is easy to explain because in the higher ROE and the lower ROA, the difference between ROE and ROA is greater and the positive effects of financial leverage are enhanced. This justifies the listed companies using more debt financing. What is more, in the whole period of 2005-2016, ROE is higher than ROA and than the cost of debt after tax. This situation again supports the idea of safely utilizing more debt financing.

To ascertain the relation between profitability and leverage, we utilized regression modeling. Table 5 present the results of regression analysis for companies listed on the WSE.

Table 5. Regression analysis results for the companies listed on WSE

	Debt ratio	**Debt ratio**	**Debt ratio**	**Financial ratio**	**Financial ratio**	**Financial ratio**
ROE	0.002 (0.028)**	X	X	0.002 (0.005)**	X	X
ROA	X	-0.834 (0.000)***	X	X	-0.423 (0.000)***	X
EFL	X	X	0.003 (0.004)**	X	X	0.002 (0.001)***
F, p-value	4.859 (0.028)**	681.753 (0.000)****	8.354 (0.004)**	7.936 (0.005)**	364.002 (0.000)***	11.146 (0.001)***
R square	0.001	0.169	0.002	0.002	0.098	0.003

Note: significant at * p < 0.1, ** p < 0.05, ***p<0.001.

As can be expected, we found a positive relationship between ROE and the difference between ROA and ROA and leverage, and a negative relation between ROA and leverage. All models are statistically significant.

The third step of our analysis was to investigate the relationship between profitability and leverage for the panel data of listed companies. Table 6 reveals the obtained correlation coefficients (mean and median).

Table 6. Descriptive statistics (mean and median) of leverage and profitability for panel data of the companies listed on WSE (%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Debt ratio	53.6	50.8	47.8	52.8	50.2	50.0	52.5	51.0	51.2	52.3	56.0	57.8
	53.2	51.4	48.7	48.2	46.7	47.5	49.5	48.7	47.1	47.9	48.3	52.8
Financial	14.4	14.8	15.7	18.6	19.3	19.4	21.5	21.2	21.2	21.7	24.6	24.0
ratio	8.7	9.7	11.7	15.4	15.3	16.7	18.0	19.3	17.8	18.2	18.2	17.9
Value of	2,647.3	1,735.3	4,383.7	6,307.9	7,819.0	8,393.2	7,562.8	7,794.6	7,167.3	7,234.6	6,588.2	8,369.7
financials	8.2	16.4	30.2	54.6	56.6	52.8	79.2	70.6	68.1	72.7	68.9	79.5
ROE	28.1	19.7	-6.7	14.9	6.4	2.3	5.5	2.3	1.5	5.5	6.7	3.6
	17.8	17.3	15.4	7.4	5.5	7.1	8.5	6.8	6.0	6.3	7.0	7.5
ROA	9.0	9.4	9.0	1.0	0.3	4.0	3.2	0.4	2.0	1.1	0.6	0.2
	7.8	8.3	8.1	3.6	2.7	3.6	4.1	3.1	2.9	3.2	3.3	3.6
EFL	18.0	10.3	7.6	13.8	6.1	2.2	2.2	2.7	0.4	5.4	6.1	3.8
	7.1	7.3	6.6	2.5	2.0	2.3	3.3	2.3	2.4	2.4	2.6	3.1

Source: authors' own calculations based on hand-collected data.

The results for panel data present a similar picture as for listed companies. We can see a downward trend in debt ratio till 2010 and then an upward trend till 2016. Herein, the changes in debt ratio are not significant. At the same time, the value of total assets, equity, total liabilities and financial liabilities grew intensively. Indeed, the value of total assets, total liabilities and equity increased five times within the ten year period. The highest rate of increase was to financial liabilities (bank loans, bonds). Therein, the median value increased ten times and the ratio doubled. This means that during this period, the listed companies invested extensively in growth, yet the similar pace of growth within all basic elements of the balance sheet led to small changes in their debt ratio.

During this time period, we can see via the table that profitability decreased, but only till 2011, and then we can see a stable low level of profitability, yet even five years post-financial crisis, the profitability did not regain the pre-crisis level. The same refers to the difference between ROE and ROA.

Furthermore, we can find decreasing profitability and decreasing leverage in the period of 2005-2010 and then increasing profitability and increasing leverage in the period of 2011-2016. Still, a positive relation between profitability in the period of 2005-2010 and in the period of 2011-2016 is expected. Table 7 presents the correlation coefficients for the panel data of the WSE listed companies.

Herein, the results for the panel data show a similar picture as for the listed companies. We found a positive relationship between ROE and leverage and between the difference between ROE and ROA and the leverage.

Table 7. Correlation coefficients for panel data of the companies listed on WSE

	2005-2016			2005-2010			2011-2016		
	ROE	ROA	EFL	ROE	ROA	EFL	ROE	ROA	EFL
Debt ratio	0.055*	-0.439**	0.071*	0.015	-0.496**	0.030	0.117**	-0.395**	0.137**
Financial ratio	0.032*	-0.317**	0.044*	-0.038	-0.246**	0.031	0.116**	-0.353**	-0.134**

Note: significant at * $p < 0.05$, ** $p < 0.01$.

This means that the higher the ROE and the greater the difference between ROE and ROA, the higher the leverage, yet the relation between ROA and leverage is negative. Such a situation implies that the lower the ROA, the higher the leverage. This relationship is easy to explain because in a situation of higher ROE and lower ROA, the difference between ROE and ROA is greater and the positive effects of financial leverage are enhanced. This justifies using more debt. What is more, in the whole period of 2005-2016 ROE is higher than ROA and the cost of debt after tax. Such a situation again supports the idea of safely using more debt financing.

We utilized regression modeling to understand the interaction between profitability and leverage. Table 8 presents the results of regression analysis for panel data of the companies listed on WSE.

Table 8. Regression analysis results for panel data of the companies listed on WSE

	Debt ratio	Debt ratio	Debt ratio	Financial ratio	Financial ratio	Financial ratio
ROE	0.004 (0.013)**	X	X	0.002 (0.143)	X	X
ROA	X	-0.906 (0.000)***	X	X	-0.483 (0.000)***	X
EFL	X	X	0.006 (0.004)**	X	X	-1.597 (0.996)
F, p-value	6.167 (0.013)**	486.968 (0.000)****	10.464 (0.001)***	2.143 (0.143)	229.249 (0.000)***	0.000 (0.996)***
R square	0.003	0.192	0.005	0.001	0.101	0.000

Note: significant at * $p < 0.05$, ** $p < 0.01$.

As expected, we again found a positive relation between ROE and the difference between ROA and ROA and leverage, and a negative relation between ROA and leverage. All models except for one are statistically significant.

6. Conclusions

The aim of the paper was to identify the relation between profitability and leverage. We attempted to identify which theory better explains the interaction between profitability and leverage: trade-off theory assuming a positive relationship, or pecking order theory assuming a negative interaction. Our research covered the period of 2005-2016, and we conducted our research on three levels: aggregated data for the whole of the Polish economy, firm-level data of companies listed on the Warsaw Stock Exchange and firm-level data of panel companies listed on the WSE. We assumed that during the crisis, company profitability will decline, investment opportunities will decline, and demand for external financing (especially debt) will decline as well. Hence, we expected to find positive relationships between profitability and leverage, wherein declining profitability is accompanied by declining leverage. In obtaining a positive relationship, we would support the trade-off theory.

The results of our work were, however, quite surprising – we found some evidence confirming both positive and negative relationships between profitability and leverage. This is especially true for firm-level data. What is important, a positive relationship was found between ROE and leverage and between EFL and leverage, while a negative relationship was found between ROA and leverage. This situation is easy to explain because, with a higher ROE and a lower ROA, the difference between ROE and ROA is greater and the positive effects of financial leverage are bigger. This justifies using more debt.

The explanation of increasing leverage with declining profitability might lie in that although the profitability declined, it was still positive and the investment opportunities were still present, and, thus, entrepreneurs developed their businesses. Furthermore, the declining profitability and increasing leverage were accompanied by the increasing value of total assets and equity, but the growth of indebtedness outweighed the growth of equity. Because profitability was declining, the internal sources of financing were contracting and the demand for external sources of financing was increasing. What is more, this decline in profitability was in line with the decrease in the cost of debt financing. This situation makes bank loan and bond use quite attractive sources of external financing. Herein, decreasing levels of the rate of interest on bank loans allows the acceptance of more investment projects with lower rates of return (but still higher returns than are the costs of debt and equity). Thus, business development is enhanced. The only explanation for increasing bank loans and decreasing profitability lies within the falling costs of borrowings - which is consistent with market timing theory.

Bris et al. (2004) showed similar results to ours, i.e., increases in leverage with declining profitability during the crisis time. Their study shows that

companies increased their leverage from 33% for three years before the crisis, to 36% in the year of crisis, to 39% in the years after crisis.

We do not confirm the results of the European Central Bank, 2013; or of those of Demigruc-Kunt et al. (2015) and Brun et al. (2013), who found declining leverage and declining profitability during the financial crisis of 2007-2009.

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