KNOWLEDGE
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CONTEMPORARY ASPECTS OF
ECONOMIC TRANSFORMATIONS

Edited by
Paweł Lula, Tomasz Rojek

KNOWLEGE – ECONOMY – SOCIETY

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CRACOW UNIVERSITY OF ECONOMICS
Faculty of Management
FOUNDATION OF THE CRACOW UNIVERSITY OF ECONOMICS

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Cracow 2016

Reviewer

Anna Brzozowska

All papers have been prepared in English by the Authors

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Introduction

Contemporary economy is the economy of constant transformations taking place both on the market as the external environment of the functioning of entities of the real and regulatory sphere, and internal changes, referring to the resources used and the scope and structure of the activities of present-day organisations. It implies the need to adapt the applied concepts, methods and tools of management to permanent changes so that, owing to the proper selection of economic resources, their adequate interrelation, as well as the application of suitable methods of functioning, it could be possible to implement the established goalsefficiently and effectively. Such a way of conducting activities, as the process of formulating the goals of an organisation and indicating the ways of achieving them, has a highly universal character because it refers to all types of organisations which, regardless of various motives of their activity, are purposeful and characterised by the strive for the realisation of the adopted goals.

Among the external conditionings characterising the contemporary economy, one should mention in the first place deep changes in the market structure, the shaping of competition, and in the progression of economic processes positively or negatively influencing the possibilities to conduct business activities and implement the goals of enterprises. In the sphere of the external conditionings it is also necessary to indicate special processes which in different periods exerted a significant influence on the activities of enterprises. These are primarily the processes of globalisation and socio-economic integration, implying an increasing co-dependence of economies, the systemic transformation processes in Central and Eastern Europe countries, the processes of changes in the activities of firms, related to the emergence and development of the "new economy" sphere, as well as regional and global economic crises producing serious perturbations in the functioning of the market and threats for the existence of enterprises functioning on it.

The internal conditionings of the functioning and development of various types of organisations are basically connected with changes in the role and significance of different types of economic resources in their activities, which in recent years primarily referred to the ever-growing role of non-material resources. The changes were accompanied by the emergence and spread of new solutions in the sphere of technique and technology and the organisation of enterprises' operations, which was indirectly also related to the impact of the development of the "new economy" on the forms and possibilities of conducting business activity.

The survival of an enterprise in these conditions and guaranteeing development to it require the introduction of radical changes in management systems, the technology of production and service provision, the popularisationof the adapted knowledge and the modernisation and offering new products. All these activities aim at the adjustment of the functioning of contemporary enterprises to the dynamic changes in their environment. Hence, when analysing the conditionings of the functioning and development of enterprises, it becomes necessary to show various aspects of entrepreneurship, factors influencing its development, as well as barriers limiting the capabilities of using entrepreneurship as an instrument of raising competitiveness of economy and its entities.

What becomes the consequence of the influence of the mentioned external and internal conditionings is the need for changes in the processes of managing contemporary organisations. It refers both to the evolution of the hitherto applied concepts, methods and instruments of management, and to the implementation of totally new solutions within that scope. Therefore, the basic aim this publication is the presentation, analysis and exemplification of the conditionings of the contemporary economy functioning, the identification of its challenges and outlook, as well as the presentation of the concepts, models and tools ofmanaging contemporary organisations in the conditions of the changing economic, social and political environment.Partial issues making up the implementation of this aim have been featured in the form of the following four parts of the presented work:

1. Global and regional conditionings of the functioning of economy.
2. Challenges and perspectives of the contemporary economy.
3. Implementation of knowledge in the contemporary economic processes.
4. Reorientation of the concepts and models of enterprise management.

Part One of the publication discusses a problem which significant and topical from the point of view of the contemporary world, namely the current conditionings and dilemmas of the functioning of economy, both globally and regionally. The authors of the chapters constituting this part focus on the concepts, strategies and processes possible to be implemented in accordance with the conditions of today's turbulent economic environment. They indicate simultaneously global and regional opportunities and threats facing politicians and managers in the existing conditions. The part attempts to analyse the contemporary problems of the functioning of economies, and at the same time it is an attempt to present solutions adequate to the conducted diagnosis of the existing state.

The content of Part Two concentrates on the issues which are important and up-to-date from the point of view of the current reality and which concern the challenges and perspectives the contemporary economy is facing. The political environment, focused on the problems of forced migration of population and the acts of terrorism, economic and social inequalities, the collapse of the economic order established by way of evolution, brings about new and so far unknown challenges of the economic character. It univocally influences the outlook of economic development, the stabilisation of financial markets and maintaining the desired profitability of economies and entities functioning in it.

The authors of the chapters presented in Part Three of this publication refer to the issues related to knowledge and human resources management in the organisation. Knowledge, constituting a separate resource of an enterprise, contributes to building its competitive advantage. It is connected with changes in the role of individual assets in the value creation of the organisation. Knowledge, treated as skills acquired by employees in the process of learning and the experiences gained by them,for an organisation constitute a unique factor of production, so-called intellectual factor. Nowadays, efficient knowledge management in an enterprise and the implementation of its elements result in the transformation of knowledge into the component of the organisation's market value. It is related to making use of the role which human resources perform in an organisation, and, what follows, also to the policy of the human capital management.

The deliberations included in Part Four depict contemporary business concepts and models, being a vital element of support of the organisation's management process. The intensified activeness of the owners of enterprises functioning on the global market has brought about an increase

in the pressure put on the economic rationality of firms and their efficiency, which manifests itself in achieving financial profits by the owners. Achieving such profits requires the application of effective tools and adequate instruments of enterprise management. The popularisation and the constant development and improvement of the new economy have given to organisations an opportunity to take advantage of the achievements of the scientific and technical progress more broadly than so far. They have caused the growth of the effectiveness of entities, and owing to a change in perceiving economic processes and phenomenanew management methods and techniques are implemented, and organisational structures and activities of enterprises are transformed.

   This book has a character of a theoretical and cognitive, as well as methodological study whose aim is the presentation and systematisation of the scientific and practical output concerning selected content areas, discussion and critical assessment of this output, as well as the presentation of own thoughts and proposals on the analysed issues and problems[1]. Handing over the discussed work to the Readers, we express our belief that the publication in the presented formulation is fully justified, both for theoretical and cognitive, practical and educational reasons. It can constitute

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[1]   This work inscribes into the series of publications under the common title *Knowledge-Economy-Society*, which constitute one of the effects of many years' cooperation between the academic environment of the Faculty of Management at the Cracow University of Economics and employees and doctoral students of other faculties of the University, with representatives of different Polish academic circles, as well as representatives of foreign academic circles. See: Oczkowska, R., & Mikuła, B. (Eds.) (2011). *Knowledge-Economy-Society. Challenges of the Contemporary World*. Cracow: Foundation of the Cracow University of Economics; Malina, A., Oczkowska, R., & Rojek, T. (Eds.) (2012). *Knowledge-Economy-Society. Dilemmas of the Contemporary Management*. Cracow: Foundation of the Cracow University of Economics; Lula, P., Mikuła, B., & Jaki, A. (Eds.) (2012). *Knowledge-Economy-Society. Transfer of Knowledge in the Contemporary Economy*. Cracow: Foundation of the Cracow University of Economics; Lula, P., Mikuła, B., & Jaki, A. (Eds.) (2013). *Knowledge-Economy-Society. Global and Regional Challenges of the 21st Century Economy*. Cracow: Foundation of the Cracow University of Economics; Malina, A., Oczkowska, R., & Rojek, T. (Eds.) (2013). *Knowledge-Economy-Society. Challenges of the Contemporary Management*. Cracow: Foundation of the Cracow University of Economics; Oczkowska, R., & Śmigielska, G. (Eds.) (2014). *Knowledge-Economy-Society. Dilemmas of the Economic Resources Management*. Cracow: Foundation of the Cracow University of Economics; Lula, P., & Rojek, T. (Eds.) (2014). *Knowledge-Economy-Society. Contemporary tools of Organizational Resources Management*. Cracow: Foundation of the Cracow University of Economics; Malina, A, Oczkowska, R., & Plichta, J. (Eds.) (2014). *Knowledge-Economy-Society. Contemporary Organizations in the Process of Institutional Transformations*. Cracow: Foundation of the Cracow University of Economics; Mikuła, B., & Jaki, A. (Eds.) (2014). *Knowledge-Economy-Society. Managing Organizations: Concepts and Their Applications*. Cracow: Foundation of the Cracow University of Economics; Oczkowska, R., & Śmigielska, G. (Eds.) (2014). *Knowledge-Economy-Society. Problems of Management and Financing Economic Activity*. Cracow: Foundation of the Cracow University of Economics; Malina, A., Oczkowska, R., & Kaczmarek, J. (Eds.) (2015). *Knowledge-Economy-Society. Challenges and Development Trends of Modern Economy, Finance and Information Technology*. Cracow: Foundation of the Cracow University of Economics; Borowiecki, R., Jaki, A., & Lula, P. (Eds.) (2015). *Knowledge-Economy-Society. Challenges of Contemporary Economies in the Face of Global Market Conditions*. Cracow: Foundation of the Cracow University of Economics; Mikuła, B, & Rojek, T. (Eds.) (2015). *Knowledge-Economy-Society. Reorientation of Paradigms and Concepts of Management in the Contemporary Economy*. Cracow: Foundation of the Cracow University of Economics; and Oczkowska, R., & Śmigielska, G. (Eds.) (2015). *Knowledge-Economy-Society. Challenges for Enterprises in Knowledge-Based Economy*. Cracow: Foundation of the Cracow University of Economics.

a reference point for new reflections, research, disputes, analyses and critical discussion over the presented problems. The involvement of a large group of the Authors has enabled to show the discussed issues in a broad and many-sided way. As the scientific editors of this study, we would like to thank cordially all the Authors for accepting our invitation to co-create the publication and share the findings of their research with the Readers.

Paweł Lula, Tomasz Rojek

PART I

GLOBAL AND REGIONAL CONDITIONINGS OF THE FUNCTIONING OF ECONOMY

Chapter **1**

Income Convergence and EU Integration: Western Balkan vs. CEEC

Nenad Stanišić

1. Introduction

Significant increase in living standard and catching up with the level of income per capita achieved in developed European economies are the main economic expectations in all European transition countries. According to IMF report, a significant economic progress has been achieved in the Western Balkan states (WBS) in the past fifteen years (Murgasova et al., 2015). The progress was achieved in the processes of building market economy and European integration. However, the speed of reforms was insufficient and the entire region of Western Balkan is still in a state of unfinished transition (Stanisic, 2016). Many reform tasks were not completed in a satisfactory manner. Privatization, building of institutions, and legal system did not give expected results. On the other hand, reforms in the transitional countries of Central and East Europe (CEE10), so called "new member states" of EU (NMS) have been assessed as more successful.

Bearing at mind the main economic goal of transitional process – increase in the living standard, the transitional success can be assessed by observing the evolution of GDP per capita through time. Figure 1 presents the GDP per capita (at purchasing power parity) of Western Balkan countries as percentage of developed EU member states (EU15), in 1993 and 2015. Year 1993 has been chosen as the first year of observed period of time due to the fact that transition in Europe started in the early 1990s. However, countries of the Western Balkan suffered from several conflicts during the 1990s, which delayed the economic transition in the most of the WBS until the beginning of this century.

In 1993, the GDP per capita in all WBS was very low. The highest GDP per capita, compared to EU15, was in Croatia (37%), while the lowest was in Albania (11%). Bosnia and Herzegovina had 12%, Serbia 20%, Montenegro 25%, and Macedonia 27% of EU15 GDP per capita (PPP) in 1993. In 2015, GDP per capita in all WBS had a less legging behind the EU15, i.e. the income catching up had been achieved. Croatia even became the EU member state in 2013. The highest GDP per capita (as percentage of EU15) in 2015 was in Croatia (47%), followed by Montenegro (34%), Macedonia (30%), Serbia (29%), and Albania (26%). The lowest score was in case of Bosnia and Herzegovina (22%).

Figure 1. GDP per capita (PPP) of Western Balkan states as percentage of EU15
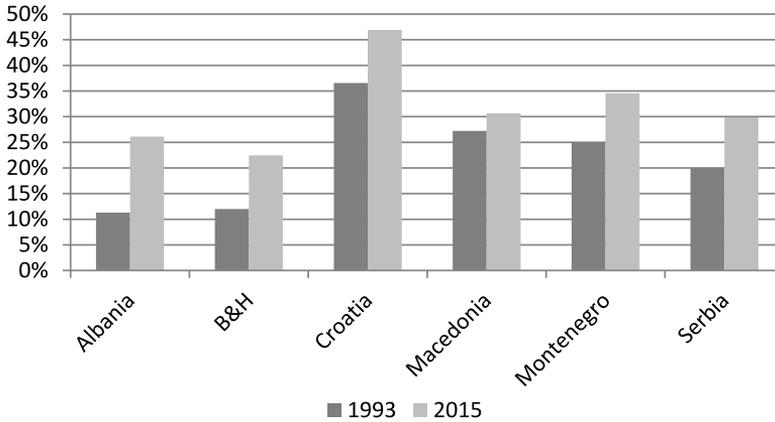
Source: (*World Economic Outlook 2016* data).

GDP per capita performance in case of NMS is displayed on Figure 2. Generally speaking, the starting position of NMS was better compared to WBS, which is especially true in case of four Central European countries (Czech Republic, Slovenia, Hungary, and Slovak Republic). In 1993, Czech Republic had 59% of EU15 GDP per capita, Slovenia 55%, Hungary 47%, Slovak Republic 38%, Bulgaria and Estonia 34%, Poland and Lithuania 32%, Romania 30%, and Latvia 25%. Similarly to WBS, all NMS had achieved income convergence toward EU15 GDP per capita level. In 2015, GDP per capita of Czech Republic was 69% of EU15 GDP per capita, followed by Slovenia (68%), Slovak Republic (65%), Estonia (63%), Lithuania (62%), Poland (58%), Hungary (57%), Latvia (54%), Romania (45%), and Bulgaria (40%).

Figure 2. GDP per capita (PPP) of new member states of EU as % of EU15
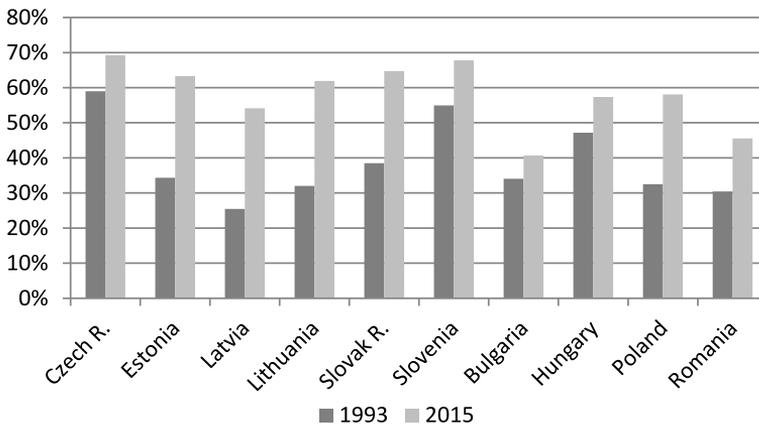
Source: (*World Economic Outlook 2016* data).

Based only on Figure 1 and Figure 2, it is reasonable to conclude that all European transitional economies (former ones, as well as current ones) have achieved the income convergence toward EU15, i.e. the gap that exists in the economic development between them and EU15 has been reduced over the time. The main objective of this paper is to identify the differences (if any) in the scope and speed of income convergence toward EU15 between NMS and WBS. Additionally, the objective is also to explore tendencies in income convergence for both groups of countries through time, in the period from 1993 to 2015.

In accordance with the subject and objective of the paper, the following research hypotheses are defined:

H1: The speed of income convergence toward EU15 level is equal in the WBS and NMS.

H2: The outbreak of the economic crisis has influenced the income convergence process.

The reminder of the paper is organized as follows. Section 2 gives the theoretical background of the convergence hypothesis. Section 3 introduces the measurements of income convergence and explains the data and methodology used in the paper. Section 4 presents the results, and Section 5 concludes.

2. Theoretical background

Income convergence hypothesis is one of the most important conclusions from neoclassical models of economic growth (Solow, 1956; Mankiw et al., 1992).

According to the model, once the country achieves its steady state (on the long term development path), GDP per capita can grow only at the rate of technological progress g. More the country is below its steady state, the growth rate is larger. As country approaches its steady state, rate of GDP per capita growth diminishes because of lower and diminishing returns to investment (this is the crucial presumption of the model). The steady state is determined by savings rate (s), capital depreciation rate (d) and population growth rate (n). Countries with higher savings rate have steady state at higher GDP per capita level. Opposite is true for depreciation and population growth rate.

For the countries with same steady state (i.e. with same s, n and d), differences in GDP per capita can be only temporary and can be explained by transition dynamics (towards steady state) or by shocks to n, s and d. Eventually, same growth rate of GDP per capita (g) and same level of GDP per capita will occur. This is known as absolute convergence. Obvious implication is that the countries starting further below the steady state (poorer countries) should grow faster than countries closer to it.

Countries with same g but different s, n, and d have different steady states. In this case absolute convergence will not occur, i.e. countries will differ in respect of their GDP per capita level, and even if they reach their steady states (and potentially equal long term growth rate g). Nevertheless, countries that start further below their steady states (countries that are poor relative to their steady states) should grow faster than rich countries (relative to their (different) steady states). This is called conditional convergence.

World capital and goods markets should speed the convergence process (Stanisic, 2011). Capital should flow from rich countries (with abundant capital and thus low marginal product of capital) to poor countries (with scarce capital and high marginal product of capital). Similarly, according to neoclassical international trade model, trade should equalize the factor prices and consequently lead to GDP per capita convergence.

The neoclassical concept of conditional convergence has been rejected by endogenous growth theory. The most important difference between the neoclassical and endogenous growth theory is that the latter does not assume decreasing returns to scale, which is the main argument behind the catching-up process in the neoclassical models.

Empirical studies, on the example of the European Union states, largely confirm the existence of income convergence. EU enlargement "to the East" in the first decade of this century has contributed to a significant increase in the number of studies testing the theorem on the convergence of GDP per capita. In a number of works (for example, Matkowski & Próchniak, 2004; Kutan & Yigit, 2004, 2005; Varblane & Vahter, 2005; Próchniak, 2008; Vojinovic & Oplotnik, 2008; Vojinovic, Acharya & Próchniak, 2009; Cavenaile & Dubois, 2011), the authors came to the conclusion that the patterns of economic growth of new member states (NMS) in the 1990s and first decade of the XXI century were in accordance with the income convergence theorem.

Matkowski and Próchniak (2004) empirically demonstrated convergence between the transition countries of Central and Eastern Europe (CEE8), as well as between groups of CEE8 and the EU-15 during the period between 1993 and 2003. The authors conclude that the gap in development between countries and groups of CEE8 and EU-15, although large, over time decreases. Later studies by these authors, conducted on the same sample of countries, but over a longer period of time, confirmed the existence of income convergence within the EU, especially among the "old" and "new" member states (Matkowski & Próchniak, 2006, 2007).

Later studies (Próchniak, 2008; Vojinovic & Oplotnik, 2008; Vojinovic, Acharya & Próchniak, 2009) also confirm income convergence of CEE8 and the EU-15, and the results differ only in the estimated speed of convergence. Cavenaile and Dubois (2011) examined the process of income convergence between ten new member states (NMS) and the EU-15 in the period between 1990 and 2007. The results showed significant differences among the new member states in terms of speed of catching up with the average income of the EU developed countries. Large differences in the speed of income convergence are also proven in the work by Vamvakidis (2008). Undeniable reduction in the gap in the level of development between "new" and "old" member states has been confirmed in a study by Gligorić (2014). Stanišić (2012) confirms the existence of income convergence of CEE10 and EU-15 countries, with emphasis on the negative impact of the global economic crisis on convergence speed.

Despite numerous studies on income convergence in the case of new member states (NMS), studies on the dynamics of reducing the gap in development between Western Balkan states (WBS) and the EU-15 are rare. Tsanana, Katrakilidis and Pantelidis (2012) analyzed the income convergence of the Balkan Peninsula states and the EU-15 and concluded that it can be confirmed only in the case of Slovenia and Greece, but not in the case of the Western Balkan states (WBS). Stanisic (2016) concludes that WBS differs significantly from NMS in respect to income convergence toward EU15 after the outbreak of economic crisis. As a result of different patterns of GDP per capita development after the beginning of the crisis, the income gap between NMS and WBS has been growing since 2009.

3. Measurements of convergence and research methodology

Two concepts of income convergence are broadly used in empirical literature: beta (β) and sigma (σ) convergence. Beta convergence occurs when less developed countries grow faster than more developed countries, meaning that there is a negative relationship between initial income level and its growth rate. Sigma convergence appears if income differences between the economies decrease over time.

In order to test σ-convergence, we have to know whether income differentiation among EU countries decreased over time or not. The dispersion of income levels can be measured by standard deviation or the coefficient of variation (CV) of GDP per capita among economies. In our analysis we use the coefficient of variation of GDP per capita at PPP (purchasing power parity), which is given by:

$$CV = standard\ deviation\ /\ mean \tag{1}$$

Data are derived from IMF World Economic Outlook Database (April 2016). Sigma convergence exists if the income dispersion (measured by CV) tends to decline over time.

The absolute β-convergence is analyzed based on the cross-sectional data: the average annual GDP growth rate for a given period is regressed against the GDP level from the initial level. In order to verify the absolute β-convergence hypothesis, the following regression is estimated:

$$growth_{i,t} = \beta0 + \beta1 dist_{i,\ t-1} + \beta2 WBS + u_{it} \tag{2}$$

where:

$growth_{i,t}$ – the growth rate of real GDP per capita (PPP) of a country in the period t,

$dist_{i,t-1}$ – gap in real GDP per capita between a country and the EU15 average in the previous period,

WBS – dummy variable that takes the value of 1 for countries that belong to the Western Balkans region, and 0 for countries that belong to NMS.

Positive value of β1 coefficient implies the existence of β-convergence, i.e. bigger the initial income difference higher the economic growth rate is.

Coefficient β2 determines the extent to which economic growth rates of the WBS group differ from those achieved in the NMS group (for the same income differential). Negative value of the coefficient means that lower growth rates of the real GDP per capita are achieved in the WBS group than in the NMS group, indicating the lower convergence speed in the case of WBS compared to NMS. Opposite is true for positive value of β2.

4. Results

Figure 3 shows the evolution of average GDP per capita (PPP) in three groups of countries (EU15, NMS, WBS) over the period 1993-2015. This gives us the first insight on income development process in Europe. In 1993, the average GDP per capita in EU15 was almost three times higher than GDP per capita in NMS and more than 5 times higher that GDP per capita achieved in WBS. In 2015, the average GDP per capita in EU15 was slightly less than two times higher compared

to NMS, and three times higher compared to WBS. Based on this simple insight it is obviously that income catching up has occurred both in NMS and WBS through period of transition.

Figure 3. Average GDP per capita (PPP) in current international dollars
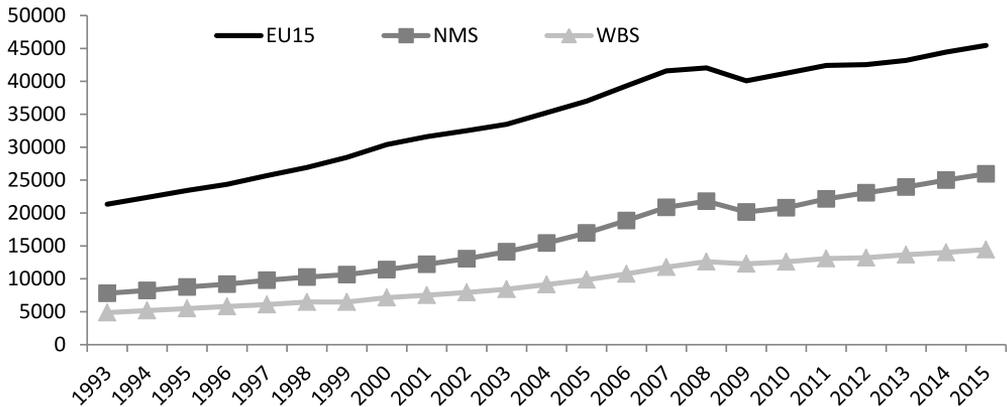
Source: (*World Economic Outlook 2016* data).

The scope and speed of income catching up is more visible on Chart 4, which presents the GDP per capita in two groups of transitional economies (NMS and WBS) as percentage of EU15 average GDP per capita. Three different periods regarding the speed of income convergence can be seen on Figure 4. First period, from 1993 to 2000, is characterized by almost flat line of GDP per capita in transitional economies compared to EU15, suggesting that income convergence did not appear through that time.

The second period, from 2001 to the outbreak of crisis in 2008, is significantly different in respect with GDP per capita developments in transitional economies. Both group of transitional economies (NMS and WBS) have decreased the income gap between them and EU15. In NMS, the GDP per capita during that period increased from 31% to 42% of EU15. In WBS, the GDP per capita as percentage of EU15 has increased through that period from 23% to 30%.

The third period that clearly differs from the previous ones in respect to income convergence has started with the outbreak of the crisis. The patterns of GDP per capita development in NMS and WBS appeared to be different during this period. While the GDP per capita as percentage of EU15 drops slightly in NMS after the begging of the crisis, the trend of income convergence has continued after 2010. The average GDP per capita in 2015 in NMS was 58% of EU15. On the other hand, average GDP per capita in WBS (compared to EU15) did not drop in 2009, but the trend of income convergence from the previous period has clearly stopped. At the end of observed period, in 2015, the average GDP per capita achieved in WBS was 31% of GDP per capita in Eu15 (just 1% higher than in 2008).

Figure 4. Average GDP per capita (PPP) in NMS and WBS as percentage of EU15
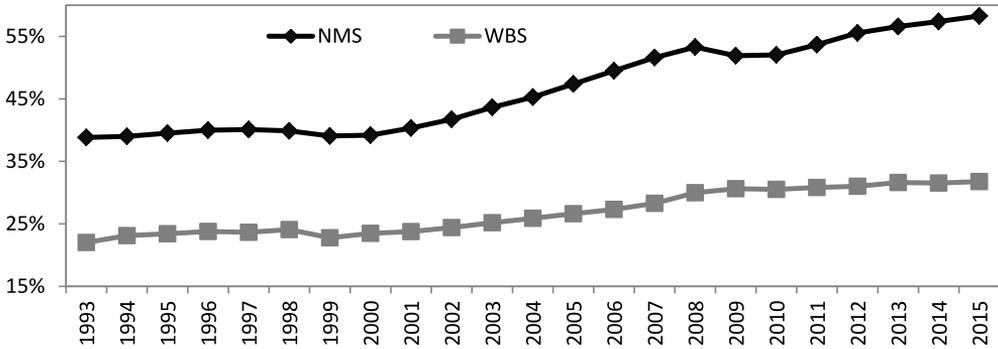
Source: (*World Economic Outlook 2016* data).

Based on the previous insights on GDP per capita developments, the most formal statistical methods of testing the income convergence were conducted. Chart 5 presents the dispersion of income levels measured by standard deviation or the coefficient of variation (CV) of GDP per capita among observed groups of countries. Downsloping trends of income dispersion suggest the presence of sigma income convergence toward EU15 level of GDP per capita both in NMS and WBS. However, the speed of convergence differs through time. The differentiation of three periods in respect with convergence speed (1993-2000, 2001-2008, 2009-2015) is in line with the previous findings. Sigma convergence was not present through first period both in NMS and WBS. In the second period, the income convergence was achieved both in NMS and WBS. In the third period, sigma convergence of income per capita toward EU15 was achieved in the case of NMS, but not in the case of WBS.

Figure 5. Coefficient of variation of GDP per capita
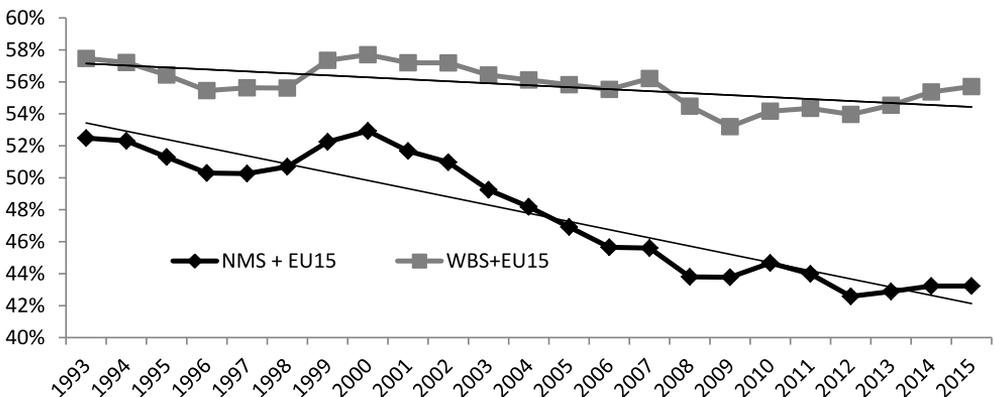
Source: own calculations.

The beta income convergence has been tested by regression equation 2, separately for the whole observed period (1993-2015), and for three subperiods that have been noted. Results are shown in Table 1.

Table 1. Regression results of beta convergence testing

	Model 1 1993-2000		Model 2 2001-2008		Model 3 2009-2015		Model 4 1993-2015	
	Coef.	P.	Coef.	P.	Coef.	P.	Coef.	P.
$dist_{i, t-1}$	.0015	0.178	.1019	0.001	.0582	0.267	.0099	0.000
WBS	-.1340	0.085	-.0295	0.036	-.0681	0.228	-.0014	0.042
const.	.0541	0.131	.0292	0.087	-.0003	0.989	.0026	0.856
N	112		128		112		352	
R^2	0.246		0.307		0.041		0.268	
Prob.	0.000		0.002		0.200		0.000	

Source: own calculations.

As explained in Section 3, beta convergence is proven if the coefficient for variable dist is positive and statistically significant. This is the case in Model 2 and Model 4, i.e. for the period 2001-2008 and the whole observed period 1993-2015. Regression results do not confirm the existence of beta convergence in periods 1993-2000 and 2009-2015. This result is in line with the previous ones for sigma convergence. However, the regression results allow the further analysis of income convergence process. Based on coefficient for dummy variable WBS, we can compare the speed of income convergence toward EU15 between NMS and WBS. Negative and statistically significant coefficient implies the lower speed of convergence in WBS compared to NMS. This is the case for the whole observed period (Model 4), and for the period 2001-2009 (Model 2).

5. Conclusion

This paper estimates the income convergence of European transitional economies (new EU member states and Western Balkan states) toward the average GDP per capita that has been achieved in EU15. Income convergence was tested through the processes of economic transition and EU integration of NMS and WBS. Results generally confirm the existence of income convergence between transitional countries and EU15, but with different patterns during time and between two groups of countries.

Until the beginning of this century, transition has not led to a reduction in income gap between the EU and countries in transition. Only after 2000 there comes to a significant catching-up with the EU-15 income, in both NMS and WBS.

The outbreak of the global economic crisis has stopped the income convergence, but only for a short period in the NMS, while for a longer period of time in the WBS. As a result of these different patterns of GDP development in NMS and WBS after the outbreak of crisis, the income gap between NMS and the WBS has appeared to be evident.

Testing of the sigma concept of income convergence points to the existence of income convergence in WBS and the EU-15 after 2000, until the outbreak of the global economic crisis, after which there comes to divergence.

The results of conducted regression analysis prove the existence of beta income convergence for both groups of countries (NMS and WBS) toward EU15 in the observed period between 1993 and 2015, with the convergence speed higher in case of NMS. The same conclusion applies to the period between 2000 and 2008, while in the periods 1993-2000 and 2009-2015 the existence of β convergence cannot be confirmed.

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Chapter **2**

The Contents of Innovative Activity in the Russian Economy

Elena V. Sibirskaya, Katerina A. Shestaeva

1. Introduction

The Russian economy is a difficult economic, social, organizational, scientific and technological system. It has the collective economic benefits which consist of its separate opportunities which were accumulated in the process of functioning. Among them we can separate the natively – resource, production, labor, scientific and technical, etc. (*The National Economy*, 2012).

"It was the unique period. The special progress of the Russian Federation is explained by these factors. The affricated three factors won't develop together, maybe, the next 10 years and in 20 or in 50 years. According to analysts, such successful combination of circumstances shouldn't be expected" – A. Chubais commented on this fact. The specified circumstance does necessary the revision of a state policy for the purpose of its system orientation to the country development of the innovative activity. For the reaching stability and the economy sustainable development it is necessary to put measures into effect for its modernization and to make leaving from resource dependence. The base of modernization process is use of modern technologies, research-and-development activities, i.e. innovations.

According to the opinions of the experts, such as A. L. Kudrin (2010), E. S. Nabiullina (2014), I. I. Shuvalov (2013), E. V. Popova (2012), at the present time the innovative activity faces some problems: the outdated tax legislation which is inappropriate to requirements of innovative economy and needing revision; the imperfection of the legal and regulatory framework regulating the innovative activity and questions of the intellectual property; the problem of administrative barriers and corruption; the underdeveloped innovative infrastructure of the enterprises; the insufficient level of the state support in the sphere of regulation and financing of economic systems innovative development; the deficiency of the enterprises modern base for development introduction because of the necessary equipment depreciation or the their lack. Many industrial enterprises are characterized by high resource-intensiveness and power intensity of production that is supported with high level of the productive facilities depreciation. Because of the enterprises fixed capital backwardness the economy becomes unreceptive to investments into researches and development; the disinterest of the credit organizations in risk innovative business financing; the lack

of the skilled labour which can be capable to manage the innovative process effectively, and this problem is felt at all levels of management, both the country and the separate enterprises.

An existence of the opposition to innovations phenomenon happens for the next reason: the fear before all new things. Most of all it is expressed at the transitional moments, particularly at crisis moments when the social – psychological uncertainty and the introduction of the new things is considered as a threat. From the point of the investor view the emergence new technology which is more effective than investor's and is constructed on the new principles creates the threat to the existing innovation. Therefore investors try to impede it for a time, at least for so long as previous investments won't pay off (Saifullina, 2010).

The most part of the economic systems innovative development problems of all levels has the overall character and can be decided at the federal level. The tax problems, the legislative guarantees of investments, the questions connected with the rights for the intellectual property and also the state infrastructure support which create the significant opportunity for their development appertain them. Other part of these problems can be solved by dint of the increase of economically active population in the innovative sphere. The complex of the economic systems innovative development problems makes a problem scope of the innovative activity which is reflective of the true situation in the sphere of the innovative activity and can promote the development of further actions for their solution.

Thus according to the our opinion the problem scope of innovative activity is the complex of the economic systems innovative development hindrances which stops the effective advance of innovative activity and impedes the economy competitiveness increase and the processes of its transformation into the innovative. In this regard we confirm the need of the innovative type of the development formation for Russia and for its regions. Therefore we believe that learning of the developed opinions in the scientific sphere about the concepts of "innovation", "innovative activity", "innovative development" and articulating their contents are very important.

2. The incorporated materials

The fundamental and monographic works which devoted to the theoretical and practical questions of the innovative processes management in the modern economy and works of native and foreign authors, the theoretical and applied development of native and foreign scientists in the sphere of ensuring innovative development, the works which devoted to the questions of stimulation and activization of economic operators innovative activity are formed the theoretical basis of the research.

The empirical base of the research and the source of ensuring the conclusiveness of issues and conclusions presented in the work were the official data of Federal State Statistics Service, the native and foreign periodical press; the results of researches of scientific centers editions including Institute for the economy of the Russian Academy of Sciences, the materials of statistical surveys including the results of experts' reports and opinions, the data of reports about the innovative, financial and economic activity of enterprise structures, the materials of the Russian and international scientific and research-to-practice conferences, seminars, "roundtables", the information sources and the Internet.

The regulatory basis of the research is Constitution of the Russian Federation, legislative and regulations of the Russian Federation including The concept of long-term socioeconomic

development of the Russian Federation for the period till 2020; the Strategy of innovative development of the Russian Federation for the period till 2030; the Strategy of the science and innovations development in the Russian Federation for the period till 2015; the legislative instruments of subjects of the Russian Federation.

3. Describing the domain

The debating points about the innovations role and importance show the difficult complex of interests in recent years. At the present time the innovative policy formation is the most important condition of basics developing of a sustainable growth at the level of the enterprises and the organizations, regions and the state. The innovations are the main transformation components of any economic system. The realization of equation planning allows the organization of the development programs of investment and innovative processes, and also the most exact assessment of their realization efficiency. The Russian Federation innovative development has to be balanced with the investment processes. It will allow combining forces and resources of the state and the business sector for their development. In our opinion the activity which directs on the innovative projects delivery, the innovation process are explored by academic community and connected with the different rendering of the term "innovation".

At the moment the large volume of academic papers concerning innovations and innovative activity is collected, the quantity of literature on this subject constantly increases. But while there isn't clear understanding of this phenomenon. The word for word translation of the English word "innovation" into Russian means "introduction of the new technologies, products and services". The innovations are interpreted in several aspects: 1) as any improvement and it refers to the social sphere, science, production; 2) as a process or a result (a product). The wide range of the phenomena which is back of this word explains the reason of disagreements concerning the concepts "innovation" and "innovative activity", but doesn't solve them. The different authors connect the term "innovation" as "any improvement" genesis with the different population activities and date it differently.

Thus, the analysis of economic literature showed us that scientists consider the category of "innovation" unequally depending on the purpose of the research. Authors investigated and analysed the materials of native and foreign scientists. Therefore six main schools of sciences are created:
- the school of science "Innovation is developments" (Voldachek L., Gamidov G., Goldstein G., Schumpeter Y., Yakovets Yu. etc.),
- the school of science "Innovation is a result of scientific work" (Balabanov I., Glazyev S., Gokhberg L., Kokurin D., Pilipchuch V., etc.),
- the school of science "Innovation is the process of generation, introduction, use of ideas and results" (Valdaytsev S., Zavlina S., Polushkina T., Prigozhin A., etc.),
- the school of science "Innovation is continuous activity which include the interrelation of stages of creation, distribution and practical use of an innovation" (Gvishiani D., Kabakov V., Lapin V., Medynsky V., 's Santo B., Tviss B., etc.),
- the school of science "Innovation is the movement from the lowest to the highest or a progress" (Aganbegyan A., Blyakhman, L. Valdaytsev S., Kruglikov A., Roberts M., etc.),
- the school of science "Innovation is the change, result, process, activity, progress" (Azgoldov G., Kostin A., Sovetova O. S., Fatkhutdinov R., Jansen F., etc.).

4. The methods of science and procedures

The methodological basis of the research is:
- the system approach to the innovative processes research in national economy and multilevel approach to control system improvement at micro- and mesolevel,
- the complex of theoretical and methodological issues and the concepts which is the basis of the problem solution of the productivity increase of the innovative processes management including the theories and concepts of productivity increase of economic systems management, the estimation procedures of the innovative activity efficiency; the concepts of the differentiated approach realization to the economic systems management.

For the solution of performance targets the authors used the following methods of research:
- the theoretical such as the analysis and systematization of monographic and periodic literature about the research problem; specification and generalization; the analysis of the program and normative documents which provide the territories innovative development, etc.,
- the empiric such as learning of innovative activity experience of the enterprises and organizations, data collection procedures (the method of observation, Delphi approach, polling),
- the statistical such as the statistical analysis and substantial interpretation of the research results; the factorial analysis and correlation and regression analysis, their mathematic treatment, grouping, etc.

5. The results

According to the president of the Union of the innovative enterprises employees of the Russian Federation Y. Pimoshenko the most effective systems of innovative activity development in the world are the systems of the USA and Japan. The USA system is based on hard legal restrictions, Japanese system is based on the nation mentality therefore the slogan of "the nation of innovative property" was proclaimed in the country. "Without the complex approach to the innovative development in the Russian Federation nothing will work out well" – Pimoshenko (2012) considers.

The existing tools and means such as the Consolidated Register of the state and municipal services, the departmental analytical and information systems don't create a full-fledged basis for administrative decision making for innovative functions and services, the optimization of financial, personnel, information support of the state functions and services acting. In modern Russian conditions the system forming of the state organizations which is capable to provide "through" support of the small knowledge-intensive enterprises seems necessary. Thus obviously it is necessary to concentrate the attention on coordination of activity of already existing organizations rendering assistance to development of innovative activity (Martov, 2012).

The main tasks facing the structure of innovative activity according to the main problems of economic activity sphere are: the expansion of demand for hi-tech production, the potential investors expansion thanks to the representatives of the venture investment market and also due to medium and large business, lending financial aid at the earliest stages of the innovative projects formation, help in search of partners and different rendering services in "maintenance" of implementation of innovative projects, the assistance in gaining access to the most available office and industrial spaces, the information support.

Thus the innovative activity structure of Russia can be presented schematically (Fig. 1). In our opinions the institutes of the Russian innovative activity structure can be divided on traditional and modern in classification. The appropriateness of such division can be proved from the institutional theory positions. This role defines the efficiency of institutes of innovative activity structure. Therefore such institutes formation happens to the purpose of decrease of transactional cost saving. The structure which exists in Russia till 1990th (conditionally called "traditional") didn't aim at transactional cost saving because of the conditions of a planned economy. The followed market reforms caused the structural changes in economy and the transformations at existing innovative infrastructure institutes. However, it is extremely difficult to transform the institutes in short terms therefore in market conditions the planned economy elements were incapable to reduce the transactional expenses effectively and therefore they became noncompetitive.

It is also possible to say that the readiness phases for innovative development are created in Russia. The first phase is the "organizational and administrative innovations" and it includes the business restructuring, the introduction "forgotten" planning and budgeting, updating and the personnel training in the innovative sphere, the computerization of administrative information processing, the foresight forecasting, etc. The second phase is "market innovations". It is based on the formation of marketing and distributive networks and also logistic chains.

The third (modernization) phase is "technological innovations". It specifies that there is an active the equipment updating, a purchase of technologies and ready technological lines in Russia. Also the new innovative structures are created. The fourth phase ("the transit to innovative technologically development") shows that the search R&D are done, the corporate scientific research institutes and venture funds are created, the profile research teams is attracted, the active patent and license policy is conducted.

6. The discussion

It should be noted that, it is impossible to allocate for the top or last place any of these schools as scientists discussions are held constantly and each school of sciences has to be. Authors consider that there is a need to regard the concepts and features which are connected with the innovative activity or intersected with it. Both the scientists, and the managers consider the relation between innovative and research work is indisputable. But it is necessary to find out the differences between these features, other like it will be impossible to share scientific and innovative results of higher education institutions activity.

In our opinion, innovations are a form of interaction of scientific institutions with scientific production con-sumers. The representatives of all kinds of practice are the scientific production consumers, and all types of knowledge can be presented as a product of scientific activity. And if to consider a full range of innovations, it is clear that fundamental knowledge is consumed by representatives of applied science, and they carry out their processing in applied aspect. Ultimately the fundamental knowledge in recycled (technological) aspect also becomes needed. But such long process seldom causes interest of practicians, more often than not they will use the results of applied researches therefore production of applied knowledge, from the point of view of receiving profit, is more remunerable.

For clearer understanding of the innovation phenomenon from positions of economy and marketing strategy it is important to pay attention to next aspect. The experience shows that first

of all the most successful innovations are new marketing concepts, and there is a concept of benefit in the forefront. Very often the consumers need not a new product which can be considered as the invention, but the receipt of profit from already available product (Novikov, 2006).

One more circumstance makes impact on understanding of a basis of innovations. Now practical activities are characterized by constant variability, reform, i.e. innovativeness. Innovations are more often than not realized in terms of projects, and their creation and the realization can't be enabled without the developed scientific thinking. The process of rapprochement between science and practice has to become one of differential characteristic of our time, and it is carried out through innovations which are necessary to resolve the collected problems or at least to offer the ways of problem solution.

Thus, the innovations are one of instruments of resolving the problem of estrangement between scientists and practicians. Apparently, it is necessary to say about a certain objective dialectic contradiction between the scientific and innovative phenomena. The scientific activity is the research of an existing phenomenon, a verification, production of new theoretical or applied knowledge, and innovative activity is a method, the designing something. The point to be emphasized is that: the innovative activity begins with having the idea in consciousness of innovation subjects (scientists and practicians), i.e. with scientific activity. However the full innovative process represents a complex of procedures and means thanks to which the discovery or idea passes into an innovation, and it occurs not only in the sphere of material production and the corresponding sciences, but also in social practice and in social sciences. However an innovation is represented in the documented form of development in social sciences more rarely than in technical sciences.

After such procedures the improvement can pass into an innovation. The sense of the word "introduction" assumes the inclusion, the implementation something to somewhere, i.e. as this concept the pedigree makes us to understand not the phenomenon of stating informative (scientific) order, but the phenomenon active, processed or technological character. From the general scientific concept of the main structural levels realized in procedures of system approach, it is known that initial, original state is the phenomenon essence, and these essence remains in all subsequent evolutionary forms. Other methodological postulate is known: more private phenomenon can't contradict more general phenomenon, i.e. the phenomenon of higher order. Thus, on the one hand, it is impossible to create an innovation, passing technological study of idea, and on the other hand it is difficult to create essentially new technology without relying on scientific idea. It is an organic communication between innovative and research activity.

The consideration of innovations from technological and economic positions well works in the material sphere. However the application of concepts and terms which are generated in the economic environment, to the spiritual sphere is the thankless job, because it contradicts the nature of scientific and art work. All scientific researches are directed on receiving new results, and one of the criteria of art work is a novelty of idea or the ways and means of a brainchild. Therefore the science and art are classified as productive kinds of activity. But the social sphere isn't settled by science and art; it is directed on the protection of the person, on the creation of conditions for preservation of its health, for its socialization and development, for protection of its rights and property. There are many types and reproductive (not creative) activities in the social sphere, and they can't function without powerful economic component. In any practical activities the economic indicators successfully work as universal measuring instruments of efficiency. Unfortunately, the humanists hardly investigate economic problems and therefore it is especially difficult in the social sphere to be engaged in reforms and the innovations which

Figure 1. Structure of the Russian Federation innovative activity

Traditional institutes of the innovative infrastructure

Modern institutes of the innovative infrastructure

President of the Russian Federation

Government of the Russian Federation

Federal Assembly of the Russian Federation

Government Commission for Science and Innovation Policy

Government agencies of the Russian Federation regions

Regional authorities for the research and technology sphere

Government sector

Business sector

Civil society organizations

Communication media (scientific reviews, Internet, etc.)

Centres of technologies commercialization

Investors

native

foreign

Organizations for an advance of technologies and other organizations – intermediaries

Establishment of the general formats and standards

The international and Russian platforms for the stimulation of the international transfer of technologies and rendering services in the innovative sphere

The national scientific funds

Russian Academy of Sciences and Branch academies of Sciences having the state status

Higher education establishments and scientific organizations

Innovfition Regions in Evrope Network

Association of the European professionals of science and technologies transfer

Federal service for intellectual property (Rospatent)

Venture capital funds and fairs

Telemarketing systems

The Innovation center «Skolkovo»

Broker conferences

European association of technologies, innovations and industrial information transfer

The enterprises in the sphere of administrative consultation

Innovfition Relay Centres – IRS

Source: own work.

efficiency is measured by indicators of expenses and profits. But social innovative projects look very inconclusive without these indicators.

Thus, the commercialization of the results is designated as one of identifiers for innovative activity. But further innovations life cycle turns it into the phenomenon of ordinary life which is deprived of novelty. Therefore it loses the right to be called an innovation. The innovation introduction into the production and the providing its results on the market, and further long usage of an innovation, its transformation into the element of daily practice which is bringing in the income, finish the innovative activity; transfer it to the category of reproductive usual production and commercial activity.

The innovative activity is the activity which include all above-named production cycle, and also activities on conditions creation for innovations, on management of processes of innovations creation, and on creation of its organizational and material infrastructure (Sibirskaya, 2012).

From the point of engineers view the innovative activity is a production and introduction of intellectual property. Thus we bring to notice that such definition isn't sufficient as it is not completely covers the economic and property bases of activity as it is accepted among businessmen.

From the point of business view, the innovative activity is the stages of realization of the innovation projects which are a kind of capital investment projects. And it is known that innovation projects look for investors for the organization or acquisition of real tangible and fictitious assets while capital investment projects vary the capital investments in financial assets and they are not the innovative projects (Sibirskaya & Stroeva, 2011).

As regards the innovative development, it is characterized by an increase of innovative capacity (human potential, the science and innovation expenses); the increase of innovative infrastructure and investment climate indicators (the indicators which characterize the organizational capability, the existence of prospective investors); the innovative activity performance (the innovative activity cost-effectiveness). Thus, the innovative development is the positive dynamics of indicators which characterize innovative activity (Stroeva, 2012).

7. Conclusion

According to the draft of the Federal Law "About Innovative Activity and the State Innovative Policy" (2011) "the innovative activity infrastructure" is the organizations which provide the services are necessary for the pursuit of innovative activity to innovative activity subjects. Also in the draft of this law it is specified what specifically types of service the organizations can render for the pursuit of innovative activity.

For our opinion the special conditions are necessary for effective innovative development that is the created conditions by the innovative environment. The innovative environment is an integral part of effective innovative system formation. The concept of "the innovative environment" is the current certain social and economic, organizational and legal and political environment which provides or slows down the innovative activity development (The innovative environment (external and internal factors), 2014). Authors consider that the innovative activity development is possible under systematic motion of managerial decisions which circulate in the conditions of innovative activity and are accepted in the innovative environment.

By reference of the standard definition of "innovative process", it is possible to say that the innovative process is a process of the creation, distribution and innovation use, that is a complex

of new ideas and offers which can be potentially carried in execution and can become a basis of any innovation upon condition of their use immensity and efficiency of the results (The innovative process, 2014).

In the article "National Innovative System of Russia" the scientist N. F. Chebotaryov (2007) considers that the national innovative system is the complex of the connected components which take part in the creation, commercialization and consumption of new knowledge and the technologies providing a sustainable development of the national economy.

Authors consider that exactly the national innovative system has to form the regulatory environment by dint of the system of generation, distribution, introduction and use of knowledge and results, also by dint of innovative activity infrastructure, education, production and the market.

In the current context it is supposed to construct the whole system which will provide the economy with new technologies and products nationally. We suggest that the national innovative system has to lead the country to an innovative way as the innovations are concentrated and directed by means of national innovative system institutes exactly there where they are necessary.

Thus, under the conditions of globalization, an important factor of stability and economic independence is the ability of certain regions and the country to react to changes internal and outside environment quickly, to realize the fast adaptation by means of huge instruments of innovative policy. Therefore, the relations between global and local parts of the national policy are multiplied by the requirement of the good organization. It is connected with that the regional environment defines competitiveness of native business in many respects.

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Chapter **3**

The Transformations of the Socio-Economic System in Poland[1]

Tomasz Rojek

1. Introduction

On the basis of evolutionism described by Charles Darwin and the related development of mankind and societies, a constant evolution of economies and entrepreneurship, being a permanent element of civilisational transformations of the world, is progressing simultaneously. Civilisational changes directly influence the functioning of economies and entities which create it. In the literature of the subject it is regarded that the development of societies can be described by means of three phases of development, correlated with the change in the philosophy of conducting economic activity. The first phase, lasting from the beginning of civilisation till the 19th century was the agricultural revolution. Social life at that time, as well as its institutions were organised around the division of land and related privileges (Pasko-Porys, 1999, p. 23). The second phase, comprising the 19th and 20th centuries, is the industrial revolution. The third phase is forming right now and is called the "super-industrial society" (information society), namely the one functioning in the conditions of the "intelligent environment" in which a gradual end of mass production is taking place and there is a free access to knowledge as the key resource (Nesterowicz, 1998, p. 15). At the same time, it is a society characterised by constant and fast spread of access to and transfer of digital information,where knowledge and information are critical factors in achieving success and key strategic resources (Macias, 2008, p. 9). The underlying cause of all the phases and factors of changes which shape them is the development of the world civilisation andeconomy being its element.

Against this background, the Polish economy and the system which regulates it arouse special interest, mainly due to the systemic, political and social conditionings which took place in Poland over the last several dozen years.

2. The premises of the changes in the socio-economic system in Poland

The period of the last thirty years of the 20th century brought to the Polish economy a number of changes, varied in character, which at the same time should be regarded both the source and the cause of the deep systemic transformations initiated after 1989. A lot of economistssuggest that from the period of the first serious economic collapse which took place in the years 1979–1982, the Polish economy faced, to a lesser or greater extent, a structural crisis.

At the beginning of the 1970s a phase of high growth rate of the basic macroeconomic values occurred. The national income, as well as investments and consumption were increasing considerably. The peak was achieved in the year 1973 after which the growth rate was lower and lower year by year. When analysing the mechanismof the emergence of crises in a centrally planned economy, we should indicate that in 1975 some signals appeared which showed that the economy entered the phase of the slowdown of the growth rate, which turned into a deep crisis. The second half of the 1970s was characterised by a considerable decline in the growth rate of the national income and consumption. All the factors causing or contributing to a crisis which had occurred before, manifested in that period with a much greater force, which was the consequence of the accumulation of unfavourable structural phenomena in the economy. A deep collapse which took place after 1978 forced those in power to revise the implemented policy and the adopted economic strategy, and the economic reforms implemented in the 1980s included three stages (Bożyk, 1995, pp. 20-26): the period from1982–1985, 1986–1988 and the end of 1988 and the beginning of 1989. In their assumptions the reforms reflected the idea of the introduction of a mixed system, combining the elements of both the market mechanism and the centrally planned economy (monocentric model). A significant issue was the problem of giving independence to state enterprises, shaping the majority of prices on the market in an agreed way (the prices of materials and raw materials and fuels were established based on the prices implemented in foreign trade), considerable devaluation of zloty and making the exchange rate policy flexible. Within the scope of the activities undertaken in the reform implemented in the 1980s in the area of necessary structural changes, underlying the existing crisis, no significant effects were obtained. Both with regard to the structure of production, employment, fixed assets, and investment, the Polish economy (by sectors) in 1988 did not differ much from the one functioning in 1978. Also in the most important sector, namely industry, no fundamental structural changes took place (Kaczmarek, 2004, pp. 182-185).

By the end of 1988, decisions were taken (followed by adequate legal regulations) about the gradual introduction of the free market economy. Undoubtedly, the commenced actions should be seen as positive, however, they were delayed, and the situation of the Polish economy began to worsen substantially, with inflation going up rapidly, the deepening of shortages and the beginnings of recession in industry. The Polish economy was entering the period of another recession, yet also then a fundamental change of the political system in Poland took place, which was one of the reasons of an acceptable path of so-called "shock therapy" replacing the hitherto realised gradual path assuming the step-by-step introduction of systemic changes (Felbur, 1997, p. 53).

The systemic transformation process initiated in 1989 was one of the most dynamic in terms of the scope, manner and character of the introduced changes that had taken place in the Polish economy, and its progression and effects were both influenced by historical factors (the functioning of the economy in the monocentric and repartition model) and the adopted (and revised on an ongoing basis) concept of the functioning of the economy is the polycentric system in which

the central planning mechanism is replaced by the market mechanism. Hence, the common opinion is that at the beginning of the 1990s the recession would have occurred even if the systemic transformation had not been executed, and its fundamental causes lay in significant changes in the regulatory sphere and also resulted from the accumulation of many unfavourable phenomena in the real sphere.

3. The origin and the progression of the systemic changes

The nationalisation of private ownership and the concentration of the entirety of political and economic decisions in one centre of power, to a mass scale,occurred earliest in the Union of Soviet Socialist Republics where the implementation of the ideas and principles of the centrally planned economy had been realised since 1928. The plan was focused on the execution of specific investment and production tasks and was of materialand quantitative character. The quantitative growth of production was achieved by means of slave labour of millions of people and huge use of raw material resources. The structure of production shaped top-down and preferring the extractive industry and the arms industry propelled the growth of the manufacturing of the means of production, leaving aside other economic sectors (Ciepielewski, Kostrowicka, Landau & Tomaszewski, 1987, pp. 458-470).

The socialist economy was imposed on Poland from the outside, as a result of political decisions and military solutions. When Poland found itself under the domination of the USSR, fundamental political and economic changes started to arise in its territory, changes precluding free choice and independent formation of economic relationships (Kozaczka, 2012, pp. 22-23).

At the beginning of 1985, after Mikhail Gorbachev[2] came to power in the USSR, the beginning of the end of socialism as a political and economic system started. The Polish authorities quite accurately defined the signals coming from behind the Eastern border and decided to make an "escape forward" through the modification of some dogmas of central management. The centrally planned economy gave way to other concepts, particularly tothe gradual opening of the country to the market economy.

In spite of a few years of attempts made in the years 1981–1988 it was not possible to fix and reform even a single sector ofeconomy, and the main recipe of the government for the market disequilibrium were increases in the prices of goods and services. An insignificant improvement of the economic results which was observed in the years 1983–1985 was cancelled by hasty decisions, including a referendum on further reforming of the economy, or price-income operations which intensified the inflation, generated the growth of purchases and in consequence destabilised the economy.

There were a lot of paradoxes in the Polish economytill 1989, including a constant pay rise in "loss making as planned" State Agricultural Enterprises, in unprofitable state enterprises, only partial use of the factors of production in some sectors of economy, with their shortage in other sectors, the mechanisms of raising pays were peculiar, as they treated the rise as the compensation of the costs of living, and not the result of an increase in work efficiency.

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[2]   Mikhail Gorbachev – General Secretary of the Communist Party of the Soviet Union (1985–1991), President of the USSR (1990–1991).

The experiences gained over decades proved an inability of the socialist system to introduce structural changes, to stop the market disequilibrium, to manage effectively. Some modest changes which took place in that period, especially in establishing companies with foreign capital, were a step in the right direction and constituted a forerunner of further changes in the following years (Kozaczka, 2012, p. 56).

On 1 January 1989 the Act on Business Activity came into force. It abolished the state control over the access to the market and introduced the equalisation of rights of state, cooperative and private entities. Therefore, on that day, after over 40 years of the centrally planned economy, the freedom of business activity was in a sense restored in Poland. The subjective act was an important step towards a change in the socio-economic relationships and a base to create a market economy. When the "Round Table" debates were being prepared, the Sejm was passing the next acts which changed the regulatory sphere of the economy. At the end of January 1989, the Sejm passed a few important acts, including the Act on the financial management of state enterprises, the Corporate Income Tax Act, the Banking Law Act, the Act on the National Bank of Poland.

At the beginning of April 1989, after 60 days of debates of the "Round Table", the agreed arrangements were signed. The most important was the political agreement, because it conditioned the implementation of economic changes. The transformations leading to the new economic order included (Barski (Ed.), 1989, pp. 41-44):
• the development of self-governance and workers' participation,
• free shaping of the ownership structure,
• the development of market relationships and competition,
• the liquidation of the remnants ofthe command-and-quota system and the reduction of the central planning to the formation of the economic policy of the state, implemented by means of economic tools,
• uniform financial policy towards enterprises,
• subjecting the mechanisms of the selection of management staff to the criterion of professional competences. The new economic order was supposed to be created as soon as possible.

The common strive of the "Round Table" participants was the recovery the economy and connecting it with the world economy, the Polish debt restructuring and restoring normal financial and loan conditions, an improvement of the trade conditions with Western countries. The worked out conditions were mild and introduced a new system in an evolutionary way. At that time the parties did not realise the scale of necessary economic changes yet.

However, the authorities had no control over the outflow of money from the budget, inflation was increasing at the accelerated pace, and production was falling. More and more often state enterprises were in default of paying taxes and took advantage of the inflation devaluation of debt. The general chaos was deepened by the results of the first round of elections to the Sejm and Senate of 4 June 1989.

An escape from the Polish currency to goods and foreign currencies was in progress. It did not pay off to save because the interest rate was much lower than the inflation rate. The newly elected Sejm passed the Indexation Act which assumed a remuneration increase. The indexation caused that in addition to monthly rises at the end of the quarter, remunerations of workers increased by 80% of the price rise from the previous three months. Taking advantage of this mechanism, the crews of work establishments gained monthly pay rises in various ways, and then obtained inflation compensation, as a result of which double indexation was made. The consequence was galloping inflation. In order to reduce the amount of free money on the market, subsequent price rises were introduced.

Poland's economic situation was becoming more and more complex and difficult. At the end of 1989, the budget deficit reached 4.7 billion zloty, the market rate of dollar was about 8 thousand zloty, the average annual inflation reached 640%, and the national income decreased by 0.2% in comparison with 1988 (Bożyk, 1995, p. 23). Payment gridlocks were going up, state enterprises often had large material inventory to be used in future production, in many households there was a stock of various articles whose accumulation did not result from consumption needs but was preventive in nature and related to the concern about the worsening of the situation in future. Arms production was excessive, investments did not consider rationality account, about 38% of capacity in industry was improperly used (Glikman, 1993, p. 27).

At the end of 1989, the ineffective Polish economy left state industrial giants with the excess of administrative staff, housing and industrial construction of low quality, worn out machinery stock, hyperinflation (Hockuba, 1997, p. 35).

The activities concerning the introduction of changes in the regulatory sphere undertaken in Poland till 1989 to a various extent and with various effects, were related exclusively to the implementation of economic reforms and were only the realisation of subsequent variants within the same system. The basic direction of those activities concerned the extension of their scope and the degree of influence with the use of economic tools, and a decrease in this influence made in an administrative, direct way (Woźniak, 1995, p. 8).

However, the systemic transformation means the transition from the centrally planned economy to the market economy, including the change of the political system and the creation of the market conditions of the functioning of all economic entities (Nasiłowski, 1995, p. 17). The emergence and the execution of the transformation process is possible if democratic legislation rules are introduced and pluralistic institutional structures are built. They will create conditions for the introduction of changes within the fundamental reconstruction of ownership relationships, legal and institutional changes and the introduction of regulatory mechanisms characteristic for the market economy (Kaczmarek, Krzemiński, Litwa & Szymla, 2005, p. 26).

The basic aim of the transformation carried out in Poland was to find such systemic solutions so that market forces could best serve the development of the country. With the progress of the transformation processes the main goal of the changes made is to ensure the effective and stable development ofthe economy and the state (Hubner, 1995, p. 24). If the superior goal of the transformation is defined in such a way, it is at the same time necessary to define the conditions which the adopted strategy of development should fulfil, the conditions referring to the determination of such tasks which will make these market forces serve development best, which will be coherent and deprived of pathological qualities. Moreover, it is necessary to indicate those areas and processes which require active policy, its revisions and support from the state.

The programme of macroeconomic stabilisation and building the foundations of the market economy, prepared by the team of Polish and foreign experts under the supervision of L. Balcerowicz[3] and implemented by the government of T. Mazowiecki[4] in the early 1990s was commonly considered the most radical and at the same time the most effective programme of economic reforms carried out in the Central and Eastern Europe countries. Implemented in the conditions of almost

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[3]   Leszek Balcerowicz – Deputy Prime Minister, Minister of Finance (1989-1991 and 1997-2000), Chairman of the National Bank of Poland (2001-2007).
[4]   Tadeusz Mazowiecki – Prime Minister (1989-1991).

total instability of the economy and accompanied by great uncertainty as for the possible turn of events,it brought a substantial improvement of the market situation, the reduction of inflation, the strengthening of the currency, restoring of the external balance and stabilisation of the exchange rates. Those unquestionable achievements, however, were made at a very high social and economic cost, manifested in a considerable drop of production and the standard of living, and the occurrence of mass unemployment.

The "shock therapy" programme was coming into existence in a few stages. During the debates of the Round Table and directly afterwards the Solidarity experts, assisted by foreign advisors, discussed the assumptions of the stabilisation programme. The outline of the programme of reforms presented in October 1989 by L. Balcerowicz was actually the programme of building capitalism in Poland. The final stage of the preparations took place in the last months of 1989, when the projects of adequate legislative acts and operational decisions concerning the sequence of operations and the level of such key issues as interest rates, exchange rate or the energy price level were prepared.

The results achieved during the programme implementation in 1990 considerably deviated from the expectations. The major goal – deceleration of inflation – was achieved, the monthly inflation rate went down from 30-40% in the last quarter of 1989 to 4-5% in the last quarter of 1990. Moreover, the price shock at the beginning of 1990 was over two times higher than it had been planned. The most spectacular achievement was restoring the external equilibrium: on the currency market and in foreign trade. The results of foreign trade for 1990 were a great surprise to the programme authors, clearly proving too restrictive character of the undertaken stabilisation activities. At the same time, the situation in public finance improved significantly: as a result of radical reductions of budgetary expenditures and cutting numerous subsidies and subventions, and also as a result of temporary improvement of the profitability of enterprises. A huge deficit from 1989, staying at the level of 8%, unexpectedly turned into a considerable financial surplus. The market situation improved at last: during a few months shortages in stores were liquidated, queues disappeared. On the other hand, statistical remunerations went down by one-fourth causing a decline in individual consumption. Unemployment rose dramatically.

T. Mazowiecki's government could not face up the challenge. Overwhelmed bya specific sense of historical mission obviously did not realise the urgent necessity to make an effort to explain to the society the reasons for the sudden deterioration of the standard of living (Rosati, 1998, pp. 35-42).

In May 1990the first industrial actions in the protest against the fall of real remunerations were observed. Trade unions, including the Solidarity, began to put more and more pressure on the government to relieve drastic income restrictions. Under the influenceof those events in the mid-1990 L. Balcerowicz decided to relax the monetary and wagepolicy a little.

Although the National Bank of Poland raised the basic interest rates two times, and then also the rates of required reserve rates for banks, but at the same time the government distinctly relaxed fiscal policy and quickly increased budgetary expenditures. The central budget surplus of 6.5 billion zloty in the first half of 1990 turned into a deficitof 5 billion zloty in the second half of 1990. In 1991 the budget deficit increased by 31 billion zloty, that is 3.5% of GDP. Those fluctuations of the policy and its internal incoherencyduring 1990 and 1991 were to a greater and greater extent the result of blocking and weakening the activities of the government by its own political base, including the Solidarity, which aimed at the alleviation of the pains of the reform programme. However, the inefficiency of the economic policy reflected primarily the lack of clarity as for the nature and character of relationships between the instruments and the progression of inflation.

Struggle with inflation was definitely the objective number one of the economic policy of subsequent governments in that period, but a fundamental mistake was made in the assessment of real sources and mechanism of inflation was made. Which does not change the fact that in the years 1990–1993 Poland noted down better results in the fight against inflation and for economic growth than other countries of the region (Balcerowicz, 1997, p. 385)

At last, the stabilisation policy within the whole period of 1990–1992 was characterised by almost the total lack of flexibility in reacting to changing economic conditions. 1992 also witnessed further worsening of the financial situation of enterprises which, however, was accompanied by a distinct relaxation of financial discipline. Moreover, an alarming phenomenon occurred in that period – an increasing debt of budget entities. An important reason for the reversal of the beneficial trends of the first half of 1990 was the political situation in the country. The victory of Lech Walesa[5] in the presidential election triggered another wave of expectations and hopes which could not be satisfied in any way. Social frustration manifested itself in an increase in the number and the scale of industrial actions and became the major factor defining social moods and political preferences during the parliamentary election. The term of the Sejm from autumn 1991 to the next parliamentary election in 1993 was undoubtedly the period of the worst cooperation between the parliament and the government in the whole transformation period. Only in 1993, in the policy of H. Suchocka's[6] government, there appeared some elements of a new approach and greater consideration of economic goals, other than the hitherto prevailing ones. Particularly three important projects are worth paying attention to. A pioneer act on the financial restructuring of banks and enterprises was developed and passed, which opened a path to solve the problem of debts. Secondly, the *Enterprise Pact* was passed, which, in turn, paved the way to the agreement between administration and crews of enterprises in matters related to privatisation and restructuring, as well as the issue of the gradual liquidation of "popiwek"[7] which was hated by crews. Finally, a few weeks before being recalled, H. Suchocka's government forced through the mass privatisation programme with the participation of *National Investment Funds*, which created a chance for the fast privatisation of hundreds of state enterprises. Another success was also gaining support of the Sejm for the governmental project of the budget for the year 1993, with a planned deficit at the level of 5% of GDP. However, after a few months, H. Suchocka's cabinet collapsed under pressure of wage demands supported by the Solidarity (Rosati, 1998, pp. 53-65).

In the next parliamentary election the left-wing party won, yet the coalition formed under its leadership, despite many hesitations and internal contradictions, not only kept the pro-market direction of transformations in Poland, but also substantially accelerated the rate of the economic development.

However, it does not mean that the economic policy of the SLD-PSL[8] coalition over the whole period of 1994–1997 deserves a totally positive opinion. The central bank was a difficult partner for the government in that period, but also the government, and the Minister of Finance in particular, did not make that cooperation easier. In the second half of 1993, when the new coalition took up the reins of government, the Polish economy was at the turning point. Although there

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[5] Lech Wałęsa – President of the Republic of Poland (1990-1995).
[6] Hanna Suchocka – Prime Minister (1992-1993).
[7] Popiwek – super-normative wages tax.
[8] SLD-PSL – Sojusz Lewicy Demokratycznej-Polskie Stronnictwo Ludowe.

was an economic recoveryfor a year, but the growth did not have firm bases, and the financial balance was still rather unstable. Particularly, the fast worsening of the situation in foreign trade was alarming.

Contrary to many pessimistic forecasts, the government adequately reacted to challenges, planning a careful budget for 1994 and signalling the readiness to accelerate privatisation. At the same time, in the face of the problems with financing a high budgetary deficit planned for 1993, did not force through expenditures and brought about the execution of the deficit at the level of 4.4 billion zloty, almost 45% below the plan. Owing to that, it was possible, to some extent, to neutralise the inflation results of an increase in remunerations and create a good base for the low deficit for the next year.

The economic situation on western markets improved, which generated strong stimuli for the development of production and export. In effect, the economy accelerated: in the first half of 1994, the GDP growth rate increased by 5%, primarily reacting to the dynamic growth of exports and investments.

In March 1993, the Sejm passed quite a restrictive budget for 1994. An agreement with IMF[9] paved the way to sign an agreement with the London Club on the reduction of Polish debt to commercial banks. That decision opened an access to international financial marketsto Poland. Simultaneously, the last part of the agreement concluded in 1991 with the Paris Club, concerning the reduction of the Polish debt guaranteed to governments, was finalised. All those events strengthened the international position of Poland very much (Balcerowicz, 1997, p. 383).

In June 1994, the government passed a medium-term economic programme *Strategy for Poland*, prepared by a new Minister of Finance, G. Kołodko[10] and his associates. The main objective of the programme was to ensure a faster economic development and continue the reforms at the social costs lower than before. The programme had a lot of opponents who alleged the vagueness and using slogans.

The relations between the Ministry of Finance and the National Bank of Poland worsened because the bank demanded to relax the monetary policy and one-time devaluation of zloty. In May 1994, a decision was taken about a small reduction of interest rates, however, it soon ended.

Inflation became in 1994 the basic problem of the economic policy. At the end of that year, the government assumed inflation at the level of 23.6%, whereas in fact it was 29.5%.

The macroeconomic situation complicated additionally at the beginning of 1995. The inflow of foreign capital increased significantly, threatening with the loss of control overmoney supply. Being unable to handle the neutralisation of the inflow of foreign currencies and being afraid of further acceleration of inflation, the National Bank of Poland decided to lowerthe devaluation rate, and after a few days to raise interest rates.

In 1996 quite fundamental changes in the mechanism and the factors of the economic growth took place, partially evoked by a specific economic policy, and partially by a change in the economic situation abroad. The economic growth still continued although its dynamics worsened a little and economic reforms were continued. At the same time, however, quite high inflation continued, and the simultaneous fast deepening of deficit in foreign trade and the worsening of the situation on the current account of the balance of payments occurred.

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[9]   IMF – the International Monetary Fund.
[10]   Grzegorz Kołodko – Deputy Prime Minister, Minister of Finance (1994-1997 and 2002-2003).

At the end of 1996, the National Bank of Poland raised the rate of required reserves of deposits and made efforts to increase the market interest rates in order to cool down the demand. The moves turned out to be right: an increase in the current account deficit was stopped in the second quarter of 1997, and the value of the deficit in the following months stabilised (Rosati, 1998, pp. 66-89).

After 1997, the next governments fully implemented the programme aiming at the introduction of the market economy in Poland in all the areas of social and economic life, considering the external conditionings, such as, for example, global economic crises and changes in the economic situation in the world, Poland's accession to the European Union, the speed of laying down economy-related law.

4. Dilemmas and conditionings of systemic changes

A change in the political forces made during 1989 initiated the implementation of the systemic transformation process in Poland. The process differed in a qualitative way from the changes included in the notion of economic reforms. It arises from the fact that in such a case the very essence of the economic system changes, and not only the scope or the manner of self-regulation and management. Therefore, the economic system transformation comprises the entirety of changes in the regulatory sphere in the economy, related to the transition to a new type of the economic system (Woźniak, 1995, p. 8). One should also remember that the process of transition from the centrally planned economy to the market economy created numerous problems and challenges of the social, economic and political character. The Polish economy, having no point of reference in the form of historical experiences or a proper territorial backup, was doomed to the use of trial and error on its path to capitalism. Dilemmas concerned the basic issues: the goals, tools, pace and the sequence of activities. The introduction of the polycentric system requires the removal of direct connections between the state, as the domain of the regulatory sphere, and economic entities functioning in the real sphere, which constitutes the deregulation process. The process coexists with the process of the emergence and development of markets, and the condition of the comprehensiveness of the introduced changes means the necessity to include in them also the areas of activities defined as deflation, demonopolisation, denationalisation, restructuring and creating new economic institutions (Fischer & Gelb, 1991) – thus, it is about stabilising activities, the introduction of limited macroeconomic control of economy, the reform of the price system, the reform of the price system, the reform of the public sector and social insurance, building the tax system, privatisation[11], the liquidation of state monopolies, the institutional reform, the creation of financial markets, etc.

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[11] For example, in 1990 there were 8,453 state enterprises functioning in Poland, whereas as of the end of 2006 there existed only 566 state enterprises, but half of them were under the bankruptcy proceedings or put into liquidation due to their bad economic condition. An analysis of the progression of the process of ownership transformations of state enterprises in Poland were presented in the work: Krajewski, S. (2009). *Prywatyzacja, restrukturyzacja konkurencyjność polskich przedsiębiorstw*, Warszawa: PWE, pp. 40-118, whereas an attempt of the synthesis and assessment of this process is included in the work: Mazurkiewicz, J., Lis, P., Zwierzchlewski, S. (2008). *Proces prywatyzacji przedsiębiorstw państwowych w Polsce w latach 1990-2006*. [in:] Tarajkowski, J. (Eds.) *Rozwój przedsiębiorstw – Strategia – Integracja*, Poznań: Wydawnictwo Akademii Ekonomicznej w Poznaniu, pp. 53-87.

Uniqueness is the quality of the transformations which took place in Poland. It arises from the simultaneous occurrence of many aspects of the undertaken changes, but we may assume that each of them presented separately has its reflection (equivalent) in the experiences of other countries. Hence, going further towards the presentation of the specific features of the transformation process which took place in Poland, we can assume that the general feature of this process is the simultaneousness of the occurrence of radical changes in the political, economic and social sphere. Such a transformation process is defined as parallel transformations and it did not occur too often in the past, and changes were progressing gradually for many decades or even centuries. Yet, simultaneous political and economic liberalisation, introduced in a purposeful and fast way, is virtually a new experiment to the world scale (Nelson et al., 1994, p. 137).

Another quality of the transformation process progressing in Poland is, in the approach considering the changes in the economic system only, a change both in the prevailing ownership form, as well as the prevailing allocation mechanism. Therefore, it is a change within two basic criteria which are applied when isolating economic systems. Thus, a conclusion can be drawn that the indicated notion of parallel transformations also refers to the economic system itself. Moreover, it should be pointed out that this specific feature of the transformation process in Poland is a result of the necessity to create the market economy institutions from scratch, and also there is a need to introduce fundamental structural changes, as a consequence of the development made but incorrectly directed (Kaczmarek, 2004, pp. 185-187).

5. Conclusion

The transformations of the socio-economic system exert a crucial and strong impact on the functioning of the economy of every country. In Poland the transformations had a specific and special dimension. After 1989, the Polish economy was subject to the process of transformation going from the centrally planned economy to the market economy. During the transformation a number of radical changes in all the areas of the functioning of the state took place. The transformations influenced the functioning of the state, the society, the law system and all entities being the elements of the economy. The changes aimed at the growth of the effectiveness of the economy, the introduction of the market mechanism, competitiveness and the improvement of the basic macro and microeconomic ratios. The changes were not easy, they were introduced evolutionarily, and during that evolution the transformed economy came through basically all the stages described in the literature of the subject.

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Chapter **4**

Has the Crisis in the Peripheral Countries of the Euro Zone is Ended?

Paweł Kalandyk

1. Introduction

The economy of each country are characterized by cyclical, which is related to successive increases and decreases the economic situation. Therefore, the crises are an integral part. Modern world economy is an economy of tight relationships between countries. Fluctuations in one country have a significant impact on other countries. Globalization has led to the vast openness of economies. This helps to move between all economic phenomena, both positive and negative (Adamczyk, 2012, p. 14).

Globalization is a long and spontaneous process of liberalization and market integration of national economies into a single global market coupled. These economies have previously worked in a certain isolation. Of integration Not only the goods markets, but also the capital markets. On a global scale, highly intensive integration process is subject to very liquid financial capital. While much slower to liberalize and integrate markets workforce. Already from the fact that globalization is not all create the same opportunities, not all burdens identical costs (Kołodko, 2011, p. 298).

The aim of this study is to attempt to answer the question: Is the crisis in the peripheral countries of the Euro zone has ended? The question refers to crisis in the first decade of the XXI century. This crisis began in the US and then arrived also to Europe. It most severely hit economies of so-called peripheral countries of the euro zone, namely: Greece, Spain, Ireland and Portugal. To answer this question, you must first determine what is a crisis, then demonstrate ways to measure the condition and finally on the basis of macroeconomic data to determine whether the crisis continues.

In the first part of the work developed by the economists present definition of crises and types of economic crises. I will present the basic features of this phenomenon and the effects which usually makes.

In the second part of the quote test results and theoretical considerations, we determine what macroeconomic indicators we can use to be able to determine whether the economy of a country is in crisis or not.

In the third part, the verification of macroeconomic indicators for individual countries of peripheral euro zone, in order to assess his current state of the economy are.

2. The crisis and its types

The crisis is inherent ever since man began to manage. In the literature we meet with different interpretations of the word "crisis". This term conceals the economic collapse caused by erroneous decisions of the monetary authorities or caused by speculators and natural recessions associated with the course of the business cycle (Filar et al., 2007, pp. 239-240).The crisis is also a sudden change, the collapse of the financial market, related to the lack of liquidity and insolvency of the entities participating in this market, forcing public authorities to intervene (Miklaszewski, 2003, p. 99; Bochenek, 2012, pp. 151-154; Piech, 2012, pp. 36-40).

Accordin to F. S. Mishkin, the financial crisis is a situation in which there are serious disturbances in the financial market. There are then significant declines in asset prices and the falling number of financial institutions and non-financial (Mishkin, 1995, p. 223). Crises may be smaller or larger areas or involve a variety of sectors. Crises arise from different causes, and their course and effects may vary. However, numerous studies point to the fact that most of the crises fits into one standard model. Therefore, they can be classified according to different criteria (Tab. 1).

Table 1. Types of crises

Classification criterion	Types of crises
The area of occurrence	National Regional Global
Sector occurrence	Banking Financial Stock exchange Economic Foreign currency Sovereign debt
The way of creation	Crisis unit Speculative crises Crisis of the banking system

Source: own study based on (Adamczyk, 2012, p. 15).

The crisis in the euro area was initiated in the aftermath of the US financial crisis. As a direct cause of the crisis, most researchers indicates the collapse of the real estate market, caused by excessive growth of loans with a high risk (subprime). These loans were secured by financial engineering, using the so-called collateralised debt obligations – CDOs, which were sold in bulk through private financial institutions for investment and speculative. Participated in this abuse largest US banks and European banks. After the collapse of the US market, just these papers have become a tool for handling the crisis on a global scale (Rosińska-Bukowska, 2012, pp. 345-346; Bednarczyk et al., 2009, pp. 33-36).

3. Overview research

For the purposes of this paper we review the existing empirical and theoretical considerations on the current crisis and previous crises periods.

One of the cross-cutting work describing the course, range and size of crises over the last 200 years is the work of the duo C. Reinhart and K. Rogoff of 2014 in which the authors analyzed the hundred bank crises of systemic nature. The basis for the inference was the analysis of changes in GDP per capita in the periods before, during and after these crises. Used by researchers criterion of GDP per capita, would protect the test result from the influence on the measured value, the birth rate, which in the nineteenth century was even 3.8% per year.

Reinhart and Rogoff accepted as an indicator of talking about the end of the recession, the return of the measured criteria for the highest value directly to before the crisis. The authors took into account that even in bad times, a transient moment upturn (double dips). After such a revival again slowed down the economy. According to the authors, such an increase is momentary and not a real economic upturn.

Research shows that, on average, return to the same level of GDP per capita lasted 8 years, while the median was 6.5 years. The current crisis was systemic in nature, in the 12 countries of the West, with only the US and Germany have managed to overcome of it within 5-6 years.

Note the large number of double dips. Among the cases examined recession, 63 crises related to developed economies and 37 developing countries. The 100 respondents crises repeated waves of double dips occurred up in 43 cases.

In terms of the current crisis, Reinhart and Rogoff consider that it can be, in some countries more severe than the Great Depression of the 30s of the twentieth century. After six years since the outbreak of the crisis, GDP per capita is much lower than before the crisis in the 10 to 12 western states covered by the systemic crisis. Return to pre-crisis can be part of those States in 2019 or 2020 (Reinhart & Rogoff, 2014, pp. 1-10).

The second pair of researchers who are trying to determine whether it is possible to exit from the current crisis, are P. Paris, and Ch. Wyplosz. They undertake to attempt to indicate the ways out of the spiral of excessive debt among the Eurozone countries. The analysis of statistical data, according to the average level of debt for all countries of the euro zone is almost 90% in relation to GDP (Tab. 2).

Table 2. Public debt in euro area countries [% of GDP]

Country	Time						
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Austria	60.2	63.8	69.2	72.5	73.1	74.4	74.5
Belgium	84.0	89.2	95.7	96.6	99.2	101.1	101.5
Cyprus	58.8	48.9	58.5	61.3	71.5	86.6	111.7
Estonia	3.7	4.5	7.1	6.7	6.1	9.8	10.0
Finland	35.2	33.9	43.5	48.8	49.3	53.6	57.0
France	64.2	68.2	79.2	82.7	86.2	90.6	93.5
Greece	107.3	112.9	129.7	148.3	170.3	157.2	175.1
Spain	36.3	40.2	54.0	61.7	70.5	86.0	93.9
Netherlands	45.3	58.5	60.8	63.4	65.7	71.3	73.5

Ireland	24.9	44.2	64.4	91.2	104.1	117.4	123.7
Luxembourg	6.7	14.4	15.5	19.5	18.7	21.7	23.1
Malta	60.7	60.9	66.5	66.0	68.8	70.8	73.0
Germany	65.2	66.8	74.5	82.5	80.0	81.0	78.4
Portugal	68.4	71.7	83.7	94.0	108.2	124.1	129.0
Slovakia	29.6	27.9	35.6	41.0	43.6	52.7	55.4
Slovenia	23.1	22.0	35.2	38.7	47.1	54.4	71.7
Italy	103.3	106.1	116.4	119.3	120.7	127.0	132.6

Source: own study based on (*Statistical Annex of European Economy. Spring 2014*, pp. 186-203).

They point out that possibly a reasonable level of debt, which should be characterized by countries wanting to get out of the crisis, is the level recorded in the convergence of Maastricht, which is 60%.

To achieve this, they suggest several ways. First, the ability to repay the debt with the surplus resulting from the growth of GDP and restrictive fiscal policy. However, according to estimates this process could take up to countries such as Greece and Spain for at least 20 years. The second proposal is the repayment of debt from the sale of national assets. Data on the size of public assets in relation to GDP is shown in Table 3.

As you can see the values given in Table 3, for Greece, 61.9%, 29.3% for Spain, for Portugal, 45.1% and 44.0% for Ireland do not cover the total debt of these countries. It amounts to 94% for Spain, Ireland and Portugal, about 125%, and 175% for Greece. We must also remember that no country can be rid of all the assets. So take advantage of this step, it can only serve or improve the current liquidity in the repayment of debt. As the examples given above do not provide the ability to repay the debt, according to the authors is only one way, which is the cancellation of the debt of these countries guarantee the creation of appropriate procedures and safeguards to such a situation no longer was established (Pâris & Wyplosz, 2013).

Table 3. Estimated general government assets [% of GDP]

Austria	34.6	Italy	27.3
Belgium	21.7	Netherlands	38.9
Finland	117.0	Portugal	45.1
France	39.6	Slovakia	31.7
Germany	37.6	Slovenia	52.8
Greece	61.9	Spain	29.3
Ireland	44.0	Euro area	37.4

Source: own study based on (Paris & Wyplosz, 2013).

As you can see from the cited studies to determine the status of the current crisis in individual countries of peripheral euro zone, we can use the following indicators:
* GDP growth,
* GDP per capita,
* The ratio of debt to GDP, and
* Unemployment rate, which speaks of an increase or decrease in production associated with new investments.

The quoted above analysis, it appears that the crisis can be considered as completed when the individual macroeconomic indicators have returned to pre-crisis and are supported by even back to stable growth.

4. The analysis of macroeconomic indicators for individual euro zone peripheral countries

4.1. Greece

After the adoption of the euro by Greece in 2002, although it did not meet the requirements of convergence, because the budget deficit and public debt of Greece to exceed the required values, increasing debt grew in 2006 to impossible to handle. Continuous growth of public debt in 2008 led to the withdrawal of global banks and investment funds of funds from Greece (Kancelaria Senatu, 2010, pp. 1-2). Greece is a country where the economy is in the worst condition of the surveyed economies. As can be seen in Table 4, the GDP growth rate despite an increasing trend, still cannot get a positive value. These values indicate continued to trouble the Greek economy and its shrinkage. Whereas a very high level of debt, reaching values above 170% of GDP (Tab. 6) that three years is not reduced, is proof of the failure of economic activity.

Table 4. The annual pace of GDP growth at constant prices in 2010 [%]

Country	Time											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Greece	4.70	0.85	5.57	3.16	-0.22	-4.30	-5.49	-9.18	-7.33	-3.11	0.72	-0.32
Ireland	4.43	6.35	6.32	5.53	-2.21	-5.66	0.38	2.59	0.14	1.44	5.21	7.83
Portugal	1.81	0.77	1.55	2.49	0.20	-2.98	1.90	-1.83	-4.03	-1.13	0.91	1.46
Spain	3.17	3.72	4.17	3.77	1.12	-3.57	0.01	-1.00	-2.62	-1.67	1.36	3.21

Source: own study based on (*Economic Outlook No 99 – June 2016*).

But there are also positive signs, as the indicator of wealth, for the first time since 2007, has been an upward trend (Tab. 5). Also, a continued trend reduction in the level of unemployment (Tab. 7) shows positive changes. However, one should consider the issues, whether the positive trend of the above indicators is linked with economic growth, or rather with the emigration of the population of Greece, outside of your country.

Table 5. GDP per capita in thousands USD

Country	Time										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Greece	22,204	22,327	23,551	24,308	24,149	23,086	21,894	20,007	18,744	18,121	18,377
Ireland	48,908	50,569	51,917	52,925	50,503	46,808	46,426	47,539	47,286	47,251	49,361
Portugal	18,677	18,785	19,042	19,479	19,489	18,891	19,241	18,917	18,229	18,035	18,300
Spain	25,995	26,511	27,154	27,661	27,527	26,309	26,192	25,938	25,380	25,150	25,618

Source: own work based on (*Trading Economics*. Retrieved on 31/05/2016, from: http://pl.tradingeconomics.com/indicators).

4.2. Ireland

The Irish economy has suffered badly as a result of the crisis that the country was bound, above all with the crash in the property market. What caused the failure of the banking sector, which was the investment fund. Reforms introduced by the Irish Government as well as financial assistance from the IMF and the European Commission in the amount of 85 billion have allowed quickly to deal with the crisis (Rymarczyk et al., 2014, pp. 93-100). Already at the end of 2010, Ireland entered the path of growth (see Tab. 4). These actions, however, were paid for by the increase in public debt up to 120% of GDP in 2012 (see Tab. 6). However, all these actions have produced a notable result, as achieved steady downward trend in unemployment and an increase in the wealth of the citizens. At the end of 2015 years Ireland can boast economic growth of 7.83% and a reduction of public debt to 98% of GDP and the unemployment rate to about 9.5%. This, however, continue to be of much worse than before the crisis.

Table 6. Gross public debt, Maastricht criterion, as a percentage of GDP

Country	Time											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Greece	102.79	107.27	103.55	103.12	109.58	126.66	145.82	172.04	159.41	177.97	180.49	177.37
Ireland	28.21	26.11	23.62	23.92	42.45	61.79	86.83	109.10	120.15	120.05	107.59	93.81
Portugal	61.99	67.39	69.17	68.44	71.67	83.61	96.18	111.39	126.21	129.00	130.17	128.97
Spain	45.26	42.28	38.91	35.51	39.40	52.70	60.07	69.46	85.41	93.67	99.29	99.17

Source: own study based on (*Economic Outlook No 99 – June 2016*).

4.3. Portugal

Portugal joining the monetary union, was one of the poorest countries in the Euro zone. However, as a result of the economic boom of the 90s the Portuguese believed in a better tomorrow. Positive thinking has contributed to the crisis in public finances associated with a consumer lives of citizens. This resulted in a negative balance on the current account. The low level of technological development of the Portuguese economy, which is characterized by the production of low value-added manufacturing in large part to the nearest neighbor Spain was the weak link in the economy (Anielak et al., 2015, pp. 15-19). Reform of the Portuguese government felt most citizens in the second wave of the crisis in 2012-2013, which recorded the biggest fall in GDP and a decline in wages and an increase in the unemployment rate (see Tab. 4, 5, 7).

Table 7. Unemployment rate [%]

Country	Time											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Greece	10.56	10.03	8.99	8.41	7.79	9.64	12.72	17.90	24.55	27.51	26.55	25.00
Ireland	4.49	4.40	4.53	4.69	6.43	12.05	13.92	14.67	14.72	13.09	11.31	9.43
Portugal	6.65	7.60	7.65	8.00	7.60	9.48	10.80	12.73	15.65	16.20	13.90	12.43
Spain	10.97	9.15	8.45	8.23	11.25	17.86	19.86	21.39	24.79	26.10	24.44	22.06

Source: own study based on (*Trading Economics*. Retrieved on 31/05/2016, from http://pl.tradingeconomics.com/indicators).

With the introduced structural reforms, tax and by a grant from the European Commission and the IMF support amounting to 78 billion euros, could balance the economy. Already in 2014, Portugal reached the positive value of the GDP growth rate of 0.91%. There has also, for the first time in many years, an increase in the level of wealth of citizens and the minimal decrease in the ratio of debt to GDP. There has been a decline in the unemployment rate to 12% (see Tab. 4-7). Unfortunately, the value of public debt growing all the time and the ratio to GDP of 130% is proof of the fact that this is the beginning of the road to sustainable growth.

4.4. Spain

The crisis in Spain was associated primarily with the bursting of the speculative bubble in the property market. Real estate prices in the period from accession to the monetary union by Spain for 2008 increased from EUR 1000 per square meter to 3,000 EUR (Bukryj, 2015, p. 25). The second factor causing the crisis was a credit boom, which financed the consumer lifestyle of citizens. After the collapse of the real estate market (Firlej, 2011, p. 187), dramatically increased unemployment and threatened system has been called. savings and loan "cojas". Check out these require financial support from the government. The rise in unemployment was reflected in State expenditure for social purposes, with a corresponding decrease in budget revenues. All these factors led to a rapid increase in public debt to 94% in 2013 (Hyclak, 2015, pp. 32-35). Reforms introduced by the government limiting government spending yielded the expected results. In 2014 Spain entered the path of steady growth in GDP, which at the end of 2,015 years reached 3.21%. Unemployment is falling steadily for two years, reaching at the end of 2015 years the value of 22%. (see Tab. 4-7). As of today can still worry constantly growing public debt and its ratio to GDP of 99%.

5. Conclusion

Analyses of economic indicators and a review of the literature shows that the crisis in the peripheral countries of the euro zone continues and yet its completion has expired several years. As expected, a pair of C. Reinhart and K. Rogoff still about four years.

Economic indicators from the countries only began to slow growth and so in the case of Greece, GDP per capita has reached only the value of 18,377.21 USD when its highest value before the crisis was 24,307.57 USD. The current value of 2014 years was the first increase since the beginning of the crisis. While the level of public debt to GDP ratio still remains at the level 177%, while its value before the crisis was about 100%. Such a large value of Greek debt before the crisis stems from by the Greek government to hide the real level of this indicator. The slight decrease in the unemployment rate and minimal GDP growth in no way guarantees a rapid recovery.

However, in the case of Ireland growth rate of GDP per capita it is significant and reached 49,360.56 USD in 2014, the highest value of 52,924.82 USD in 2007. In the case of Ireland it recorded double dips in 2011, after which he was again fall in value. Public debt and the unemployment rate gradually decreases reaching in 2015 to 93.81% of GDP and the unemployment rate value of 9.43%. Still more of the above indicators are far from pre-crisis levels, since then the level of public debt to GDP ratio was 23.62%, and the unemployment rate was 4.4%.

In the case of Portugal, there has also been double dips in 2010, after which there was a sharp decline in the value of GDP per capita. The value of this indicator in 2014 was 18,300.44 USD in comparison with the highest value in 2008, in the amount 19,489.27 USD. The value of the debt ratio for the first time in 2015 began to decline and reached 128.97%. Unemployment rate falls steadily and in 2016 reached 12.3%.

Spain the lowest GDP per capita was in 2013 and it amounted to 25149,74USD. For the first time in 2014 this indicator increased and amounted to 25,617.55 USD. The highest value fell in 2007 and amounted to 27,661.04 USD. In contrast, the ratio of debt to GDP is still growing and in 2015 reached 99.17%, with the lowest value of 35.51%. The unemployment rate still remains at a high level and amounted to 22.06% in 2015. While before the crisis, the value of this indicator was 8.23%.

Comparing the results of the analysis of the assumed level, which I remind, he had at least demonstrated value before the crisis, you will see that in any case this goal is not achieved. In summary we can say that the crisis is continuing, and only see the first signs of economic recovery.

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Chapter 5

The Identification of Diagnostic Variables, Influencing Ethnocentric Attitudes of the Slovakians with the Use of the Linear Regression Model

Elżbieta Wolanin-Jarosz

1. Introduction

Psychological factors, referring to the buyers, play an important role in a consumer decision making process. They are often connected to their cultural and ethnic identity, which reflects the entirety of subjective determinant factors of the purchasing products. They particularly refer to the way of perceiving the product's country of origin, its actual marketing image and the strength of certain institutional and product brands.

Confrontation in the process of domestic goods purchase with an appropriate foreign substitutes (if it is only possible) is a way of aware purchasing, price and products choice, based on the balance of real, mental and symbolic assets. It is taken for granted that a shopper has deepened knowledge about the product in the buying process. It also presupposes that a customer knows about its features, characteristics (values), its brand, technology, producer, time and place (country) where the product has been made. In this way, the value of a given thing obtained in the result of the purchase, includes, not only easy value in use but also marketing value. The purchase of the consciously chosen product among many other ones offered on the market, including prices consistent with the preferred norms, habits and feelings of the buyer, creates appropriately high level of satisfaction.

Psychological conditions of the products' choice and purchase oriented on the "country of origin" factor and appropriate geographical affiliation of a given brand are connected to the consumer ethnocentrism. This phenomenon conforms to economic patriotism in the consumption sphere and results from the concern of the buyers for the domestic market of goods and services. It is based on the negative assessment and the relations of the purchasers to foreign products, solutions, projects, recipes, technologies, to the presence of the companies from different countries on the domestic market and their participation in economic undertakings.

The empirical research results, which aim was to define the influence of the chosen variables: gender, age and education on the CETSCALE of the surveyed Slovakians, have been presented

in the present publication. The basic research material was acquired thanks to direct research conducted among the respondents from Slovakian regions: Kosice and Presov (Kosice Region and Presov Region).

2. Consumer ethnocentrism and its conditions

American scholars T. A. Shimp and S. Sharma created (1987a) the concept of consumer ethnocentrism and bought it to the international scale. They were the first to define the "consumer ethnocentrism" term and conducted wider empirical research in the USA, giving the beginning to more detailed research of this phenomenon in different countries of the world. According to these authors, consumer ethnocentrism is "the belief shared by consumers about the duty and morality of buying domestic" (Shimp & Sharma, 1987b). Ethnocentric behaviour of the customers concerns thus, the purchasing decision making process of the domestic products and their assessment. In practice, it expresses in consistent and aware preference of domestic products. When ethnocentrically oriented buy products on the market, they take into consideration, not only economic (rational) factors also the moral ones. They definitely distinguish domestic products and reject foreign products at the same time (Wolanin-Jarosz, 2014). However, non-ethnocentric consumers do not see such product feature as the country of origin. They usually make rational decisions by buying a product, which, in their opinion has the biggest balance of benefits. Such attitude expresses their orientation in favour of the product itself, crucial to fulfil a certain need. It is defined as "consumption cosmopolitism" (Karcz, 2004a). A different category of attitude is presented by the consumers who consciously and consistently prefer foreign products. These attitudes are often conventionally called "internationalist" ones (Karcz, 2004b).

As S. Sharma, T.A. Shimp and J. Shin (1995) emphasized in their works, consumer ethnocentrism is the phenomenon, which corresponds to economic patriotism in the sphere of consumption. This tendency generally results from the sense of national identity, concern about homeland and also from the fear of negative consequences of import for individuals, companies and the whole society. The quoted American professors from The University of South Carolina claim, that the consumers' attitude to imported products depends on consumer ethnocentrism of a certain person corrected by modifying sizes. These factors include:

- the needs of possessing or consuming a product perceived and felt by a customer (the facilitating factor of the ethnocentric attitude) and
- the economic threat from the side of foreign products, perceived and felt by a customer, which influences for example diminution of the demand for domestic products, limitation of domestic production, unemployment, the decrease of living standard or social safety of a family (the strengthening, sharpening ethnocentric attitude factor – Szromnik, 1998).

Hence, ethnocentric tendencies will be particularly strong in relation to the products, which are not that necessary. In addition, ethnocentrism will be stronger, as far as the products, which pose a threat to economy, are concerned (Wolanin-Jarosz, 2013).

However, two groups of factors have the direct impact on the consumer ethnocentrism level. They are psychosocial and demographical ones. The research conducted in many countries confirmed the statistically crucial influence of these characteristics on the purchasing behaviour of the consumers when the choice between imported and domestic products was taken into consideration.

Regarding the group of psychosocial factors, negative correlation between the consumer ethnocentrism and the openness to other cultures, have been stated. Individuals differ significantly, as far as experiences with other nations, values, behaviour and culture are concerned. The possibility of contact with other models of behaviour usually causes reduction of prejudice connected to the culture (Anderson & Cunningham, 1972; Han, 1989a; Moore, 1989).

In turn, patriotism, which means dedication to one's country, is closely related to the ethnocentrism because it works as a defence mechanism for a given social group. It was confirmed in 1988 by C. M. Han (1989b), who showed that patriotism has very crucial influence on the expressed intentions of buying domestic and foreign products. He claimed that the individuals, who are more patriotic have stronger consumer ethnocentrism than other people. Similar tendency can be observed as far as conservatism is concerned. It is understood as attachment and cherishment of the traditions, which stood the test of time and unwillingness to introduce changes. On the basis of the research done in 1972 by W. T. Anderson and W. H. Cunningham, it has been stated that in case of patriotism and conservatism, there is a positive correlation with the intensity of the consumer ethnocentrism. It means that these both features are a barrier for selling the imported products and what comes after that the international trade.

The important prosocial factor is also collectivism/individualism. The characteristic attributes of collectivistic culture are among others: subordination of one's own aims to the groups' goals, identification with a group and feeling of the responsibility for its members. Collectivistic individuals identify themselves with a group. They are more prone to its influence and realize common aims (as well as economic issue is concerned) than the individualistic individuals, who follow their own benefits. Thus, there is positive correlation between collectivism and consumer ethnocentrism.

Essential dependency can also be observed between the ethnocentric attitudes of the customers and their demographic features. Age, gender, place of residence, education or the amount of income belong to them. Strong influence of the demographic conditions on the consumer ethnocentrism level has been confirmed by the research of S. Sharma, T. A. Shimp and J. Shin (1995) as well as by S. P. Douglas and E. J. Nilssen (2002). They prove that women show stronger ethnocentric tendencies than men. In turn, considering age, it has been noticed that older people usually have a higher level of ethnocentrism than younger ones mainly because of the fact that the first group is more conservative and patriotic.

It is worth mentioning at this point, that the strength of the influence of the demographic factors on the consumers' ethnocentric attitudes is clearly different in the range of particular groups of countries, especially by differentiating them according to the archived level of the economic, civilizational and cultural development. Thus, the research conducted in Russia by G. Imbert and his colleagues, that age and gender are not strong factors influencing the ethnocentric attitudes of the consumers (Imbert, Jiddou, Kumar, Murillo & Zhao, 2003). Similar results were achieved from the research done in South Asia (India and Bangladesh) by S. Bandyopadhyay and M. Muhammad (2003). It turned out that there are not any strong positive correlations between the level of ethnocentrism and age in any sample. In turn, K. Philp and L. Brown (2003) by analysing the data collected among big cities inhabitants in Australia, claimed that the gender criterion is strongly correlated with the ethnocentric tendencies of the respondents, like education and ancestry (higher or lower socioeconomic group).

The scientists also showed in their research, that the consumers with higher income and education have significantly weaker ethnocentric tendencies (Balabanis & Diamantopoulos, 2004).

3. The aim and the research methodology

The basic source material in the present research has been possessed thanks to direct research done in two distinguished administrative units of Slovakia – Kosice region and Presov Region. The interviews were done in the years 2012-2013. The research sample was 400 respondents, chosen in a quota method . The quotas were – gender, age and education. The international CET-SCALE questionnaire, translated into Slovakian, was used as a measuring too. The questionnaire consisted of 17 questions to which answers were marked on the seven point Likert's scale where 7 meant "I absolutely agree", however 1 meant "I absolutely disagree". In order to eliminate all inaccuracies in translation, which could cause lowered effectiveness of a given measuring tool, the CETSCALE questionnaire was submitted to the validation process.

The collected research material, after previous reduction, was used to create a data base. The analysis of the survey research was done with the use of the STATISTICA programme. It should be stressed at this point, that in the following elaboration, the concentration was mainly focused on the achieved results and their interpretation. Detailed methodological descriptions of the conducted analyses, which are explained exhaustively in the literature from the range of statistics and economics, have been omitted.

The main aim of the conducted research was the identification of the factors influencing the ethnocentric attitudes of Kosice inhabitants.

Multidimensional linear regression models have mainly been used to the analysis. The dependent variable were numerical values of the CETSCALE scale. However, as factors, gender, place of residence, education and age (the first three have nominal character, age, however, is a numerical value) were considered as independent factors. Mainly bifactor interactions have been introduced to the regression models, assuming that the influence of one of the factors on the CETSCALE (for example age) can be different for women and men, etc.

4. The research of the age, gender, place of residence and education influence on the CETSCALE value of the Slovakian respondents

In the present subsection, before the results concerning the created model of the linear regression will be presented, the method itself is worth discussing. The aim of the regression analysis is the research of the connections between many independent variables (explaining) and the dependent variable (explained), which must have numerical character (Koronacki & Ćwik, 2005). This method is widely used as a research tool, which allows to describe the multifactorial relations. It is also worth mentioning that in certain situations, the created model serves to predict the dependent variable value for new objects or another time periods.

In the easiest conceptualization, the model of the classical multiple regression analysis is presented in the following way:

$$Y_i = b_0 + b_1 X_{i1} + ... + b_k X_{ik} + e_i \tag{1}$$

and allows to search for the answer to the question whether and to what extent the explaining variables $X_1, ..., X_k$ influence the dependent variable value Y. In the above formula, the index i means

the number of the case (it takes the values from 1 to n) and e_i means the model mistake for certain cases (Koronacki & Ćwik, 2005).

The b_0 parameter is interpreted as an average (expected) level of the explained variable Y when all explaining variables take the 0 value. The increase of the explaining variable X_i by one unit causes the change of the expected, dependent variable value by b_i units, assuming that the other variables independently save their constant values (Koronacki & Ćwik, 2005).

In the present elaboration to the regression model, gender, age, place of residence and education of the respondents, have been introduced as the potential explaining variables. Moreover, the interactions between these factors have been included. However, the explained variable were the CETSCALE values. In order to eliminate statistically unimportant factors and dependencies from the model, the backward stepwise approach has been used. The results have been presented by giving the following information:

- the factors' values of the regression model (*b*) for statistically crucial factors,
- standardised regression factors (*b*), thanks to which the strength of the interactions of certain factors can be compared,
- the test *p* probability value allowing to assess the statistical significance of a given factor,
- the R^2 determination factor, which defines what percent of the CETSCALE variability explain the included in the model factors.

As the Table 1 presents, by using the backward stepwise approach, a model has been achieved, thanks to which about 9.6% of the variables of the CETSCALE values, in a given community, can be explained. But, of course, not the quality of matching the model to the data is crucial here, because without doubt, many factors not included in the model influence the ethnocentric attitudes of the respondents. We are more interested in the character of these factors' influence, which proved to be statistically crucial. These are the following:

- age ($p = 0.0001$***),
- interaction of residence and age ($p = 0.0000$***).

The general, linear factors model interpretation is not an easy task, because their meaning depends on the fact if certain boundary restrictions were imposed on the model parameters or not (so called model with or without sigma-parametrisation). What is more, in case of interaction between the factors, by describing the influence of a certain factor on the CETSCALE value, its interaction with other factors should also be taken into consideration.

Table 1. Linear regression model

The dependent variable: CETSCALE $R^2 = 9.6\%$			
Independent factors	*B*	*p*	*β*
The age	0.26	0.0001***	0.19
The place of residence (a village) x Age	0.15		0.20
The place of residence (a town to 50 thousand inhabitants) x Age	0.11	0.0000***	0.15
The place of residence (a town from 51-200 thousand inhabitants) x Age	-0.13		-0.16
The place of residence (a city over thousand inhabitants) x Age	-0.12		-0.15

Source: own elaboration.

Coming back to our model, the age and the place of residence appear in interaction, so the interpretation of the model parameters (presented in the Tab. 1) requires detailed consideration.

Let's begin form the interpretation of the value regression factor with the age variable – its value means that a year older people have a higher level of prejudice to foreign products – in average of about 0.26 points. It will be more meaningful to compare the groups that differ 10 or 20 years – in the first case, the people form the group, where its members are 10 years older have a higher level of the CETSCALE – in average of about 2.6 points. However, in case of the difference of 20 years between the groups, the factor influence – age, it is in average about 5.2 points.

Besides, the influence of the age on the CETSCALE value is different depending on the place of residence. Generally, the ethnocentrism level is higher among the inhabitants of villages and small towns. Among the people living in the countryside, very person a year older has a higher level of the CETSCALE in average of 0.41 points. However, in the case of small towns the result is 0.37 points. Taking into consideration medium sized and big towns, the age influence on the CETSCALE value is a lot lower – the regression factor for the age variable is corrected in these groups as far as the effect of interaction is concerned and equals only about 0.13-0.14 points.

It results from the above consideration, that among the inhabitants of Slovakia (at different ages) crucial differences in the ethnocentrism level between the village and small towns residents and the people who live in medium sized towns or big cities.

The supplement of the description of the results achieved with the use of the regression model is the graphic presentation below (Fig. 1).

Figure 1. The influence of age and place of residence on the CETSCALE value – the linear regression graphic model
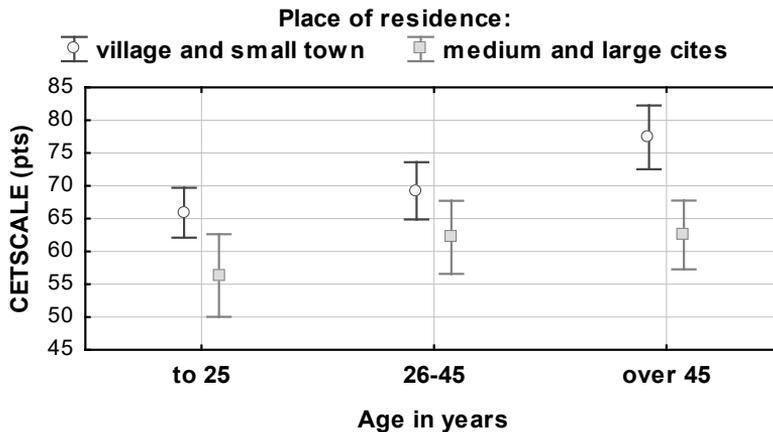
Source: own elaboration.

In order to obtain a better description of the interaction appearing in the regression model, the division of the respondents into two groups according to the place of residence and three equal groups at almost the same age, has been made. The average CETSCALE level in regard to the age and the place of residence of the respondents (with 95% division of trustfulness) has been presented on the drawing below. It is visible that the age influence is stronger in the group of people who live in small cities and villages. Moreover, the effect of the interaction of the age and place of residence is also the fact of a significant influence of the residence on the CETSCALE

value in the group of the respondents who are older than 45. The attitude of the inhabitants, who live in villages and small towns, in this group is of about 15 points more negative towards foreign products. They prefer domestic goods. The influence of the place of residence among the younger respondents is small.

It should also be stressed at this point that the introduced to the regression analysis variables: gender and education do not differentiate the consumer ethnocentrism level (these are not statistically crucial factors and that is why they have not been included in the further analyses). It results from the univariate analysis, which has already been done earlier, where the statistical cruciality assessment of the differences between the compared groups was done with the use of the univariate analysis of variance[1]. As it can be seen, the data included in the Table 2 show that there is not a statistically crucial difference in the CETSCALE value among women and men in the Kosice Region and Presov Region.

Table 2. Gender as the determinant of the CETSCALE value – the results of the ANOVA variance analysis

Gender	CETSCALE		
	$\overline{x}$	Me	S
a woman	68.1	67.0	19.2
a man	65.7	64.0	22.2
P_{ANOVA} (the p test factor of the ANOVA variance analysis)	0.02501		

Source: own elaboration based on the research.

Similar results were achieved by researching the influence of the respondents' education level on the CET scale values. The analyses results, placed in the Table 3, very clearly indicate that there are no crucial differences in the summary CETSCALE, in relation to two levels of education of the consumers from Slovakia.

Table 3. Education as a CETSCALE determinant – the results of the variance ANOVA analysis

Education	CETSCALE values		
	$\overline{x}$	Me	s
basic/average	67.5	66.0	20.4
higher	66.0	64.0	21.2
P_{ANOVA} (the p test factor of the ANOVA variance analysis)	0.5043		

Source: own elaboration based on the research.

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[1] The variance analysis (ANOVA) is a statistical technique, which serves to compare an average level of numerical feature in some populations. The null hypothesis is made in this test, according to which a considered numerical feature has the same average level in the all compared groups. On the basis of the test p probability value, determined with the use of the variance analysis test, this hypothesis can be rejected (when p is appropriately low), what *de facto* means the influence of the grouping factor on the level of numerical feature. Cf. Zeliaś, A. (2000). *Metody statystyczne*. Warszawa: PWE, pp. 112-157.

5. Conclusion

The presented empirical research results allow to draw some meaningful conclusions. It turns out that as well as gender and education do not differentiate the ethnocentric attitudes of the citizens in Slovakia. The results of the regression analyses show, however, that crucial differences, which concern the average CETSCALE values in relation to the age and place of residence of the consumers form the Kosice and Presov Regions. Meaningful interactions between the respondents' age, their place of residence and the summary CET scale value can also be observed. The elderly and people, who live in villages or small towns have stronger ethnocentric attitudes than younger respondents, who live in big cities.

It should be stressed that the results of the present research have crucial meaning for the market practice.

The dependencies established in the result of dependencies analyses (interactions), appearing among the features describing consumers and the CETSCALE values achieved by them, have crucial meaning in building marketing strategies of the companies. It mainly refers to the activities in the range of segmentation and the concept of creating and shaping product policy. The purchasers' ethnocentric attitudes are crucial limitation as far as trade and marketing are concerned and they should be included in realisation of the company' aims.

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Lebanese Women in Labor Market: An Assessment of Multiple Factors' Influences

Mony Trad

1. Introduction

The female workforce contribution rate differs significantly over the globe, regardless of some clustering inside districts. It is least in the Middle East and North Africa (26%) and in South Asia (35%) and most noteworthy in East Asia and Pacific (64%) and in Sub-Saharan Africa (61%). Different studies have demonstrated that on average,women not just have less time all through their lifetime for paid work (because of childbearing interferences or others) additionally begin with less specialized and professional preparing contrasted with guys by and large, and take part in exercises where wages are by and large lower (ADB, 2015).

The Arab Middle East as part of the Middle East and North Africa (MENA) region is a remarkable setting to study females' professions as the traditional and patriarchal socio-cultural connection in which they live and work has been found to have significant consequences on the development of their jobs (McElwee & Al-Riyami, 2003; Metle, 2002).

The pool of extremely skillful females signifies a potential basis of labour whose under- utilisation creates a serious unused chance for growth in the MENA distict. The potential purposes for females' low work power support rates are numerous, and may incorporate both lawful and social obstructions. Females are confronted with versatility limitations in numerous MENA economies (OECD, 2012).

2. Theoretical Background

2.1. Arab Women Economic Participation

The Arab Middle East area has been depicted as an exceedingly patriarchal socio-cultural connection supporting a customary division of work (Metcalfe, 2008) and inciting particular gender parts that influence females' profession decisions, forms, and conceptualizations of achievement (Afiouni & Karam, 2013).

In all Arab nations, the number and extent of females entering the work environment is rising year on year (in total and comparative terms); and as a rule females have the same admittance to public learning from primary to tertiary levels, and dominate men at all levels (UNDP, 2003, pp. 193-195).

In line with a local gender report in Middle East and North Africa (2007) women's segment of the entire workforce expanded by 19% in the area amid 1990 and 2004 contrasted with 3% worldwide (Neal, Finaly, & Tansey, 2005).

Stevenson (2011) created a thorough examination of the workforce involvement, independent work, ratio of females and males entrepreneurial action MENA economies. A brief outline of the outcomes includes the following:

1. Gender gaps in hiring and selection.
   The examination underlines the massively low rate of female formal workforce association in the MENA region. At 27%, this is the most diminished level of females' financial commitment around the world. Nonetheless, there are huge varieties over the MENA economies. As per authorized state statistical sources, more than 30% of females in Bahrain, Djibouti, Kuwait, and Qatar partake in the work force, compared to just 11.5% in Saudi Arabia and 9.9% in Yemen. Females' share of work in the private area is for the most part low, averaging just 20% contrasted with 28% in public sector.

2. High unemployment rates in spite of low work power support.
   Continuously, MENA women have been moving into the workforce (that is, their work power rates have been expanding). In spite of the fact that female work power contribution rates stay low, the public sector cannot incorporate the greater part of the females looking for paid occupation.

3. Gender gaps in self-employment.
   The larger part of independently employed MENA females are bunched in own-record independent work (without any representatives) or small enterprises. Merely one in ten independently employed females are managers, contrasted with one in four independently employed men and the bigger the endeavor, the less females proprietors are found.

Figure 1. Female and male workforce involvement crosswise MENA, ages 15-64
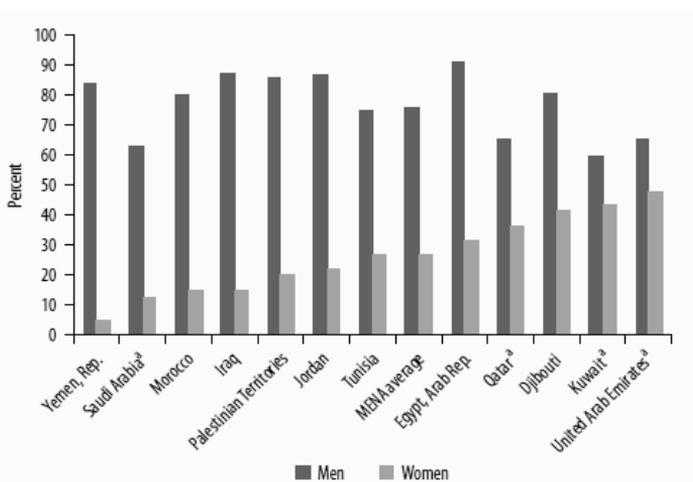
Source: (World Bank, 2013).

Figure 1 shows the percentage of men and women contribution to labor markets in Middle East and North African countries. It is clearly evident that the gender gap in employment is widespread in all the monitored countries. Although women participation in labor force is higher in some nations than the others; however, this does not mean that they are in a good situation and there is still a lot of work ahead of females before they really improve their situation and prove themselves as main economic players.

2.2. Environmental Elements' and its Impact on Arab Women Roles

In their investigation of females' conceptualizations of vocation achievement in the district, Afiouni and Karam (2013) have confirm how ideas of family are available inside females' meanings of profession and highlighted, in accordance with Metcalfe (2008) and Omair (2008) that work and family areas in this locale are reliant as choices in one circle and specifically identified with the other.

Numerous studies on females' working lives in the Arab district have concurred that the greatest hindrances for females' profession advancement include the patriarchal force relations and states of mind towards women. The elements that impact and shape the patriarchal states of mind towards women stem from interpretations of religious writings with respect to females' position in the general public and the socio-cultural set-up of the district (Elamin & Omair, 2010).

The difficulties that various females face in the Middle East resemble other women in different parts of the world. However, there are opportunities and objectives for females credited to gender inside their general public. Both males and females assume that Islam portrays gender orientation and family parts and commitments and these are viewed as vital. (Badran, 2005; UNIFEM, 2004).

3. Materials and Methods

The purpose of this paper is an analysis of the various factors that influence Lebanese women position in the labor market and participation in workforce. Several elements of the Lebanese society are considered as impacting women's economic contribution and advancement in terms of employment as well as entrepreneurship. These include social, cultural, economic, religious, political, as well as laws and rights issues. It is based on a literature review of different studies and research conducted in the field of gender and women economic involvement in the Arab region and particularly Lebanon. The effect of this paper is that it shed the light on an area that is still under considerable research, knowing that women's role as a part of gender issues in Lebanon, has been considered critical in the last few years.

Lebanon is an Arab nation with perceived patriarchal structures (Jamali et al., 2005; Karam & Afiouni, 2014). Lebanon is ruled by privately-run companies generally headed by men (Sidani et al., 2009). Political and financial conditions have incited loads of individuals, generally men, to move for better income opportunities. This has expanded work of females; however, despite everything they have a low work power support rate (23 percent; 71 percent for men) and their assessed earned wage is only 25 percent of men's (Hausmann et al., 2012).

4. Results and Discussion

4.1. Factors Influencing Lebanese Women

1. Cultural

In line with Afiouni (2014), the Arab Middle East locale has been portrayed as an exceedingly patriarchal socio-cultural setting supporting a routine division of work and affecting specific gender parts that impact females' choices, status, and conceptualizations of accomplishment.

Jamali, Sidani and Saffiedine (2005) insist that while a few studies have implied a good state of mind towards the work of females in Lebanon, cultural variables keep on assuming a noteworthy remarkable part in shaping women work encounters and situations.

Tlaiss and Kauser (2010) notice that Lebanon is one of the uncommon Middle Eastern countries that obliges strong profound and social traditions notwithstanding cutting edge norms. Depicted as the most westernized Arab country to the degree of the measure of chance and autonomy that females recognize, Lebanon is seen as joining the affiliations of the Western world and the Middle East.

2. Religious

Religiosity as a behavioral idea has been once in a while concentrated on among Christian and Muslim groups in the Arab world. It is recognized that groups with various religious backgrounds display distinctive practices. Besides, differential socialization among gatherings recommends that females in the Arab world are acculturated into an arrangement of patriarchy that renders them passive, inactive, and compliant to male control (Abouchedid & Nasser, 2000).

Lebanon is a little nation in the Mediterranean where more than 20 Christian and Muslim religious factions coincide in peace, however can at times face each other in common wars and clashes. Religion and religiosity are critical parts of Lebanese society (Chaaya et al., 2007) and the nation is organized along religious lines (Jawad, 2002). Lebanon is interesting among Arab nations in that it has a sizeable Christian populace.

Generally, Lebanese Christians have been responsive to Western social customs (Khashan, 1992) and their schools have assumed a huge part in spreading Western contemplations and advancement, on the way towards fairness among males and females. Lebanese Muslims, then again, share some of their religious convictions and conventions with those of their fellows in neighboring Arab states; such convictions have been either steady or unsupportive of gender equality relying upon the behavioral structure of that society.

3. Social

Lebanon is among the few Arab nations that have permitted females to progressively undertake tasks outside the conventional mother-home roles (Jamali et al., 2005). In the Lebanese society, like some other societies in the area, females are anticipated to act more according to moral deliberations and they are held accountable to a higher standard. Females, from early age, are raised to follow strict societal standards and qualities that men are not anticipated to stick to, at least not to the same degree (Sidani, 2005).

In a study conducted by Tlaiss and Kauser (2011) about "the impact of gender, family, and work on the career advancement of Lebanese women managers" it is said that dissimilar to females in various countries in the region, for instance, the Gulf states, Lebanese women are implied as modern; they are free not to wear the veil, are allowed to speak with men (Neal et al., 2005), furthermore, have lead the course for the rest of the females in terms of seeking tasks and

obligations outside habitually assigned roles (Sidani, 2002). The authors argue that as in numerous Western nations, Lebanese females don't see a tradeoff between family obligations and an effective profession. However, the proof unmistakably indicates that social class is a key determinant of females' prospects for profession advancement in Lebanon.

4. Laws and Rights

The circumstance of female entrepreneurs in Lebanon is generally greater than in different nations in the Middle East and North Africa locale. Lebanese females don't experience the negative effects of any formal or legitimate discrimination in setting up organizations, getting formal credits from banks, or owning property and assets (UN Development Programme – UNDP, 2008, p. 31).

Nevertheless, the lack of legitimate discrimination against female entrepreneurs in Lebanon does not transform into an encouraging atmosphere for setting up businesses. This is since the laws are gender-neutral implying that they don't help females to conquer the informal discrimination that females face in the public and the economy (Hamda, 2005).

According to Mansour and Abou Ad (2012), the civil society in Lebanon has been working towards allowing females equivalent citizenship rights and numerous NGOs have been campaigning to change the nationality law through a few objections and movements.

5. Political

Based on a study by Walton (2014), religious resurgence inside the Middle and Near East have diverged from the majority rules systems and protected governments with religious personalities. Regarding Lebanon, besides religious government, Lebanese females need to conquer the country's official "confession booth" political framework, (Dedeyan, 2005). In this framework, public offices are selected as per religious groups.

In line with CRI/UNDP (2006) report on Lebanon, in the post-war period and with the reestablishment of legitimate framework and just process, different females' associations and also universal supporters have concentrated on women's respectful and political investment in decision making. Much attention has been put on expanding females' involvement in the political procedure through bringing issues to light on equitable cooperation and campaigning for women's entrance to municipal and parliamentary seats and choice making positions.

DeJong and Meyerson-Knox (2011) notice in their paper that in Lebanon, as the World Bank centers out, "a country that is for the most part best in the area in gender introduction matters, females' political contribution and representation at the national level is low".

6. Economic

In spite of the fact that females in Lebanon are progressively perceived as developed associates in the family economy, basic leadership positions in Lebanon keep on being dominated by men. As per the gender measurements discharged by the Economic and Social Commission for Western Asia (ESCWA), the total number of females' entrepreneurs in Lebanon is altogether low, with women managers constituting just 1.5 percent of the female workforce in Lebanon (Eid, 2002).

According to Tailfer (2012), there are no legitimate confinements that restrict females to set up their own organizations and participate in revenue-making activities. Females head around 18% of all organizations in Lebanon. The quantity of organizations possessed by females is growing. Females in the least pay group regularly runs small scale organizations. Females hold around 8% of small and medium size companies. Nevertheless, lately, they are found in expanding numbers in fields that were solely kept for men like designing and industry.

5. Conclusion

Despite the fact that approaches toward females are gradually moving toward moderate radicalism in most of the Arab world as far as giving women more flexibility and permitting them to undertake roles in the public arena and the economy (Bank and Vinnicombe, 1995), Arab social orders are hesitant to abandon their conviction that females are most suited to the home environment (El-Ghannam, 2002).

The low rates of female work force cooperation in Middle East and North Africa nations somewhat reveal females' inclinations and the requests of family life, however they additionally mirror the absence of chances for the individuals who need to work. As well as making jobs and propelling females' legitimate rights, policymakers need to urge more females to work and enhance their employability. For females to contribute more abundantly in the formal work market, governments need to help them adjust their family obligations furthermore make the work environment a more secure environment. In the meantime, to be good applicants for occupations, females need to gain abilities that are applicable to the private sector (World Bank, 2013).

In Lebanon, women are known for their continuous struggle to improve their situation and prove the importance of the role they can play in social, economic, and political sectors. They understand the significance of education as a major indicator in reaching better positions. Lebanese women have the will, desire, ambition and capabilities to improve and develop themselves; however, this cannot be achieved only by personal efforts and it needs the support of family, society and government.

The most important actions include:
* understanding the importance and necessity of women as one of the main economic players whose skills and contribution create an added-value to the market,
* receiving sufficient moral support from society and mainly family and husbands which is basic and essential for females,
* implementing the laws and agreements regarding gender equality in the right manner and protecting women from any of kind of discrimination in recruitment and in the working environment,
* providing governmental support and equal opportunities in public sector and decision making positions,
* facilitating the process of receiving the same amount of financial assistance for women to launch new businesses.

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PART II

CHALLENGES AND PROSPECTS
OF THE CONTEMPORARY ECONOMY

Chapter **7**

Restructuring in the Context of Macro – and Microeconomic Changes and Corporate Competitiveness and Value [1]

Jarosław Kaczmarek

1. Introduction

The various approaches presented in economic literatures indicate that restructuring can relate to an economy's structure (a systemic transformation or the reconstruction of economic structures, particular economic sectors or regions) as well as to companies and the specific areas of their functioning.

The analyses of the concept of restructuring give special attention to the process of reconstructing or redesigning structures (Karpiński, 1986, p. 20). It is equivalent to structural changes in society's material base which lead to a greater role played by all the structural elements representing modernity and greater effectiveness than the currently adopted solutions. According to H. Chołaj (1998, p. 446), a transformation process comprises the reconstruction of an economy's structure and, therefore, restructuring should be treated as part of a transformation process. A similar view is held by D. Hübner (1992, p. 153), who treats restructuring as one of the levels of transformation.

A narrower understanding of restructuring is advocated by H. Jagoda and J. Lichtarski (1994, p. 158), who regard reorganization as an equivalent of restructuring, stressing the complexity of this concept as the one which comprises all structural changes in a company. Z. Sapijaszka (1996a, p. 30) identifies restructuring with breakthrough changes in at least one of the areas of corporate activities: operations, capital, and the structure of internal organization, which aim to recover an organization's equilibrium. C. Suszyński (1999, p. 67) stresses the complexity of restructuring, and defines this process as a company's fundamental changes caused by the business environment and its own needs. I. Durlik (1998, p. 47) views restructuring as a systemic reconstruction and modernization, or adaptation to the current level of technology and the development of a given entity's organizational and managerial advancement. The process is complex, multi-dimensional and long-lasting.

Foreign authors also analyse restructuring from a company's perspective regarding it as a breakthrough change in its assets and its capital, ownership and organizational structure (Singh, 1993, p. 27).

2. Relationships between macro- and micro-economic restructuring

Various approaches to the scope and determinants of restructuring are reflected in the criteria of classifications presented in literatures.

Restructuring as an economic process has its macro and micro dimensions. Macro restructuring is referred to as systemic or institutional – it refers to the material and systemic changes in the structure of the national economy, its sectors or regions, introduced in an intentional way (Fisher & Gelb, 1991). Micro restructuring comprises changes in a company's broadly understood organization (including legal, material, financial and organizational matters), which lead to, but not necessarily, qualitative changes in a company's activities (Moszkowicz, 2000, p. 369). B. Pełka (1992, p. 26) describes relationships between the two types of restructuring.

Figure 1. Relationships between macro and micro restructuring
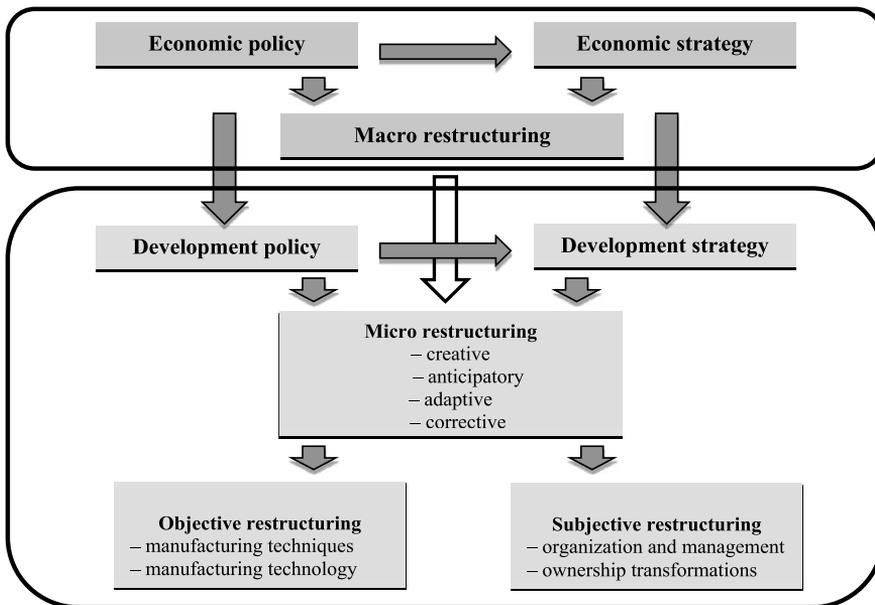
Source: own study based on (Pełka, 1992, p. 26).

Micro restructuring can be further subdivided into an objective and subjective process. The former one comprises structural changes in an entity's core activity aimed to increase effectiveness. The latter process refers to changes in ownership, legal or organizational structures. Therefore, objective restructuring involves, to a larger degree, the state's activities, being an integral part of systemic transformations.

Micro restructuring also comprises corrective and development processes. Each process is characterised by its distinctive features, which constitute the subject of numerous analyses, and it may occur as an independent phenomenon or jointly with the other process.

H. Jagoda and J. Lichtarski (1994, pp. 158-159) divide micro restructuring from the perspective of a company's life cycles into creative, anticipatory, adaptive and improvement processes. Creative restructuring – unlike anticipatory restructuring – is carried out independently of predicted changes in the environment. However, both processes aim to take predictive measures in anticipation of predicted changes. On the other hand, adaptive and improvement restructuring processes respond to the discovered changes in the environment. They take the form of adaptive or stabilizing measures (improvement restructuring) aimed to ensure a company's efficiency and ability to perform long-term operations. The first three types represent a development (offensive) restructuring process, while improvement restructuring is an adaptive process.

Literatures define other types of restructuring: traditional, breakthrough, subjective, spatial, organizational and ownership, operational and financial processes, indicating their complexity and multi-dimensional character.

3. The objectives of companies' restructuring

J. F. Weston and T. E. Copeland (1992, p. 1083) identified and carried out an in-depth analysis of the universal reasons for restructuring, attributing them to changes in a company's internal and external environment. Generally, restructuring processes are driven by crisis situations in a company's structures. They aim to increase the rationality and effectiveness of managing production resources and factors, and to increase a business entity's or an organization's modernity, flexibility, innovativeness and adaptability (Borowiecki, 1995, pp. 19-20). These changes vary in terms of their intensity, scope, directions and consequences, determining their gradual, radical, adaptive or innovative character (Nalepka, 1998, pp. 17-20).

Advanced market economies view the objectives of restructuring from the perspective of a company's competitiveness and increased effectiveness. In Poland, in the context of the on-going systemic transformation, restructuring is identified with ownership changes (privatisation), as well as organizational and financial changes aimed to adapt companies to the new conditions of self–financing and competition.

Because of its objectives and scope, restructuring is a significant component of development, which is reflected in the processes which describe restructuring changes: introducing new corporate systems, improving the quality of existing systems, and structural changes in systems (Pierścionek, 1996, p. 168).

S. Chomątowski (1996, pp. 174-177) regards restructuring as a process which affects a company's structural changes and volumes. Changes to the hitherto development conditions and factors may disturb a company's internal and external equilibrium (changing its current development path), necessitating adaptation to new conditions and development factors. Changes are introduced under a specific development strategy which comprises restructuring processes. The other components of the process include a development strategy through integration and a company's natural growth (Gabrusewicz, 1996, p. 179).

A restructuring process as a company's development strategy is designed to achieve two basic objectives (Sapijaszka, 1996b, pp. 209-217):
1. closing gaps between development trends in the environment and the company,
2. enabling the company to keep pace with changes in the environment (or to stay ahead of changes), introducing possible corrective measures through adaptive changes.

In connection with the above, key restructuring tasks include the following (Porter, 1985, pp. 50-62; Slatter, 1984, p. 89):
* creating foundations for the competitiveness of a company and its products,
* ensuring long-asting improvements in company performance,
* increasing a company's market value by acquiring potential investors interested in its expansion.

The above key tasks only present an outline of the various and multi-dimensional expectations and specific operations necessitated by a restructuring process.

4. The areas and effects of restructuring

The basic areas of a company's restructuring processes comprise issues related to organization and legal matters, company assets, finance, human resources and production. A number of activities and measures are defined which relate to the specific objectives of various restructuring processes. The significant measures refer to improvement programmes: the principles of functioning, organizational structures and systems, and structural improvements.

J. F. Griffin (1997, pp. 394-396) points out that contemporary corporate strategies tend to depart from the concept of the continuity of operations in favour of new expansion policies and processes that represent an overall reorientation of business strategies. This trend has a major impact on corporate restructuring processes, affecting the ways in which they are introduced as well as the choice of preferred organizational models. According to R. A. Webber (1996, pp. 498-506), the adopted structural or improvement changes mainly refer to organizational structures, the range of activities, the flow of information, manufacturing technologies, and management procedures and policies. This process is preceded by an in–depth analysis of the currently applied structural solutions and new possible solutions (Glinka & Hensel, 1999, pp. 75-76). The most commonly applied solutions aimed to improve organizational structures include reengineering, outsourcing, lean management, and spin off.

The effects of restructuring processes are not immediate – they are spread over time. They can be quantitative or qualitative, partial or general, material and financial. In this context, outlays (primary in character) are separated from the effects which are secondary in relation to restructuring activities. Moreover, the effects of restructuring are not always positive. They are dependent on the type of restructuring and, more precisely, on the scope and comprehensive character of changes. The success of restructuring processes and the achievement of the expected goals are conditioned by adherence to specific principles, meeting certain requirements and the use of necessary techniques and procedures. An equally significant role is played by the adaptation of restructuring tools to the specific conditions and areas of change. M. C. Christensen, M. Marx and H. H. Stevenson (2007, pp. 108-118) propose four categories of tools in the areas of authority, leadership, culture and management, which should support the process of changes from the perspective of expected effects, and which give attention to their cause – effect relationships.

Figure 2. The main areas of change and their scope, companies' restructuring activities and measures
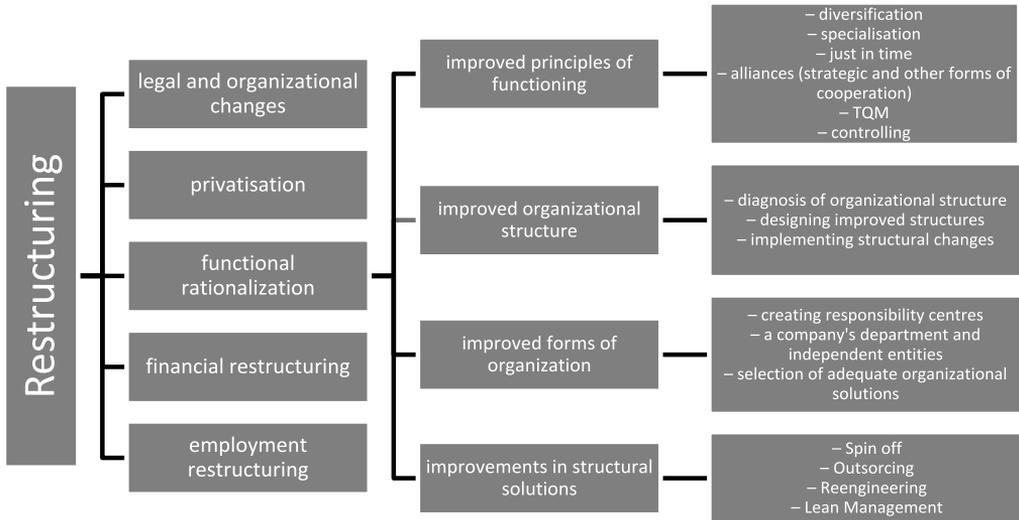
Source: own study based on (Nalepka, 1998, pp. 45-48; Sapijaszka, 1996a, p. 8; Suszyński 2003, p. 171).

5. A company's value – the assessment of and reason for restructuring

J. Bicksler and A. H. Chen propose definitions which regard restructuring as a strategy for increasing the value of an economy and its business sector (Hurry, 1993, pp. 69-54). T. Copeland, T. Koller and J. Murrin (2007, pp. 108-118) state that restructuring is a process which makes use of all possible internal and external methods for increasing corporate value. According to A. Nalepka, restructuring indicates strategic changes in a company's organization, personnel, finance and technologies aimed to make the most effective use of available resources in a given business environment. They are designed to adapt company operations to a competitive market, and to increase a company's effectiveness and value (Nalepka, 2000, p. 407).

This approach is reflected in the evolution and transformations of capital markets, including the increasing role of shareholders in management processes and the necessity of seeking a universal criterion for assessing the effectiveness of a company's performance. These transformations have led to defining a company's major objective in a free market economy – maximising its long-term value (Rappaport, 1986, p. 77).

A number of analysts believe that a company's low value is a driver of restructuring activities. Contemporary strategies for increasing effectiveness practically enforce business entities to focus on value creation objectives (Nogalski & Rybicki, 1999, p. 23). These authors believe that value creation is a continuous process which requires modernization and improvement as well as an analysis of the factors which affect value.

It should be noted that the effective implementation of restructuring measures aimed to increase corporate value requires identification of the areas of change. It also requires the measurement and assessment of the effect of restructuring – an increase in corporate value. T. Copeland, T. Koller and J. Murrin (1997, pp. 34-52) propose the so called restructuring pentagon framework focused on increasing corporate value. It is an example of a model approach to the effects and indicators of value creation as a criterion for assessing restructuring processes. The stages identified within this framework allow for monitoring the partial and final effects of restructuring from the perspective of changes to corporate value.

6. Restructuring vs. a company's competitiveness

The particular effects of restructuring – reflected in increased profitability, productivity and value, changes to capital structure, or the strengthening of a market position – are the factors that create a company's actual value. An effective restructuring process focused on increased corporate value requires identification of the areas of change for the purpose of restructuring. One of the methods for assessing restructuring processes is based on an analysis of a company's competitiveness. This assessment is carried out from the perspective of a company's survival and expansion because competitiveness describes a company's ability to create development opportunities (including an increase in productivity, efficiency, profitability, etc.) in a competitive environment (Adamkiewicz, 2000, pp. 13-14). Changes in a company and the recovery of internal and external equilibrium as a result of restructuring can lead to increased corporate value and competitiveness. Therefore, a company's restructuring and competitiveness are closely correlated.

Most definitions of restructuring give consideration to the need for retaining or increasing a company's competitiveness as one of the major goals of the process (it also refers to an increase in corporate value). It is not surprising in the context of a strong impact of the environment on a company's functioning and its ability to survive in the market. R. Szulc (1993, pp. 210-235) states that restructuring results from the anonymous market factors which affect the sphere of regulation as well as real economy. In this context, restructuring refers to a company's internal as well as external relations, and it aims to adapt its activities to new systemic and real conditions. C. Suszyński (2003, pp. 22, 47) refers to the correlation between restructuring and a company's adaptation to the changing environment.

A. Kamela-Sowińska and A. Mirecki (1995, p. 19) view restructuring as a process aimed to increase the effectiveness of business operations to ensure a company's market competitiveness. Other authors give attention to the significance of retaining and increasing a company's competitive position as a result of restructuring activities aimed to increase effectiveness, modernise company resources or redefine its objectives. Finally, D. Kowalczuk-Jakubowska and A. Malewicz (1992, p. 12) state that restructuring is based on diversified activities, and its objective is to achieve a better strategic market position and, consequently, better business results.

7. Conclusion

Breakthrough transformations in the economies of various countries (including social changes) reflect the creation of so called information–based society. Consequently, the need arises to identify a company's new strategic resource – knowledge and creativity. M. Bratnicki (1999, p. 23) argues that knowledge is a more significant source of a company's competitive advantage than capital, which is relatively more accessible. The gaining of knowledge aimed to increase a company's effectiveness and competitiveness is enforced by contemporary business conditions. It results in the creation of learning and knowledge-based organizations (Przybyła, 1999, pp. 263-266). A learning organization is an intelligent entity which meets contemporary market challenges: it has the ability to survive in the market and to be creative and competitive (Wielicki, 1999, p. 33). Such an organization is characterised by the ability to interpret internal and external events in the context of problem solving, and it tests various ideas, learns from its own and other entities' experience, and, finally, it implements effectiveness-oriented methods of business operations. It necessitates implementing new and more effective solutions, which relates to changes in a company and, undoubtedly, constitutes one of the stages of restructuring processes.

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Chapter **8**

The Study of the Environment Business Levels of Interaction

Liudmila V. Oveshnikova, Irina B. Burakova

1. Introduction

The transition of Russian economy to a new qualitative state predetermines the state importance in creation of the institutional environment. It demands the fundamental changes in structure of public and state institutes. The separate small and medium-sized companies can't form the institutional environment and influence it. More specifically, they have a key role only in creation and change of informal institutes which are formed as a result of long cooperation between agents. But large firms, and also businessmen associations (the combinations, associations, and guilds) are the market system agents which have a key role and primary initiative in formal rules formation (*Economic Subjects of Post-Soviet Russia*, 2015).

It is obvious that institutes are non-uniform. They can be broken into two big groups – informal and formal. The informal institutes come out from the information which is transferred by means of social mechanisms, and generally they are the part of heritage which is called as a culture. Informal rules had a fundamental importance during this period of human history when human relations weren't subject to formal (written) laws. Informal institutes (restrictions) penetrate through all modern economy. As means of coordination of sustainably repeating forms of human interaction the informal restrictions are: the continuation, development and modification of formal rules; socially authorized standards of behavior; internal, obligatory standards of behavior (Nort, 1997). The field is the public, material and spiritual conditions which surround the person and influence on his existence and activity (Kozyrev, 2004).

2. Institutional and organizational environment of business

In terms of this research the greatest interest is caused by the institutional and organizational environment. According to scientists (Besse, 2010; Metelev, 2006; Moscow, 2009; Oleynik, 2004; Tarushkin, 2004; Yasin, 2010; Sibirskaya et al., 2014) it represents a certain form of the relations organization, a complex of formal and informal forms of behavior of economic processes

participants, and also ways of fixing of these interactions and control over their execution. The theoretical importance of the research of the institutional and organizational environment consists in hypothesis that this environment is basic and determinant of the social development (Dementyev & Nureev, 2011). The institutional and organizational environment defines the economic activity of the enterprises and organizations, behavior of households and public institutions (Volchik, 2011). The existing social, economic and political conditions and the previous period of society development (its history, traditions, psychology and distinctive of public conscience) impact on the formation of the institutional and organizational environment (Zemtsova, 2012). The institutional and organizational environment defines the main direction of the system development, and also those guidelines which allow to form and to select the most effective economic and social institutes (Balsevich, 2009).

The property relations are the strategic basis of the institutional environment. The variety of ownership patterns determines the existence and development of such categories as business, the market, the competition, an economic and political liberty, the state regulation. In specific historical conditions the property relations and a form of its realization work on the structure and nature of economic interests. They are a driving force of development (Lebedeva, 2015).

The institutional set-up is the contract relations or the management structure which combines accounting units and define a way of their cooperation and competition (Dementiev & Nureev, 2011).

The main characteristics of the institutional environment of society in general and its separate subsystems are a density and a hierarchical structure of the institutional environment. The subjective individuals feeling of sufficient extent of relations regulation in that sphere where they carry out the activity can be an indicator of density. The hierarchical order of institutes' cooperation is defined by the fact that some of them are more significant and large, others represent their components which concretize the separate parties of large institutes (Oleynik, 2004).

The institutional environment, its "face" and "orientation" are closely connected with the state orders accepted in the country, the strategic goals of social and economic sphere development, priorities of the state economic and social policy. The structurization of any environment can be realized on spatial or functional features. On the basis of the aforesaid it is possible to formulate requirements to the ideal institutional environment of the modern organizations:

- an orientation on the achievement of desirable results according to the dominating public ideology presented by informal (valuable) institutes of macro level,
- an existence of density which provides the sufficient force of the regulating impact on the economic relations, thus the low density at top levels of the environment has to be compensated by institutes of micro level for ensuring the effective work of the organizations,
- the information availability to transaction participants which is provided at all institutional levels,
- the sufficient simplicity for understanding by the most of members of society providing the uniqueness of rules and norms understanding and serving as a guarantee from washing out of formal institutes,
- an adaptability of institutional environments of lower level to changes of higher level institutional environments.

In the research Yakovlev (2007) points at the impossibility of small business effective existence in economic space without its inclusion in the general structure of macro economy. Doroshenko (2013) concludes that:

- the various forms content of production, marketing, scientific and technical and other cooperation of large and small economic structures corresponds to the criteria of essence of small business support,
- basically the big business is an element of small business environment as it plays the leading role in market system and has a high potential of small enterprises support.

He characteristic of the institutional and organizational environment of small innovative and big business cooperation is presented in Table 1.

Table 1. The characteristic of the institutional and organizational environment of small innovative and big business cooperation

Characteristics of the institutional conditions	Small innovative business	Forms	Big business
Budgetary and administrative restrictions (the restriction of the state intervention in the economic activity of business subjects; the termination of excess state regulation; the management introduction on the basis of the results and project management; the regulation and standardization of the state and municipal services (functions)).	Rather soft, the considerable business part in "shadow". A factor of "obscurity" for authorities that defines the relative acceptability of administrative barriers level. The tax conditions are very unstable. It limits "the planning horizon"	Subcontracting Leasing Franchising Outsourcing Unwelcome takeover Hostile takeover Venture capital financing Establishing of regional cooperation forms	Very non-uniform, "contractual" conditions of the taxation. It faces essential administrative barriers, but thus it has a resource for their negotiation
Legal regulation and judicial defense allows to harmonize the professional relations	Considerably it is out of a regulation zone. The demand for legal institutes is the smallest	Subcontracting Leasing Franchising Outsourcing Unwelcome takeover Hostile takeover Venture capital financing Establishing of regional cooperation forms	The regulation is personified especially at the regional level. Demand for legal mechanisms of settlement of disputes is formed and increased, there is a need for definition of "game rules"
The public-private partnership is the strategic resource of a sustainable economy development and growth of its competitiveness	At the federal level traditionally the small business development is one of the priority directions. But in practice it doesn't mean creating favorable conditions. At the regional level there are not effective instruments of small firms interests representation	Subcontracting Leasing Franchising Outsourcing Unwelcome takeover Hostile takeover Venture capital financing Establishing of regional cooperation forms	The set of informal arrangements with the power. The strong influence on the regional power. The existence of essential restrictions on increase of efficiency in view of formal and informal social obligations

The orientation on achievement of desirable results according to the dominating public ideology which is presented by informal (valuable) institutes of macro level	Formulating the activity purposes, the small business subjects determine the future scale of the enterprises.	Subcontracting Leasing Franchising Outsourcing Unwelcome takeover Hostile takeover Venture capital financing Establishing of regional cooperation forms	The goal formation and goal-setting represent an integral part of business activity of big business. Defining the purposes of business activity we model the results of development activity and criteria
The intension which provide the sufficient force of the regulating impact on the economic relations has to be compensated by micro level institutes	The elimination of small enterprises disadvantage in the market by force of their insufficient financial stability, and also the special purpose funding of separate highly effective programs and projects allowing to open the internal capacity of small enterprises, to provide their progressive advance and increase of the competitiveness	Subcontracting Leasing Franchising Outsourcing Unwelcome takeover Hostile takeover Venture capital financing Establishing of regional cooperation forms	The mechanisms, the procedures and techniques system which are intended for establishment and benefits measurement, expenses and consequences of the taken or existing measures of the regulating influence
The information availability to participants of transaction which is provided at all institutional levels	The territorial and technological availability of basic types of information services for business subjects, and also the credits, guarantees, subsidies, grants and other types of the financial services which are capable to do a positive effect in small business development	Subcontracting Leasing Franchising Outsourcing Establishing of regional cooperation forms of big enterprises and small innovative enterprises	The transparence or the information availability; the publicity which assumes ensuring the participation of interested parties in the made decisions development; the equation or ensuring the balance of all interested parties interests; the efficiency or providing the optimum choice of the regulation option from the point of view of benefits and expenses of economic entities.

The sufficient simplicity for understanding by the members of society which provides the uniqueness of rules and norms understanding and serves as a guarantee from washing out of formal institutes	The formation in the society of the favorable social and psychological environment for the business development; the business ideology which promotes the growth of an enterprise initiative, the increase of the number of citizens who would like to be in business (the growth of potential businessmen number), the uniqueness of rules and norms understanding	Subcontracting Leasing Franchising Outsourcing	The reference points series which express their contents and are fixed by the procedure at each structural level
The adaptability of lower level institutional environments to the changes of higher level institutional environments	The instrument of the big business enterprises diversification, the modernization of the consumer markets	Subcontracting Leasing Franchising Outsourcing Unwelcome takeover Hostile takeover Venture capital financing Establishing of regional cooperation forms	The interconnected components complex which promotes the adaptation and transformation of the institutional environment by transformation institutes by means of transaction expenses decrease of cooperation and the competition

Source: own elaboration.

3. Conclusion

The characteristic of the institutional and organizational environment of small innovative and big business cooperation will allow:
- to create the system of the business promotion directed on businessman positive image making and expansion of the small and big business subjects circle,
- to create the organization of information support in the sphere of small innovative and big business,
- to create the staff training system for small innovative and big business,
- to develop and increase the efficiency of the business activity support centers (the organizations of infrastructure),
- to develop the system of financial and credit support of small innovative and big business,
- to form, support and analyze the normative legal base for ensuring the sustainable activity of small innovative and big business.

Thus, the cooperation of big and small business acts as the effective instrument of economy development on the basis of the balanced development of the interactive subjects. It is connected with the increase processes of a role of the scientific and technical achievements, the reduction of transaction expenses, the enhancement of specialization level in the conditions of the competitive

environment which are characteristic for innovative economy. The various forms of big and small enterprises cooperation gained momentum in modern Russia, but their scale and efficiency are in arrears of the level of economy modernization problems.

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Chapter 9

Performance Management in E-Supply Chains[1]

Zora Arsovski, Dragana Rejman Petrović, Milan Stamenković

1. Introduction

Performance management in supply chains represents a challenge for organizations wishing to achieve competitive advantage. Incoherence of strategy and measurement systems, primary focus on financial indicators, excessive use of isolated and incompatible measures and insufficient level of integration in supply chains can be identified as typical problems when it comes to measurement of performances in supply chains. Since member organizations of a complex chain have different organizational cultures, rules, routines, as well as other aspects, they predominantly have and implement their own performance measurement system. For these reasons, it is necessary to develop a performance measurement system that will include a single common model of performance measurement, harmonized methods of measurement and integrated metrics among all organizations in the supply chain.

In this paper, we present a model developed in order to create an efficient performance measurement system through a set of qualitative and quantitative measures used for the assessment of key aspects of a supply chain level, referring to the complete fulfillment of customer orders in terms of quality, on time delivery and agreed price. This model allows multiple criteria optimization of key performance indicators (KPI), and therefore provides the management of supply chain member organizations and the owner of the supply chain a decision support system that will contribute to the improvement of performances of an e-supply chain. The objective of this paper is to determine the extent to which various aspects of management performance in e-supply chain affect the efficiency and quality of e-supply chain as a whole.

2. Background

Every manufacturer can produce several tens or hundreds of products and have different buyers and suppliers for each of them, thus forming multiple supply chains. Consequently, most

supply chains represent a network (Wu & O'Grady, 2005; Chopra & Meindl, 2010; Lysons & Farrington, 2006) that is dynamic and complex to manage (Mena, Humphries, & Choi, 2013; Kim et al., 2011; Bastl, Johnson & Choi, 2013).

The structure of the supply chain network comprises member organizations and relations among them (Appelqvist, Lehtonen & Kakkonen, 2004). In-depth knowledge about the structure of a supply chain can improve its performance. All supply chain members, both upstream and downstream, influence the supply chain performance (in terms of quality, delivery, price, flexibility). The need to identify the adequate type of supply chain performance measures is vital, as they will influence decision making. Several studies emphasize the need for the appropriate type of performance measures in supply chains (Gimenez & Tachizawa, 2012; Bai & Sarkis, 2012; Genovese, Lenny Koh, Kumar & Tripathi, 2013; Koh & Demirbag et al., 2007; Cabral, Grilo & Cruz-Machado, 2012; Saad & Patel, 2006; Vereecke & Muylle, 2006; Shepard & Günter, 2005; Gunasekaran & Patel et al., 2004; Chan & Qi et al., 2003; Aitken & Childerhouse et al., 2003; Morgan, 2004; Petroni & Panciroli, 2002). These studies have attempted to describe different performance measures used by various organizations.

However, most researchers focus on a single organization within a supply chain, which implies that research results do not directly pertain to supply chain performance (Koh & Demirbag et al., 2007). These studies stress the need to measure the efficiency of the integrated supply chain. They analyze the price, cost reduction, delivery reliability and speed, quality, flexibility etc. as priorities which provide competitive advantage.

As there are different supply chains with various characteristics, they all demand individual attention when it comes to optimal supply chain performance (Saad & Patel, 2006; Mason & Cole, 2002; Christopher & Towill, 2000). In other words, any given supply chain performance measures will have different priority depending on the supply chain type. Thus established link between the type of priority performance measures and the type of the supply chain was the basis for the development of e-supply chain performance improvement, assessment and ranking model.

3. Phases in the development of e-supply chain performance improvement, assessment and ranking model

The model developed for improvement of performance measurement system, assessment and ranking of e-supply chains is based on e-business model, business processes of purchasing, selling and logistics in supply chains and common metrics, different relative importance of selected key performance indicators for different supply chains, which implied development of management information system through application of information system development life cycle (planning, analysis, design, implementation and IS support) and implementation of analytic hierarchy process (AHP) as a method of multiple criteria (multiple attribute) decision making.

There were several preconditions for the development of the model for performance improvement of business processes in e-supply chains: design of an efficient e-supply chain network, identification of e-supply chain types, definition of key processes in e-supply chains and visualization of business processes (Fig. 1a and 1b).

Figure 1a. Phases in the development of the model for supply chain performance measurement, ranking and simulation
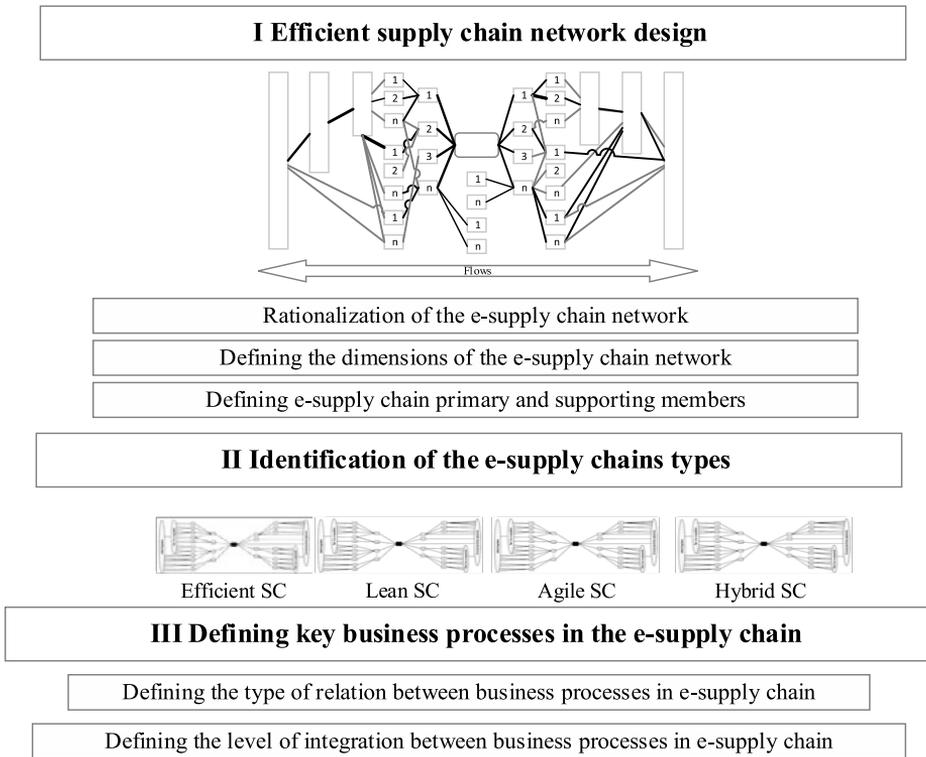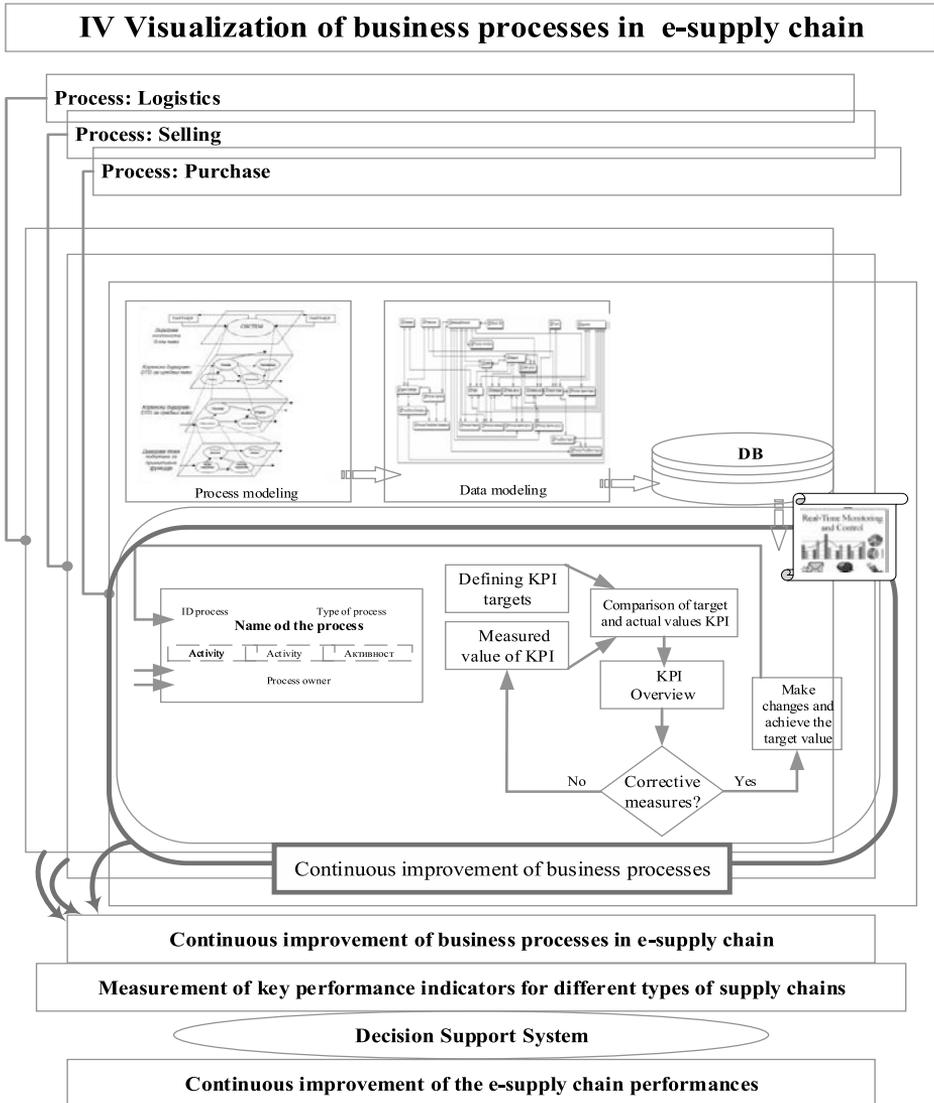

Source: own elaboration.

Design of e-supply chain network required prior identification of all e-organizations belonging to the e-supply chain, together with the flow of information, products and money between these organizations. Rationalization within the observed e-supply chain network in automotive industry implied a selection of a number of suppliers and identification of the most suitable supplier among them. The suppliers were sorted into several different levels, where original equipment manufacturer (OEM) was level one.

The next phase in model development was supply chain type identification, where we established whether a supply chain belongs to a certain type. The observed supply chains were classified into four types as follows: the efficient, lean, agile and hybrid. This was important for the penultimate model development phase where we measured total performance of a supply chain depending on the priorities that KPI have for the given supply chain type.

The design of an efficient network of the observed supply chains of different types was followed by the definition of key processes in e-supply chains. The developed model comprised purchasing, selling and logistics processes. In order to define key processes in supply chains we also had to identify different types of relationships between the selected business processes.

In the model, we integrated the key business processes in the observed supply chains. This was based on the integration of information flow. The developed model provides accurate, relevant and timely information. This implied presence of e-information, which allowed for e-integration and e-synchronization achieved by the development of Web-based support.

Figure 1b. Phases in the development of the supply chain performance measurement, ranking and simulation

IV Visualization of business processes in e-supply chain

Process: Logistics

Process: Selling

Process: Purchase

Process modeling

Data modeling

DB

Real-Time Monitoring and Control

ID process   Type of process
Name od the process
Activity   Activity   Активност
Process owner

Defining KPI targets

Measured value of KPI

Comparison of target and actual values KPI

KPI Overview

Make changes and achieve the target value

No   Corrective measures?   Yes

Continuous improvement of business processes

Continuous improvement of business processes in e-supply chain

Measurement of key performance indicators for different types of supply chains

Decision Support System

Continuous improvement of the e-supply chain performances

Source: own elaboration.

Once the key business processes were defined, we set about business processes visualization, which meant definition of input, activity and output. We conducted process modeling (purchasing, selling and logistics), data modeling and created data base that was used to measure KPI of the selected business processes as well as the performance of entire supply chains depending on the supply chain type.
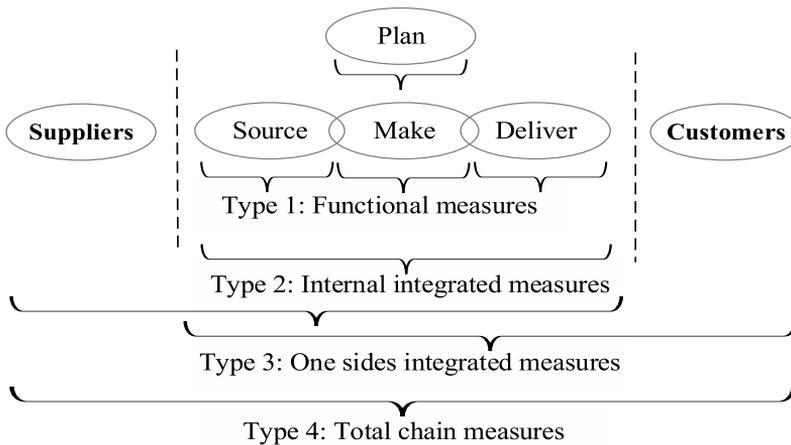
The developed model was tested on supply chain member organizations in automotive industry and comprised the supplier-organization-customer sequence, which was repeated throughout the supply chain. Bearing this in mind, the developed model becomes applicable to every member of a supply chain.

4. The model for performance measurement, ranking of different supply chain types and simulation

The model for performance measurement, ranking of different supply chains and simulation is based on integration of SCOR and BSC models to establish a comprehensive performance measurement framework on strategic, tactical and operative level. The application of the developed model required that every supply chain member should apply BSC model on the strategic level, while on the operative level it should measure performance using SCOR model and the defined KPI for the processes of purchasing, selling and logistics.

The model encompasses performance measurement of entire supply chain. Such supply chain performance measurement allows supply chain performance analysis from the view point of an organization, the customer, the supplier and the entire supply chain (Fig. 2).

Figure 2. Different types of supply chain performance measurement

Source: own compilation based on (Chibba, 2007).

The developed model for performance improvement of business processes in e-supply chains starts from four supply chain types:
- Efficient supply chain,
- Lean supply chain,
- Agile supply chain and
- Hybrid supply chain,

and four performance measures attributes:
- quality,
- flexibility,
- cost and
- delivery.

For performance measurement of supply chains in automotive industry the following KPI were selected on operative, tactical and strategic level:
- on time delivery (OTD),
- discrepant material report (DMR),
- parts per million (ppm),
- cost of poor quality (CPQ),
- cost of inbound transport (CIT),
- cost of outbound transport (COT).

The priority of the listed measure attributes varies depending on the supply chain type. To measure the performance of the efficient supply chain the first priority was assigned to the attribute of costs, more specifically transportation costs. For the agile supply chain the first priority was given to the delivery attribute. When it comes to a lean supply chain, priority was given to quality and cost, while for the hybrid supply chain quality and delivery were priorities. When assessing quality, we followed ppm and DMR. For flexibility we followed ppm, DMR, transportation costs and cost of poor quality, while for the attribute of costs we followed transportation costs and cost of poor quality. To assess delivery we observed OTD.

Figure 3 shows performance measurement model for different supply chains with corresponding priorities of measure attributes and defined key performance indicators.

The final aim of the developed model was to evaluate and rank supply chains according to the selected criteria. For this purpose, we used the AHP method to determine weight coefficients for the defined criteria, to obtain KPI priority and to weigh each KPI value, which allowed us to observe and analyze each individual KPI.

The analysis comprised evaluation, ranking and comparison of three supply chains belonging to the efficient supply chain type as well as evaluation, ranking and comparison of three agile supply chains. Final priorities and alternative ranking are shown in Table 1. According to synthesized manager evaluation, for the efficient supply chain the highest priority was assigned to costs, while for the agile supply chain the highest priority was given to on time delivery, respectively SOTD and COTD.

This developed model allows solution sensitivity analysis which in turn enables one to observe how changes of weight coefficients or of relative importance of criteria and sub-criteria influence the evaluation and ranking of supply chains.

Using priority values, target values and obtained values for each key performance indicator total performance for each supply chain is calculated indicating certain gaps on the side of the supplier and/or customer. Thus obtained total performance becomes a comparable value regardless of the supply chain type, which allows us to compare and follow performances of several supply chains of different types.

Figure 3. Performance measurement model for different supply chain types
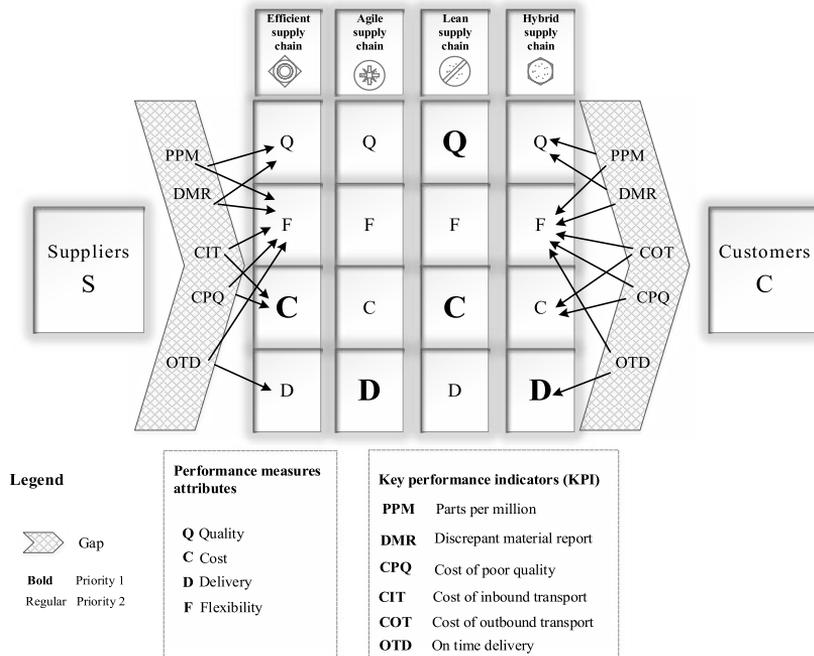
Source: own elaboration.

Table 1. Priority KPIs determining total performance of the observed supply chains

Efficient supply chain			Agile supply chain		
Alternatives	Priority	Ranking	Alternatives	Priority	Ranking
SOTD	0.0557	8	SOTD	0.2508	1
SDMR	0.0218	9	SDMR	0.0507	5
SPPM	0.0097	12	SPPM	0.1192	3
TLKS	0.0557	7	TLKS	0.0338	9
COTD	0.0563	6	COTD	0.2508	2
CDMR	0.0143	11	CDMR	0.0507	6
CPPM	0.0160	10	CPPM	0.1192	4
TLKC	0.0563	5	TLKC	0.0338	10
TIR	0.0630	4	TIR	0.0076	11
TIE	0.2190	2	TIE	0.0379	8
TOR	0.0656	3	TOR	0.0076	12
TOE	0.3667	1	TOE	0.0379	7

Source: own elaboration.

5. Empirical research of the influence of improvement of performance measurement systems on efficiency and quality of e-supply chains

For the purpose of this study we formulated the following research hypotheses:

Hypothesis 1: Application of the same and integrated system of supply chain performance measurement based on measurements of entire supply chain is significant in providing information regarding the total performance of a supply chain;

Hypothesis 2: Application of the developed model for assessment and ranking of supply chains and simulation of KPI determining total performance of a supply chain is significant for improvement of efficiency and quality of a supply chain.

Consequently, the two models were tested using multiple linear regression analysis, as one of the most frequently used methods of multivariate statistical analysis. The conceptual research model and the formulated hypotheses are shown in Figure 4.

Figure 4. Conceptual research model
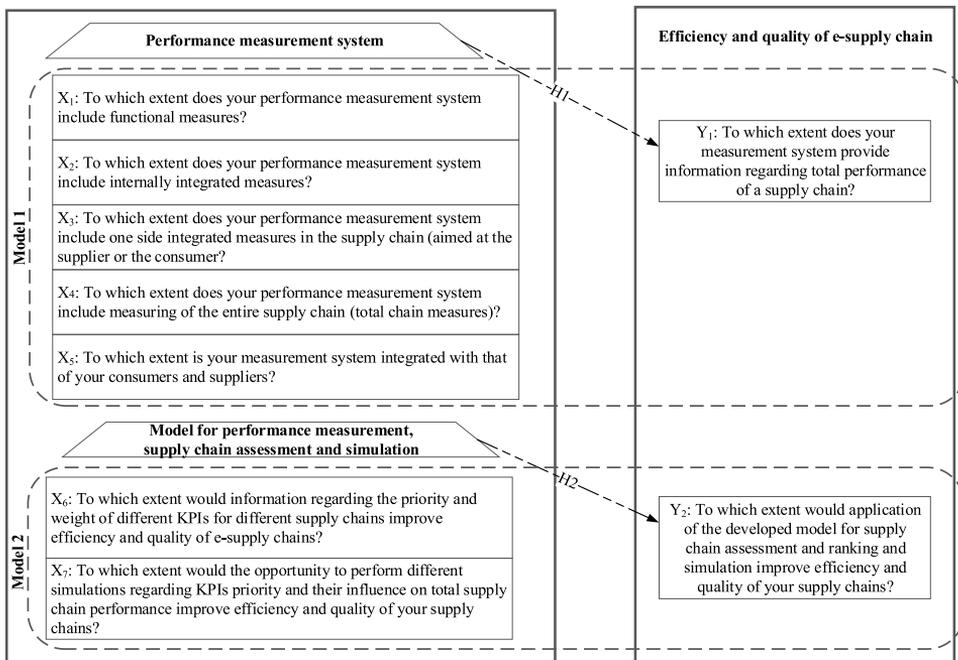
Source: own elaboration.

5.1. Methodology and research results

The empirical study was conducted on the sample of different level managers in manufacturing organizations in Serbia from the beginning of September till the end of October 2015. The basic

instrument was a questionnaire comprising closed-end multiple choice questions using five-point Likert scale. The respondents were expected to choose one answer that best expresses their attitude toward given statements, using the scale (1 – not at all, 2 – mostly no, 3 – partly, 4 – mostly yes, 5 – completely). 93 of the distributed questionnaires were valid.

When it comes to statistical data analysis methods, we used simple linear correlation and multiple regression analysis. To examine the presence of multicollinearity we used the value of Tolerance and Variance Inflation Factor (VIF) calculated for individual variables. To examine whether there is statistically significant linear quantitative agreement between the defined dependent and corresponding exploratory variables, as well as between exploratory variables themselves we conducted simple correlation analysis. The analysis of the collected data and all the necessary calculations were performed using statistical software package for social sciences, IBM SPSS Statistics version 20.0.

Since it is possible to influence to a certain degree the validity and accuracy of the conclusions, before interpreting the multiple linear regression analysis results, we checked whether statistical requirements for its valid interpretation are met. The values of simple linear correlation coefficients and results of statistical hypothesis significance testing (Tab. 2) confirmed that there is a statistically significant linear correlation between the observed exploratory variables and their corresponding dependent variables in model 1 and model 2.

Table 2. Pearson's correlation coefficients matrices for pairs of variables in model 1 and model 2

Variables	Model 1						Variables	Model 2		
	Y_1	X_1	X_2	X_3	X_4	X_5		Y_2	X_6	X_7
Y_1	1.00	0.40**	0.56**	0.29**	0.65**	0.65**	Y_2	1.00	0.89**	0.87**
X_1	0.40**	1.00	0.63**	0.85**	0.21*	0.69**	X_6	0.89**	1.00	0.86**
X_2	0.56**	0.63**	1.00	0.47**	0.68**	0.77**	X_7	0.87**	0.86**	1.00
X_3	0.29**	0.85**	0.47**	1.00	-0.03	0.60**				
X_4	0.65**	0.21*	0.68**	-0.03	1.00	0.56**				
X_5	0.65**	0.69**	0.77**	0.60**	0.56**	1.00				

Note: Y_i – dependent variables, X_i – independent variables in the models; (**) and (*) denote statistically significant linear correlation at the level of significance $\alpha = 0.01$ & 0.05, respectively.

Source: own calculations based on IBM SPSS Statistics 20.0.

Pearson's correlation coefficients values for individual pairs of independent variables for each of the two models suggest the absence of multicollinearity, as no linear correlation values above 0.9 were obtained for the observed pairs of variables (Hair et al., 2011). Except for the pair of variables X_4 and X_5 in model 1, between which there is no statistically significant linear correlation ($r = -0.03$), coefficient values for the other pairs range from 0.21 to 0.85 in model 1, and from 0.87 to 0.89 in model 2. The absence of multicollinearity is further supported by the values of Tolerance and Variance Inflation Factor (VIF) determined for each exploratory variable in models 1 and 2 (Tab. 3 – last two columns). More precisely, when individual models are concerned, Tolerance value of each exploratory variable is above 0.2, while VIF indicator values for all exploratory variables are significantly below 10, which are the most frequently used minimal value thresholds for the given indicators (Soldić-Aleksić, 2011).

Table 3. Results of multivariate linear regression analysis for models 1 and 2

Models	Unstandardized coefficients (b_i)	Standardized Coefficients β	t test statistics	p-value	Collinearity statistics		Coefficient of determination
					Tolerance	*VIF*	
Model 1							
constant	1.105	/	3.453	0.001**	/	/	
X_1	0.004	0.006	0.036	0.972	0.205	4.872	
X_2	-0.136	-0.210	-1.482	0.142	0.256	3.903	
X_3	0.128	0.166	1.038	0.302	0.202	4.959	$r^2 = 0.555$
X_4	0.399	0.578	4.613	0.000**	0.326	3.067	
X_5	0.210	0.385	2.866	0.005**	0.284	3.521	
Model 2							
constant	0.935	/	4.880	0.000**	/	/	
X_6	0.267	0.425	5.682	0.000**	0.233	4.298	$r^2 = 0.883$
X_7	0.544	0.454	7.296	0.000**	0.233	4.298	

Note: (**) denotes statistical significance of regression parameters assessment, with I type error risk $\alpha = 0.01$.

Source: own calculations based on IBM SPSS Statistics 20.0.

The results of multiple regression analysis (Tab. 4) for model 1 suggest that incorporating entire supply chain performance measures into the existing measuring system, X_4 ($\beta = 0.578$; t = 4.613; p-value = 0.000) and using the same and integrated system of performance measurement as other members of the supply chain, X_5 ($\beta = 0.385$; t = 2.866; p-value = 0.005), are singled out as statistically significant factors that help the applied measurement system to provide adequate information regarding the total supply chain performance (dependent variable Y_1). When it comes to other independent variables (X_1, X_2 and X_3), no statistically significant influence on the dependent variable was observed.

Regarding model 2, statistical significance of the influence of both independent variables (X_6: t = 5.682; p-value = 0.000, and X_7: t = 7.296; p-value = 0.000) on the observed dependent variable Y_2 was confirmed. More precisely, positive values and confirmed statistical significance of the regression slope coefficient estimation for both independent variables suggest that availability of information regarding priorities and weight of different KPIs (X_6) together with the opportunity to conduct various simulations of KPI priorities and their influence on total performance of a supply chain (X_6) as key characteristics of the developed performance measurement model can significantly improve efficiency and quality of a supply chain (Y_2).

In addition, it should be emphasized that relatively high values of determination coefficient ($r^2 > 0.5$) obtained for model 1 ($r^2 = 0.555$) and model 2 ($r^2 = 0.883$) confirm the validity and representativeness of the estimated multiple linear regression models.

6. Conclusion

The model was developed in order to create a more efficient system for performance measurement through a set of qualitative and quantitative measures used to assess the key aspect for a supply chain: complete fulfillment of customer orders in terms of quality, on time delivery and agreed price. The developed model allows optimization through application of methods for multi criterion analysis and decision making. The model can be expanded by introducing new key performance indicators and by determining their relative values depending on the supply chain type. Furthermore, by applying this model it is possible to create various scenarios by changing the relative value of each KPI.

The proposed model is dynamic, flexible and hybrid and enables continuous improvement of business processes in e-supply chains. It integrates strategic planning, process thinking, measurement and KPI following with the AHP model of multi criteria analysis and decision making into one system for performance measurement of business processes in e-supply chains. If all member organizations in a supply chain accept such a model of performance measurement of business processes in e-supply chains, business processes throughout the chain are improved, as there is integrated, identical, transparent metrics and performance measurement system.

Our study indicates that performance measurement in e-supply chains implies a system with fully integrated performance measures. Also, obtaining information regarding the priority of different KPI and the opportunity to perform simulations of KPI priorities and their influence on total supply chain performance can significantly help manage the supply chain and improve its efficiency and quality.

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Management of Legal and Tax Consequences of Money Guaranty Deprivation Used as Sanction in Public Procurement Law with the Purpose to Sustain Enterprise Business Efficiency

Yuriy Nemish

1. Introduction

The Polish contemporary public procurement law derives from law of deliveries and works for State Treasury (1933) and from institutions of public law. In time of transformation of Polish economy from planned type to market type economy it became obvious that there is an acute need in settlement and organization of public procurement for efficient and safe accomplishment of state's tasks. These result in issuing of Law of Public Procurement on 10th of June 1994. This law has been significantly modified and changed in the direction of unification and harmonization with law regulations in EU. Fundamental change has been done in the law of public procurement in 2004 which is obliging until today with some amendments. This law is a subject to each year changes and amendments due to its facing rapidly changing economic environment. These changes are set to provide appropriate selection of the best offer which is to achieve economic efficiency and to protect against public procurement crime. Economic efficiency is achieved by accomplishment of public procurement agreement according to quality requirements with costs that are minimal to meet those requirements.

Necessity to conduct the public tenders in frames of special law, which is prepared for such purpose derives from the natural difference in status of participants of this kind of agreement. In case of purchases done by homes owners and by private institutions we have the main actor which is owner of financial recourses or recourses that are under strict control. These private agents will conduct transactions in most economically efficient way which will have for them the biggest positive impact. During public tenders we have different legal situation as client is only administrator of financial recourses which comes from taxes received from tax payers in country and outside it. Administrator acts in name of and for the country. In such conditions exist high risk of manipulation by the process of selection of the most useful offer. This problem is settled with the help of legal regulations in law of public procurement (*Raport system...*, 2013).

These regulations are used in order to provide conditions of competitiveness in process of public tender. Additional aim of applied regulations is to create basis for future development of public procurement law for making it more efficient. This is why there is a necessity of introduction of preventive mechanisms for unfair competition, crime and even corruption. One of such mechanisms is institution of money guarantee.

Economic consequences connected with the money guarantee institution constitutes serious decisional dilemma and impacts participants of the public procurement tented based not only on public procurement law but also on supplementary laws that also are used for regulation of public tender.

The aim of the article is to analyze mechanism of prevention against public tender crimes in form of money guarantee which cause legal and fiscal impacts on administrator and supplier. It could be an efficient management tool for making a correct decisions based on analyses preconditions for considering deprived money guarantee as tax-deductible or non-tax-deductible costs which has direct influence on financial results of the company.

2. Tax and law institution of the money guarantee: definition, functions, validity time and transformation

In attempt to define the term the money guarantee we should refer to Civil Code as it is named in art. 14 ppl (Public procurement law) as a source for regulation appliance for non-specifically regulated situations in the public procurement law. Civil Code in art. 704 par. 1 defines the money guarantee as certain sum or appropriate guarantee of its payment which is demanded by administrator/public client under restriction of been dismissed from auction or tender. In its turn Polish dictionary of Polish language provides definition of term them money guarantee that it is certain sum of money submitted by some person as guarantee that this person will not resign from transaction and will sign in certain time an agreement, advance payment, guarantee, security. It is necessary to draw attention to the fact that this is sum of money that is submitted under some administration as guarantee, that is subject of return if conditions covered by such guarantee will not materialize. This mean that event of money guarantee submission does not cause its transformation into costs.

Issued by KIO (National Appeals Chamber) judgement from 27th of April 2009 with no. KIO/UZP 488/09 points at main purpose of legal institution of money guarantee as such. It says that main goal is correct conduction of public procurement process. Two functions of money guarantee are outlined:
- disciplinary – constitutes set of rules to which participants of public procurement law have to comply,
- preventive – constitutes consequents which should refrain participants from illegal behavior.

Institution of money guarantee is very important element which efficiently puts in order and influences correctness of conduction of public tender. Law maker in connection to functions of money guarantee gives supplier a fair choice as for form of money guarantee security. Types of money guaranty security are listed in art. 45 par. 6 and they are:
- money,
- bank aval and equivalents,

- bank guarantee,
- insurance guarantee,
- other guarantees legally defined.

Listed types of security equivalents to money guaranty may by divided in to two bigger categories. The first one is the money in its physical or dematerialized form booked on account. The second category: this is confirmation of third party to participant of public tender process of its guarantee trustworthy. These two forms constitute only a form of legally regulated guarantee but here we do not have situation of changes in gist of security. It is confirmed by art. 45 par. 8 which says about custody of money. This is very important indication of law maker as custody has temporal character which foresees that after certain period of time of custody it will turn in to its initial form it had before transformation into money guarantee. This matter gives us idea of possibility of appearance of cost, which could be consequential transformation of money guarantee. So money guarantee can return to its initial form which is mean of payment, by returning to person issuing this guarantee or can transform into cost.

Fundamentally money guarantee is as subject of return according to art. 46 par. 1-4 ppl and this means that for company this procedure does not have cost characteristics. Category of cost can appear in situation described in art. 46 par. 4a-5 ppl which defines grounds for deprivation of money guaranty by administrator which were given him under custody. This is moment when security transforms into cost. These conditions are:

- failure of documents submission or declarations confirming compliance to tender requirements,
- failure to eliminate insignificant errors which are not changing gist of offer,
- failure to sign the agreement as a result of best offer been selected,
- failure to supply appropriate level of agreement accomplishment,
- failure to enter into agreement by reasoning on side of supplier.

Matters connected to deprivation and return of money guarantee is also regulated by Civil Code where art. 70[4] par. 2 states that base for deprivation of money guarantee constitutes failure to sign agreement as a result of failure to fulfill specific requirement. In other situations submitted money guarantee should be returned to participant of tender. In case of avoiding to enter into agreement on the side of administrator in the same article the Civil Code foresees the right to compensation of losses caused by such behavior or payment of double value of money guarantee to supplier whose offer was selected. Worth mentioning that Public Procurement Law does not foresee such responsibility on the side of administrator which could be thought of like discriminating by providing different treatment of participants of public tender.

On diagram 1 we can see that money guaranty according to art. 46 par. 1-4 can return to its initial state and based on art. 46 par. 4a-5 can be transformed into cost that are tax deductible or that are non-tax deductible. Such cost transformation depends on causes that underline in such transformation mentioned in this article.

Figure 1. Transformation of money guarantee
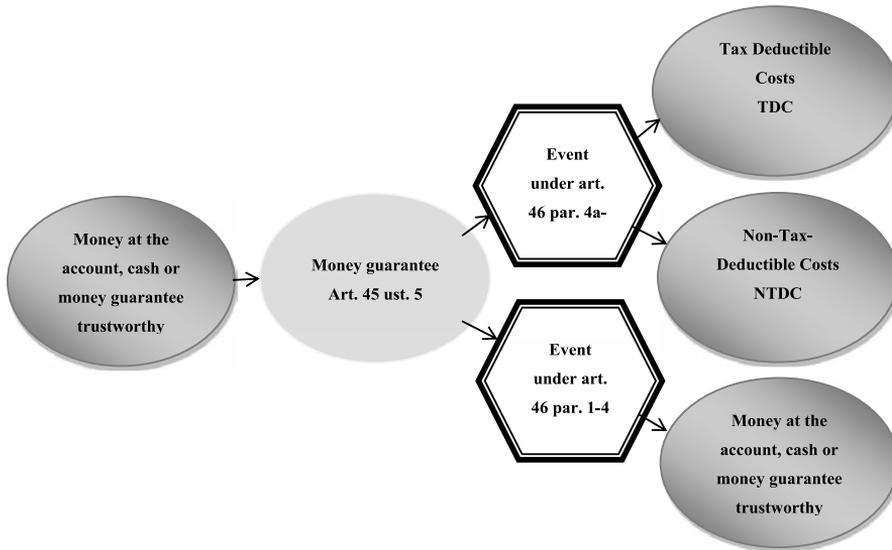
Source: own elaboration.

3. Seized money guarantee as a tax-deductible expenses or non-tax-deductible expenses

Speculations as for costs that are tax deductible or not is differently treated in tax law and accounting law. In accounting law there are no such problem as every cost is treaded as cost of profits that should be tax deductible. This matter is differently treaded in fiscal law which is building its regulations on principle of rational behavior of entrepreneur and principle of providing profits to budget.

Tax deductible costs according to art. 15 par. 1 cit are cost that has been sustained in order to receive income or to support or to protect source of income. Exception to this rule is art. 16 par. 1 cit which gives a list of cost that are not tax deductible costs no matter what is the purpose of this expenditure. Correspondent to art. 15 and 16 cit there are art. 22 par. 1 and art. 23 par. 1 in private income tax law.

Analyzing doctrinal works and court verdicts it is possible to select couple additional conditions which has to be fulfilled in order to define certain cost as tax deductible (Pogoński, 2014):
• definitive incurring of cost,
• aim of cost incurring is in line with art. 15 par.1, which are receiving income, supporting or protecting source of income,
• connection with source of income,
• appropriate documentation according to evidence requirements,
• the incurred cost is not on the list of the exclusions from the articles 16 par. 1 cit and 23 par.1 pit.

Seizing of money guarantee results in real and definite incurring of cost by the participant of public tender. The decision of Supreme Administrative Court in verdict from 20th of March 1996 states that cost is only expenditure that is not subject for return and that are definitely incurred which causes reduction of financial resources. In analyses of consequences determined by art. 46 par. 4a-5 it is possible to state that this is moment of transformation of money guaranty into cost at supplier. Administrator irrevocably retains money guaranty and turns it into its income causing in this way transformation of the same security into cost at supplier.

Aim of money guaranty is a key element in analyses of this security as a cost which is performed by means of classification into two categories: direct and indirect costs. Direct costs are the costs that are in cause and effect relationship with received income. This mean that incurring of certain costs resulted in inflow of certain income. Returning to definition given in art. 15 cit and art. 22 pit are costs sustained with the aim to receive income. Next two definitions of purpose of costs incurring which are support and protection of the source of income defines indirect cost. Direct cost is in constant and firm relationship with received income based on art. 15 par. 4e cit is appointed to tax-deductible costs in time of their incurring. Analyzing the time of indirect cost incurring it appears to be problem of distribution of those cost to appropriate economic activity. When taking a closer look at money guarantee transformation in connection with time activity of company and in relation with cost sustained we could identify incidental aspect of this phenomenon. This means that this phenomenon should not and cannot be distributed in time line but have to be identified as cost in moment of its transformation.

Purpose of costs sustaining has also its meaning in situation when there were no effect on income. Individual Law Interpretation as of 29 of October 2014 with number IBPBI/2/423-1003/14/SD issued by Director of Tax Authorities in Katowice states about special treatment of indirect costs, which could be identified as tax-deductible cost if they were sustained rationally and according to purpose of income or support or protection of source of income. This is also true for situation when there objectively were no planned income was received. Law interpretation in legal decisions inclines to assumption that for tax payer is very important to provide evidence to tax administration that in form of seized money guarantee was incurred in scope of economic activity of an enterprise. Proof has to be based on the deprivation of money guarantee and economic consequences of this event because in this way it is possible to show purpose and rationality of the cost.

In case it comes to seize of money guarantee due to failure on the side of public tender participant to comply to requirements that are introduced by public procurement law it will not be possible to define this cost as tax deductible cost. This cost is not rational as it was caused by negligence on the part of a tax payer. On contrary in situation of purposeful resign of contract settlement or to fulfill tender requirement due to fact that external environment conditions have changed or due to results of additional economic analyses that have shown irrationality to enter into agreement will be sufficient to identify this cost as tax deductible. One of the most important element of this situation is to keep this analyses that shows inefficiency of such contract and to attach is to internal evidence for accounting entry in the books of the business unit.

Analyses of decision making process of identification of seized money guarantee as tax deductible costs was ruled by Supreme Administrative Court in Gdansk in decision no. I SA/Gd 2099/97. Main thought for such verdict is that there are such situation where it is more appropriate not to enter in agreement resulting seizing of money guarantee then to make a decision to sign an agreement causing loses to economic activity of an enterprise. The Supreme Administrative Court to charges of Tax Authorities constituted that incurred by tax payer costs in the form

of payment for money guarantee in order to participate in public tender eliminates prohibition to exclude such cost as tax deductible even in situation when after selection of tax payers offer as the best he refuses to sing an agreement to fulfil the offer which results in seizing of money guarantee. Here we have rational emphasis that purpose is more important that consequence which is in case of money guarantee the lack of income. The Supreme Administrative Court talks about importance of rationality when incurring some costs. In aspect of money guaranty we have three moments where economic purpose should be analyzed:

• qualification for public tender,
• date of the tender itself,
• refusal to sign an agreement.

Proofing of some economic action which has caused incurrence of some cost is nothing else as an analyses of potential profits or losses of certain event. Proof can be not only financial determinants but also qualitative one as increase of market share, entering in new markets, getting a reference, competition, engaging new services etc. If we take the heritage of European law than according to Decision of European Commission (EU) no. 651/2014 as of 17 June 2014 some types of help can be recognized as compatible to internal market which could be based on art. 2 par. 87 where is mentioned methodology of so called "feasibility study". It is assessment and analyses of the project in respect to its potentials. The main aim of such methodology is to support decision making process. On diagram 2 graphical depiction of such methodology is presented.

Figure 2. Feasibility study
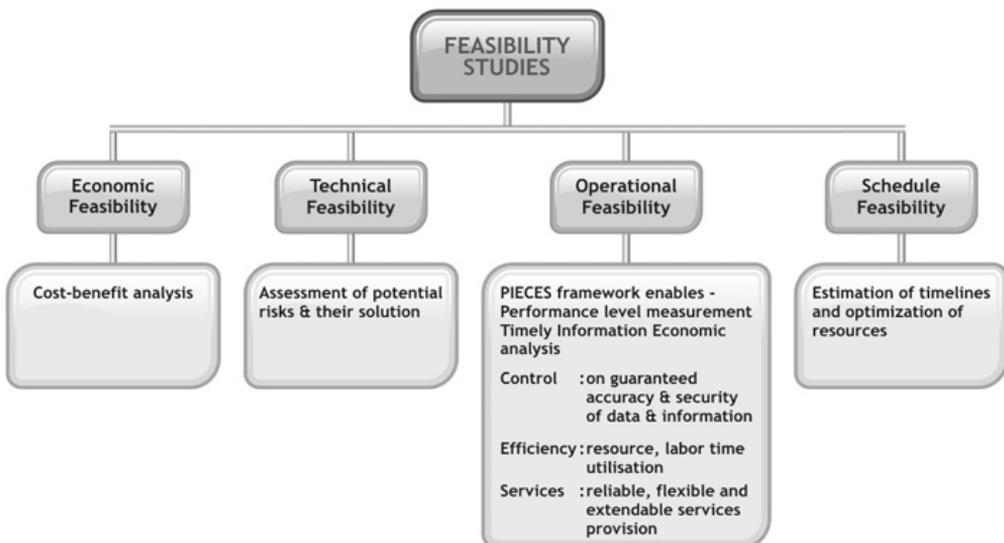
Source: *Feasibility studies*. Retrieved on 30/05/2016, from http://uemgroup.com/?page_id=76.

Relation between cost and source of income becomes apparent in case when incurred expenditure is connected with activity that causes income that are subject to taxes. Relation with source

for private persons is more difficult because in private income taxation law there are identified next sources of income art. 10 par. 1 pit:

- a labor-based relationship, an employment relationship, retirement etc.,
- personal services,
- non-agricultural business activity,
- special departments of agricultural production,
- lease, sublease, tenancy etc.,
- monetary capital and property rights,
- paid disposal of real property or parts thereof and real property interests, movables,
- activity conducted through controlled foreign company (CFC),
- other sources.

Most often procedures connected with public tender for private persons will be in relation to non-agricultural business activity, but could also appear in other sources of income.

One of the most important element to recognize cost as tax deductible concerns requirements to keep appropriate documentation according to art. 9 pit where there is written a norm of obligation to have a ledger which is also a tax book. Art. 24a par. 1 pit constitutes additionally norm of obligation to keep accounting book or revenue and expense ledger. Additional document giving clear requirement to keep evidence of activity in form of accounting books is Decision of Minister of Finance in matter of revenue and expense ledger as of 26 August 2003. In art. 12 par. 3 it informs about accounting evidence which could be in form of invoices, receipts, duty documents, documents that confirm increase or decrease of tax deductible cost and other accounting proofs that economic activity had place. By trying to identify seizing of money guarantee in relation to one of types of accounting evidence gives as assumption that it should be a document which shows the cause of increase of tax deductible cost. In the same paragraph of the article in term 1b Tax Authority gives a list of requirements to such document so that it could be recognized as accounting proof for evidence and could be identified as tax deductible cost:

- date of document issue and month in which increase of tax deductible cost have place,
- in case of lack of invoice it is required to give identification of an agreement or other document that gives grounds for increase of tax deductible costs,
- appointing the amount of increase tax deductible cost,
- appointing accounting proof that confirms settlement of mentioned expenditure,
- signature of person that prepared document.

Tax payer personally performs identification of expenditure to tax deductible or tax nondeductible cost and it is his/her obligation to comply to requirement to such accounting evidence (money guarantee) given in law regulations. Independent work of qualification of cost is inherently related to obligation to provide evidence of correctness of identification of expenditures. This is explicitly presented attitude in court decisions in related cases. In Supreme Administrative Court's decision as of 26.03.2013 with no. II FSK 2420/11 is presented regulation that it is tax payers obligation to provide evidence for assessment of amount of tax deductible costs which allow to receive a tax base. A tax payer that wants to qualify deprived money guarantee as tax deductible cost have to comply to all requirements as for attributes of documents of seizing of money guarantee to be able to do so.

Next important element constituting possibility to qualify incurred expenditure for covering seized money guaranty as tax deductible cost is the list of costs in art. 16 cit and art. 23 pit which could not transform into tax deductible costs regardless of their incurrence for purpose of income

or not. Those articles are negative catalogue of costs which comprises list of those that even fulfilling requirements of tax deductible cost could not be qualified as such. Money guarantee is not mentioned in that list what permits to decrease tax base with expenditure for money guarantee.

4. Conclusion

Public procurement law is very important element of contemporary legal system which permits to safeguard conditions of competition in sphere of public tenders and orders. It is specifically important field that is characterized by differentiated status of participants in public procurement process. In purpose of limitation of negative consequences of such state of art the public procurement law introduces barriers and special mechanisms providing appropriate conditions for correct accomplishment of public procurement procedures. One of such mechanisms is money guarantee which beside public procurement aspect brings dilemma in field of taxation. Taxation matter in this problem is of high importance for financial results of enterprise as they have direct influence on tax base and consequently on profit of organization.

Money guarantee as itself is not a cost but becomes one for participant of public procurement in moment of seize of money guarantee by public administrator based on art. 46 par. 4a-5. On other hand qualification of such expenditure as tax deductible cost is conditioned by fulfillment of some additional criteria deriving from art. 15 cip and art. 22 pit and from court decision groundings:

- definitive sustaining of cost,
- aim of cost sustaining is in line with art. 15 par.1, which are receiving income, supporting or protecting source of income,
- connection with source of income,
- appropriate documentation according to evidence requirements,
- incurred cost is not on the list of the exclusions from the articles 16 par. 1 cit and 23 par.1 pit.

A tax payer independently performs qualification of money guarantee to tax deductible costs or to nondeductible and it is his/her obligation to provide appropriate proof for tax authority as for correctness of choice. For purpose proof of expenditure to be qualified as tax deductible can be used methodology discussed in decision of EU commission called "feasibility study".

In situation of fulfillment of five criteria of tax deductible costs they could be completely considered for reduction of tax base. In opposite situation it cannot be done. Presented cost management methodology of money guarantee seizing with all its legal groundings could be applied by the management of the company in order to avoid inefficiencies in tax optimization process which would have direct influence on financial results and on added value for stakeholders.

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Networks in Management Sciences – the Typology and Directions of Conducted Research[1]

Karolina Orzeł

1. Introduction

Networks, as structures which have no centre, no orbits and no permanent relations, and which are an indefinite web of causes which "represents all circuits, all intelligence, all interdependence, all things economic, social, all communications, all large systems, almost all we find interesting and important" (Kelly, 2001), have become the symbol for the next century. Adopting the perspective of the network approach, to some extent we can have an impression that "everything is a network". Via established contacts, undertaken joint activities, and mutual adaptation of resources, every enterprise creates its own networks of relationships which connect with the networks of other entities, creating an indefinite quasi-structure (Ratajczak-Mrozek, 2011).

As Niemczyk, Stańczyk-Hugiet and Jasiński (2012) observe, in works devoted to research into networks one can come across various definitions of this notion, which is a result of the initial phase of the development of one more paradigm. Frequently used expressions are "network organisations" (Philips, 2010, p. 533; Higgins & Maciarello, 2004, p. 203), "interorganisational network" (see, e.g.: Baker & Faulkner, 2002, p. 520), as well as "network organisation" or "network structure" (Mukeherjee, 2009, p. 23; Sproul & Kiesler, 1992, p. 132) or simply network. For the needs of this paper, the most general terms in the Author's opinion, will be used interchangeably – network organisation or network.

The aim of this paper is an attempt to systematise both dispersed definitions and the types of networks encountered in the literature of the subject. In the first part the notion of network will be defined, in the next one their typology will be shown, then the streams of research into networks, conducted in Poland, will be presented.

2. Networks – an overview of definitions

The network stream has become a very popular issue at the turn of the last decade and, what follows, network organisation is discussed by scientists in various contexts as[2]:
- a modern form of enterprise organisation,
- a new management method,
- or a new form of organising relationships between separate business entities.

The adoption of one of the contexts determines the way of defining network organisation. Thus, in the literature of the subject we can find the following definitions of network organisation (Sopińska & Jakubowska, 2013):
- a relatively permanent grouping of autonomic, specialised individuals or enterprises participating in the system of mutual cooperation in accordance with the market rules (Dwojacki & Nogalski, 1998),
- a set of legally independent economic entities, implementing various ventures and projects coordinated by the firm-integrator which has outstanding competences (Perchuda, 2007, p. 55),
- the system of collaboration of enterprises which are independent organisationally and legally, equity related or not, based on the synergy potential of those entities, in one or more areas of functioning, and on cooperation broader than one-time exchange (Sroka, 2012, p. 34),
- an organisational structure built around economic ventures implemented by various parts of various enterprises, cooperating with one another, creating a network of connections for the time of the implementation of a given venture and changing configuration of these networks for the implementation of every new project (Castells, 2003, pp. 80-81),
- an organisation whose entities are connected to one another through relationships occurring on various levels (Blażlak, 2010, p. 30),
- an organisation which depends on the possibility to communicate among entities within a specific constellation and the level of the convergence of aims, which individual entities of the network, as well as their whole group want to achieve (Castells, 2000, p. 187),
- an organisational form which helps their participants to mobilise outlays and information in order to increase innovativeness, flexibility, the speed of operation and effectiveness; a polycentric form of business activity, based on the cooperation of independent enterprises, unrelated in terms of equity, aiming at the achievement of competitive advantage (Olesiński, 2010, p. 65),
- a system of relationships among firms, mainly characterised by horizontal connections, giving opportunities for decentralised planning and the control of the network elements (Baker, 1992, p. 399),
- a relatively permanent grouping of separate, specialised enterprises, cooperating in accordance with the market rules, in which a hierarchical structure has been replaced with horizontal connections and their mutual relationships (Łobejko, 2010, p. 52).

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[2]   More on that – see: Mikuła, B., & Pietruszka-Ortyl, A. (2006). Organizacje sieciowe. *Zeszyty Naukowe/ Akademia Ekonomiczna w Krakowie*, (715), 113-130; Niemczyk, J., Stańczyk-Hugiet, E., & Jasiński, B. (2012). *Sieci międzyorganizacyjne. Współczesne wyzwanie dla teorii i praktyki zarządzania*. Warszawa: C.H. Beck.

The above definition overview shows that the growing scope of network relationships among business entities is multi-level. It means that an analysis of this phenomenon is extremely complex and should be conducted from numerous dimensions, starting from growing relationships among individual economies of the global character, through the rising significance of networks in given countries, and ending with the micro-economic perspective.

3. The typology of network

The literature overview leads to the conclusion that in addition to numerous definitional approaches to the network itself, one can notice a great number of various classifications of this form of cooperation of entities, which enhance various aspects of their functioning. In order to understand better the problems with the cooperation of firms in the network, individual types of network, as well as network relationships among enterprises should be characterised. Making the typology of network, as of any other complex object, requires to adopt the criteria of division, which enables to appoint specific classes of the phenomenon, or to order the studied population. At the same time, the list of networks according to each criterion is obtained, contributing to defining this class of objects. In the literature we may come across various criteria of allocating the types of networks. Table 1 presents the overview of network classifications chosen from the literature of the subject.

Table 1. Network classifications

No.	Criterion of distinguishing	Types of networks
1	Construction features	• Systems of network-like relations existing inside the organisation (network organisations) • Systems of network-like relations between the enterprise and its environment • Systems of network-like relations among enterprises conducting related activities, and additionally complementing one another (interorganisational networks)
2	Features of network structure (Korenik, 2003, p. 20)	• Star networks with a leading firm • Networks of nodes in which all entities are equal • Temporary networks, poorly formalised, in which the intensification of contacts depends on the current needs and considerably changes in time • Regional networks, constituting a territorial corporation of business activity, often with a high degree of formalisation
3	Character of relations connecting partners (Child, Faulkner & Tallman, 2005)	• Dominated networks • Networks of equal partners
4	Features of relationships	• Networks of social bonds • Networks of economic bonds • Networks of organisational bonds • Networks of other bonds

5	Permanence of relationships (Domański & Marciniak, 2003, p. 34)	• Permanent networks • Temporary (project) networks
6	Coverage (Barczak, Bartusik & Kozina, 2009)	• local – between the home country and the neighbouring ones • international (among a few countries) • global (operating in all countries of the world)
7	Manner of formation (Penc, 1999, p. 9)	• Networks as a result of a gradual intensification or one-time establishment of long-term cooperation by independent enterprises • Networks as a result of investments leading to the inclusion of new (created or acquired) elements in the cooperation system, supervised by at least one firm implementing the strategy of expansion • Networks as a result of transformations inside the structure of a large, centralised enterprise
8	Capability of generating knowledge (Perchuda, 2005)	• Friendly networks • Absorbing networks
9	Network structure (Dolińska, 2002, p. 23)	• Internal networks • Stable networks (based on long-term agreements, organised around a dominant firm – the core) • Dynamic networks (networks being loose alliances of firms)
10	Position of network on the value system continuum (Möller, Rajala & Svahn, 2005)	• Vertical value networks comprising the networks of suppliers, distribution and customer networks, and vertically integrated networks of values • Horizontal value networks comprising competitive alliances, alliances providing access to resources (competences), and R&D alliances • Multi-dimensional value networks, comprising node firms, complex business networks and networks creating new systems of values
11	Character of network system (Koźmiński, 2004, p. 40)	• coalitions and joint ventures (networks in the material sense) • Supplier-recipient arrangements • Branches of enterprises (networks in the material sense) • Strategic business units (networks in the material sense) • Firms acquired, taken over or sold by other firms and for this reasons keeping cooperation relationships with them firms
12	Stages in the evolution of network relationships (Lin & Zhang, 2005)	• Dominated networks • Cooperation networks • Cobweb-type networks
1	Character and power of mutual relations (Boulanger, 1995)	• Integrated networks, consisting of representative offices, branches, etc., which legally or financially belong to one group or one economic body (networks in the material sense) • Correlated networks (cooperatives, associations, mutual assistance associations, networks in the material sense) • Contract networks (based on contracts, e.g. concession ones, concluded between partners independent in the statutory sense) • Networks of direct relationships

3	Complexity of relationships and the number of participants (Padula & Daganino, 2002)	• simple bilateral cooperation • simple multilateral cooperation • complex bilateral cooperation • complex multilateral cooperation
2	Management structure and permanence of relationships (Domański & Marciniak, 2003, p. 34)	• Ring networks (no leading organisation and hierarchy; the eading role is played by a rotational leader; all agreed connectons can be launched here) • Ring networks with coordinating organisation (with stable and systematic coordination, asymmetry of the positions of roles; leading organisation can influence operations of other entities, but it cannot function without them or decide about their existence) • Ring networks with leading organisation (leading entity is independent of its circle of suppliers and subcontractors, but can transform this circle; power is asymmetric and hierarchised)
4	Level of formalisation and relationships among partners (Inkpen & Tsang, 2005)	• intra-organisation networks • strategic alliances • trade associations • clusters
5	Type of relationships among network participants and frequency of occurrence of a given type of cooperation	• cooperation networks • outsourcing networks • franchising and agency networks • clusters • strategic alliances • holding networks • public-private partnership

Source: own study based on (Niemczyk et al., 2012; Sroka, 2012).

As it can be seen in the above table, network typology is an attractive area of exploration, and the literature, both Polish[3] and foreign[4], presents expanded proposals in this respect. Among the presented types of networks there are both similarities and differences. In spite of applying different criteria, some types of networks repeat in various classifications.

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[3] See, among others: Niemczyk, J., Stańczyk-Hugiet, E., & Jasiński, B. (2012). *Sieci międzyorganizacyjne. Współczesne wyzwanie dla teorii i praktyki zarządzania*. Warszawa: C.H. Beck; Sroka, W. (2012). *Sieci aliansów. Poszukiwanie przewagi konkurencyjnej poprzez współpracę*, Warszawa: PWE; Czakon, W. (2012). *Sieci w zarządzaniu strategicznym. Wolters Kluwer*.

[4] See, among others: Håkansson, H., & Snehota, I. (1989). No Business is an Island: the Network Concept of Business Strategy. *Scandinavian Journal of Management*, 5(3), 187-200; Håkansson, H., & Snehota, I. (Eds.). (1995). *Developing Relationships in Business Networks*. London: Routledge; Jones, C., Hesterly, W. S., & Borgatti, S. P. (1997). A General Theory of Network Governance: Exchange Conditions and Social Mechanisms. *Academy of Management Review*, 22(4), 911-945.

4. The areas of research into networks in management sciences

Networks and network organisations are the subject of numerous, different scientific disciplines (see: Fig. 1). The research usually analyses relations between enterprise and its suppliers or customers (vertical relations). However, more and more often it also analyses relations between competitors (horizontal relationships between enterprises).

Figure 1. Interorganisational networks in science
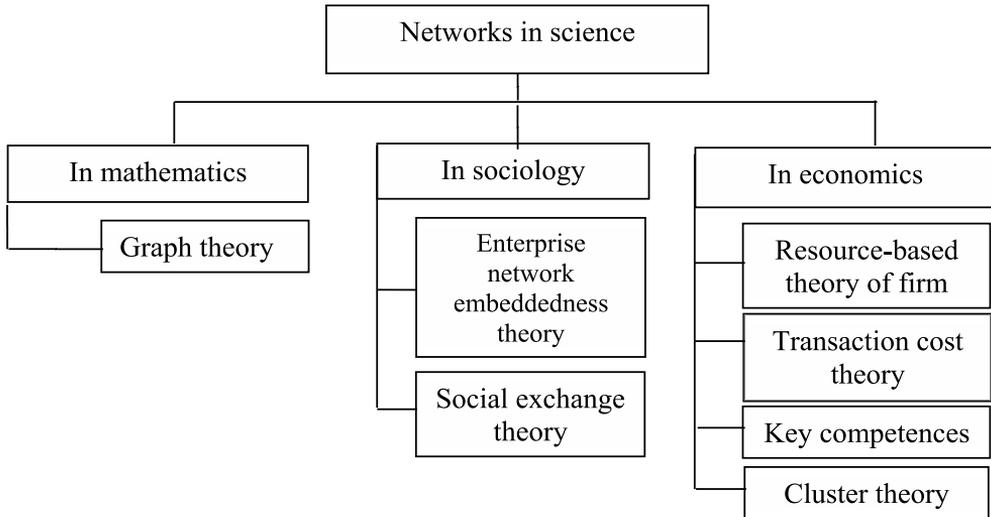
Source: own study based on (Ciesielski, 2012, pp. 18-26).

Sopińska and Jakubowska (2013) distinguish several basic issues Polish scientists are having a closer look at. These are among others:
* the problem of broadly understood networking of enterprises,
* individual dimensions of building network organisation, such as: flexibility, coordination, cohesion, the scale of activity; the way of creating value by the network, as well as the way and assessment of their effectiveness and broadly understood success, and the role of the leader and network initiator and its functions,
* the influence of network organisations on enterprise competitiveness, creating competitive advantage and competitive position,
* the control of the flow of resources and the influence of dividing specific resources for the activity of network participants.

Table 2 presents the list of most important (most frequently raised) issues discussed in the Polish research regarding the problems of networks and network organisations.

Table 2. The subjects of the Polish research into the problems of networks and network organisations

Issues	Academic researchers
the problem of broadly understood networking of enterprises	S. Łobejko (2010), K. Łobos (2005), B. Mikuła and A. Pietruszka-Ortyl (2006), A. Jurga (2005)
individual dimensions of building network organisation	W. Czakon (2007), D. Latusek-Jurczak (2011), A. Frączkiewicz-Wronka (2011), B. Jankowska (2009), M. Sak-Skowron (2009)
influence of network organisations on enterprise competitiveness, creating competitive advantage and competitive position	M. Mitręga (2010), M. Gorynia and B. Jankowska (2008), Sroka (2008)
control of the flow of resources and the influence of dividing specific resources for the activity of network participants	A. Sopińska (2012), K. Olejczak-Kita (2012)

Source: (Sopińska & Jakubowska, 2013).

Although at the beginning the subjects of the research were mainly the structure and the characteristics of various dimensions of network, as well as problems connected with network management and control, then researchers started to look for relations between the operation of the network and various dependable variables. Those variables in numerous research were the effectiveness and competitiveness of both network itself and its participants, and their determinants (e.g. resources). However, based on the above research overview it can be said that the intensity of research into network organisations in the sector context and from the angle of a selected category of network participants has not changed significantly over time.

5. Conclusion

The contemporary business environment is characterised by multidirectional processes with various intensity of forces occurring within relationships which run parallel and overlap. Some of them can be included in the group of the main processes which are responsible for key changes, define the direction and rate of economic development, and influence the transformations of organisational structures, and, what follows, the methods and manners of management. The other ones can be classified into the group of so-called accompanying processes which become manifested on a specific stage of development and perform the role of a specific accelerator which influences the dynamics of the main process.

The interest of practicians in the participation in different kinds of networks is accompanied by an interest of academic researchers focused on the thorough recognition of this phenomenon. Various aspects of the functioning of network organisations are studied, both the internal dimension of network, its configuration, and the external dimension, connections with the environment and functioning in specific sectors. The Polish research concerns similar research areas. However, in terms of quantity, there is much less of it than in foreign centres, which results from a relatively short period of the functioning of networks in the Polish economy.

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Chapter 12

Home Staging on the Polish Real Estate Market

Joanna Sobula

1. Introduction

The aim of the article is to present the home staging as a modern form of marketing real estate and determine its effectiveness in the sale and rental of apartments and houses. The first part presents the definition and the activities carried out within the home staging services, the second part includes research that determine the effectiveness of the techniques of home staging. The third part contains a summary, conclusions and bibliography. Home staging is a new service on the Polish residential real estate market involving the preparation of real estate for sale or lease. In practice, home staging is referred to as "issuing house", "staging interior", "facelift", "interior metamorphosis" or "make up the property".

Service home staging involves interior design in order to attract as many potential customers, and thus obtain the highest achievable price of the property, than without this service. The property ready for sale (lease) using the techniques of home staging becomes more attractive to potential new buyers (Barnett, 2006).

2. Home staging surveys

Home staging, as a new service for the real estate market was established in the United States in 1972. It is now one of the most important marketing tools that is used to promote the offer by real estate agents and decorating company. The first person who took a professional home staging while its forerunner was Barbara Schwarz, owner of the design of the interior. In her opinion, in contrast to the usual arrangement or renovation of home staging service is quick and low-cost. In some cases it is sufficient only to rearrange the space internally so that a different way affected the perception of customers. By changing the composition, changing the nature of the interior of the more versatile (Saunders & Maresh, 2008).

Home staging involves techniques that are designed to prepare real estate for sale or rent. The purpose of such preparation is to interest as many viewers property, thereby accelerating the sale or rental of real estate. Basic techniques of preparing the property for sale and lease are: cleaning up the removal of unnecessary things, which means the removal of personal

belongings, carefully cleaned all the places inside and outside the property, removing unnecessary items:

- Lighting and lighten rooms: thorough washing of windows, replacement or wash curtains, remove the objects located on the windowsill, in particular those which limit the flow of light to the interior, replacement of broken light bulbs, control efficiency windows.
- The interiors: inserting fresh flowers, remove personal items, trinkets reduction, rearrangement of furniture or furnishings, suspension paintings on the walls (Gavanditti, 2006).

Home staging involves apart from cleaning operations, cleaning, renovation of the premises and repair the equipment. This is the process of arranging furniture, accessories selection, design and lighting facilities, which allows you to expose a given property. Preparing the property for sale or rental through the techniques of home staging is aimed at making it to become more attractive than before the changes. Choosing the right color, lighting, materials, composition of space or the setting of furniture that makes a property is perceived by the buyer as his new home. Home staging service is intended for those owners who cannot sell or rent your home for an extended period of time, because of its low attractiveness to potential buyers. Home staging is needed especially in those homes where it comes many potential buyers and no one decides to purchase. Thanks to the visibility of the advantages of real estate, home interior undergoes a metamorphosis, which is the key to a successful transaction (Ray, 2009).

According to Frost J. Purvis (2014), besides skillful rearranging the furniture based on the principles of balanced spatial composition, in order to home staging ("lifting of real estate") is a correction or arrange a new illumination of the premises, make adjustments to the color spaces and to give the neutral character of the place which allows you to create a climate which is suitable as the most favorable reception to a potential customer. Skillful refurbishment, balanced composition, arranging new lighting makes the potential customer after a short presentation can imagine given property as their dream a quite residence. The simplest "facelift" is to get rid of unnecessary trinkets, remove any minor defects, repainting walls, and cleaning up all the nooks and crannies.

According to C. Python (2015) home staging in addition to cleaning and tidying up also includes the recovery room by adding fresh accents such as flowers or a new plant or a bowl of fresh fruit on the table in the dining room. In addition, it includes the replacement of flooring and cabinets and curtains and carpets. It plays an important role also replacement of furniture, removal of personal photos, which will make the house more attractive to potential buyers. A fresh layer of walls in neutral colors or floors can improve the effect of "staging the interior". Natural light enlivens the room, and the appropriate furnishings and accessories allow you to create a warm and inviting interior. Implementation of these activities is to transfer to the buyer, especially after entering the house, he is warm, cozy, and is the fulfillment of his dreams.

Home staging also includes activities related to the arrangement of the house from the outside and garden. In the opinion of R. McCulley (2007) seller or landlord in addition to the interior design should focus their attention on the appearance of your home's exterior. If the house does not look good on the outside, the opinion of the buyer may be negative. The most important activities carried out outside the home include: adding colorful flowers in the vestibule, buying a new mailbox, spraying paint doors and shutters. All activities related to "interior design" and "arrangement of the garden", can help would-be buyers make purchase decisions, and make will feel more comfortable when deciding to purchase or lease. If the buyer comes to see the house, it was also his appearance and the appearance of the garden makes it more warm and inviting.

According to the P. Mertz Esswein (2010) now, many homes are difficult to sell new buyers. Home staging gives hope to many sellers to negotiate a higher price transactions home and sell it in a shorter period of time. Today's buyers are overworked, have a small amount of time, so the decision to purchase often take on impulse and first impression, guided by emotions and impressions more than the head and reason. Professionally conducted home staging helps to positively influence the emotions of a potential buyer.

Home staging techniques involving proper "home interior" conquered the real estate markets in other countries. Europe home staging hit the United States thirty years later and is now offered by real estate agents or specialized companies decorating. Currently, in addition to the US market home staging it is also popular in Canada, in New Zealand, Hong Kong and South Africa. In Europe, home staging appeared in the 90's, and is now popular among Czech Republic (Prague), Spain (in: Alicante, Costa Del Sol and Mallorca) in Ireland, Austria, France, Italy, Germany, Bulgaria, Greece and the UK, where it is referred to as a property presentation or property styling (Szubierski, 2015).

In Poland, home staging is a new service in the housing market, which appeared in 2013 in Warsaw and is now becoming increasingly popular. Services home staging are addressed not only to private property owners, but also to brokers, investors, and developers.

Previous studies on the determination of the importance of home staging services in the functioning of the real estate market has been carried out, among others, by Barbara Schwarz, by the American Association of Realtors Realtors in 2009, by RESA in 2009 and M. A. Lane, M. J. Seiler and V. L. Seiler in 2014, and G. Turnbull and V. Zahirović-Herbert in 2011.

An analysis of the US study, presented in the literature on home staging services can extract several major research areas relating to:
- impact home staging services to make a decision about buying real estate,
- impact home staging services to increase the transaction price sold the house,
- the assessment of the profitability of the various activities carried out within the home staging services,
- impact home staging services to shorten the time of sale of real estate,
- impact on each step within the home staging services on demand/supply in the housing market.

The first tests for determining the impact of home staging services for the functioning of the real estate market, were the surveys, which were conducted in the state of New Jersey by Barbara Schwarz in 2006. They concerned the effect of home staging to shorten the time of sale and the increase in the real value of the property.

Type average number of days of real estate listings on the market made without "metamorphosis" through the techniques of home staging Average number of days of real estate listings on the market after a "metamorphosis" through the techniques of home staging sale.

Homes are listed for sale before the service home staging (These houses initially passed the "metamorphosis" through the techniques of home staging. In the absence of prospects houses were then "prepared" using techniques of home staging and sold by ASP) 136 days (4.5 months) 7.6 days 20 times faster than homes that have not passed the "metamorphosis" (Schwarz, 2006).

Based on the survey concerning the sale of homes in New Jersey, the houses have passed "metamorphosis" were sold approx. 40 times faster than the houses that have not been subjected to home staging services (been sold after 136 days – 4.5 months). After the "metamorphosis inside" of those houses were sold at an average of 7.6 days.

Test results obtained by Barbara Schwarz confirmed by the results of tests obtained by RESA (Real Estate Staging Assotiation). In 2009, the Association of Intermediaries RESA analyzed sales of homes that were not previously exposed to the market. Based on the survey, the average duration of the transaction homes that have not been home staging services amounted to 143 days, while those homes that have undergone a home staging services – 40 days (72% less than homes without home staging). At the same time the sale of the first offer is about 23 days. RESA also conducted a survey on the impact of home staging services on the development of transaction prices of home sales.

Research on determining the impact of home staging on the functioning of the housing market have also been carried out by the Association of Realtors – RELATORS in 2009. To see what they know and what views in the field of home staging have the seller and the buyer, the Association organized a survey among cooperating real estate agencies, some of which represented the seller and the buyer's part. Surveys were sent to a total of 49,104 members of associations of REAL-TORS. In total, they obtained responses from 2,373 respondents, which accounted for 4.8%. Among the agencies working – 54% represented the buyer, while 43% represented the selling side. The remaining 3% of the agency, which did not cooperate either with sellers and buyers has been removed from the sample and did not participate in the study.

The aim of the survey was to determine the REALTORS:
- whether the home staging will influence the decisions of the buyer and seller,
- which areas of the house are the most important to make the "staging",
- whether the home staging will affect the value of the US dollar,
- what are the most important techniques to prepare the property for sale made within the home staging services,
- amount of the expected rate of return on individual techniques "to prepare real estate" for sale,
- the impact of home staging services to shorten the time the sale of the house,
- the impact of home staging services to increase the price of real estate transaction.

The first survey was to obtain the views of cooperating with the Association of real estate agency, representing both the seller and the buyer concerned determine if home staging will have a positive impact on the decision of the buyer.

Data on the responses shown in Figure 1.

Figure 1. Determine the effect of home staging services to the decisions of the buyer
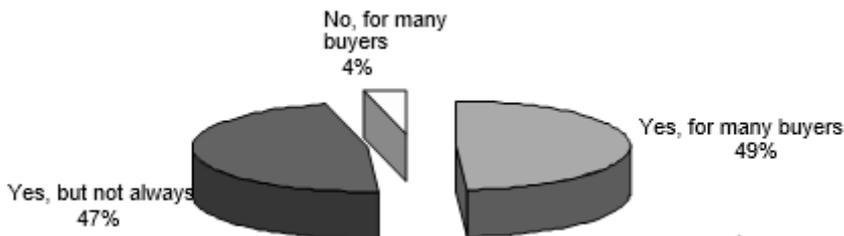
Source: www.realtors.com.

Most of the interviewed real estate agents representing sellers, is of the opinion that the service home staging will positively affect the decisions of the buyer. For 49% of the surveyed service home staging will always have an influence on the decisions of the buyer. 47% are of the opinion that the service will be affected, but not for all buyers. According to the 4% of the respondents home staging will not have any impact on the decisions of the buyer.

Equally important study conducted by the Association was to review the agency representing the seller, relating to determine how home staging will affect the buyer's decision. Based on the survey respondents felt that home staging:
- increase concerns about the distinction of real estate (2%),
- it will negatively affect the value of your home if it is not designed according to the tastes of buyers (5%),
- overlook other shortcomings of the real estate (13%),
- this will affect positively on the value of a home decorated according to the buyer's taste (21%),
- contribute to an increase in the number of people willing to "a virtual tour of the house" (21%),
- allow better visualization of the real estate buyer as a future home (38%).

In another survey, the aim of the Association was to review the agency representing both the seller and the buyer, the spaces are the most important to conduct a metamorphosis. The results of the study are presented in Table 1:

Table 1. The most important room in the house to "professional issue"

Ranking validity	The name of the room
1	Living Room
2	Kitchen
3	Master Bedroom
4	Dining Room
5	Bathroom
6	Room for Children
7	Private Room

Source: www.realtors.com.

According to the agency representing both sellers and buyers the most important rooms to "professional issue" are the living room, kitchen and master bedroom. Childre's room and living room are in the opinion of clients perceived as the least important.

A survey conducted by REALTORS sought to obtain the views of agencies working on the impact of home staging services on the price of real estate and real estate transaction time. According to the received opinion, thanks to home staging services, the average price of all existing homes 1.5%.

Of great importance in this study, it was a matter for the determination of the basic techniques of preparing the property for sale and obtained the return on these activities.

The results of another survey shows the following Figure 2.

Figure 2. Basic techniques of preparing the property for sale and estimated return on these activities
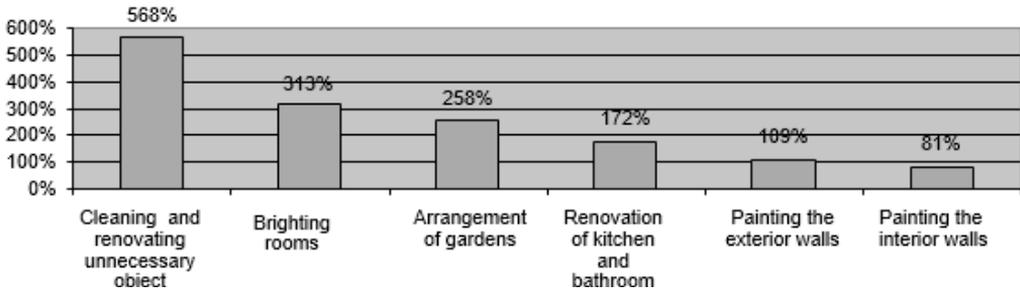
On the basis of REALTORS most important activities to prepare the property for sale and lease are: cleaning and removal of unnecessary objects, lighting and brightening rooms, arranging home environment (garden), renewal of kitchen and bathroom, Tracing interior walls and exterior walls. The biggest indicator of the profitability of these activities relates to cleaning and removing unnecessary items (568%), lighting and brightening rooms (313%) and the arrangement of home environment – garden (258%). The smallest rate of return on investment has been estimated for the painting of interior walls (109%) and external (81%).

Another survey concerned the determination of the impact of home staging services to shorten the time of the sale of real estate. The research results presented in Figure 3.

Figure 3. The impact of home staging services to shorten the time of sale of real estate
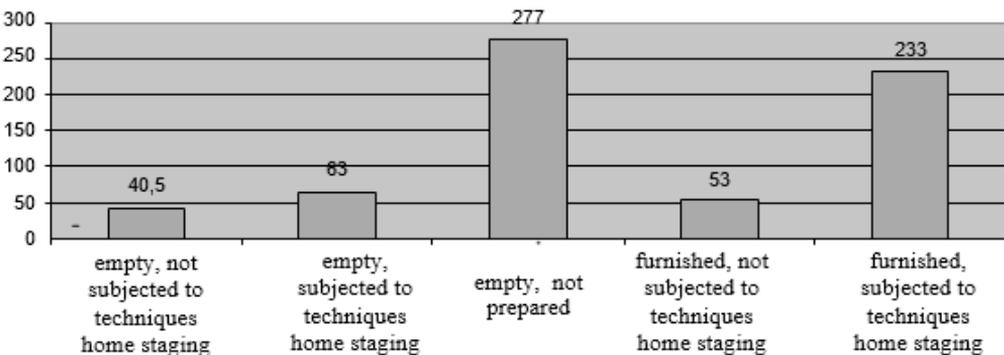
The best results are achieved houses professionally, comprehensively prepared from the beginning to issue the offer for sale. These houses also have a good estimate of the bid price. Their sales took an average of 40.5 days, which meant about 192 days shorter than the houses that such techniques have not been subjected to. As tests performed on the US market by REALTORS

services, home staging effect of shortening the time of sale of up to 40 days as compared to other commercial untreated service.

The evaluation of the recommendation of the basic techniques of preparing the property for sale and obtained the return on these activities was made also by the agencies cooperating with the magazine Home Gain. The aim of the survey was to obtain feedback about the extent of recommendations on each step in the preparation of real estate for sale, as well as the projected rate of the profitability of these activities. In addition, also obtained information regarding the estimated increase in home prices (caused by performing certain actions) and the average cost of these operations. These data are presented in Table 2.

Table 2. Recommended by intermediaries activities aimed at preparing the property for sale and the expected return on these activities

Draft amendments to the Real Estate	The average cost	House price increase	Profitability ratio [%]	Recommendation intermediaries [%]
Cleaning and trash removal	100-200	1500-2000	872	98
Brightening and revival of the interior	200-300	1000-1500	572	95
Arranging front of the house	300-400	1500-2000	473	94
Repairing plumbing	300-400	1000-1500	327	88
Replacing the wiring	300-400	1000-1500	309	89
Replacing or cleaning carpets	400-500	1000-1500	295	97
Painting interior wall	500-750	1500-2000	250	94
Repair damaged floors	500-750	1500-2000	250	91
Modernize the kitchen	1000-1500	2000-3000	237	69
Painting the exterior walls of houses	750-1000	1500-2000	201	81
Modernize bathrooms	750-1000	1000-1500	172	70

Source: www.homegain.com.

Of all the activities performed within the home staging services, the most recommended by intermediaries cleaning and trash removal (98%) and the exchange and carpet cleaning (97%). The highest rate of return brings the cleaning and trash removal (872%), brightening the interior and recovery (572%), furnishing oases yard (473%). The smallest rate of return brings the painting of interior walls (250%) and modernization of bathrooms (172%).

An important issue of the research was to determine the effect of home staging services on demand in the housing market. These studies were conducted by M. A. Lane, J. M. Seiler, and V. L. Seiler (2015). Their aim was to investigate the influence of the most important activities in the framework of home staging services, such as inserting new furniture into the apartment and painting the interior walls a neutral color – and to check whether they have an impact on the demand for real estate market. These activities are now considered by agency staff as the most important in preparation for the real estate transaction and can have a significant impact on the demand for real estate market.

Opinion study authors is contrary to the opinion of the national real estate agency. According to the study authors, these activities do not have a significant impact on the demand for real

estate market. They decided to support his theory carried out their research. These studies have been conducted among people who are property owners, who were divided by gender, work experience, possessed of income, number of children and origin. In total, they were attended by 820 respondents. They were based on the determination of the impact of the above-mentioned activities in the framework of home staging services on the development of demand. The study was conducted by means of an experiment (which consisted in serving the buyer's "virtual tour" at home using professional software rendering 3D, created by local architectural firm). Then obtained in the survey results were submitted to Bootstrapping method and statistical Levene test. They demonstrated that these actions have no material impact on the increase in demand for homes, but have a big impact on the perceived willingness of life and the overall impression of the buyer. These results are contrary to the opinion of a number of active real estate company in the US real estate market, who believe that the nature of the activities within the home staging services, has a significant impact on the growth in demand for real estate market. The study sparked a debate among real estate agents across the country, whether it is worth recommending the above mentioned activities within the home staging services seller (Seiler, Seiler, Lane & Harrisom, 2012).

The results of research conducted by. A. Lane, M. J. Seiler, L. and V. Seiler confirmed by the results of research G. Turnbull and V. Zahirović-Herbert. In 2011, they conducted research on the impact of individual actions performed within the home staging services for the development of the size of the demand for real estate market. According to their opinion of the service home staging involves more than just paint the walls a neutral color and a suitable arrangement of furniture and decoration. Currently, a large portion of real estate agents often advise retailers to paint the walls of the house on a neutral color that will appeal to the greatest number of potential buyers. These activities they believe will not only increase the price of the property, but also affect the increase in the number of transactions.

The authors, using the experimental design, create six unique variants of "virtual tour" of the house (good furniture and neutral color of the walls, no furniture and neutral color of the walls, poor furnishings and neutral wall color, good furnishings and unattractive color of the walls, no furniture and unattractive color of the walls, furnishings weak and unattractive color of the walls). They believe that the owners are willing to sell the house for the same price in all six different variants. Proper preparation of real estate for sale, consisting of a suitable painting the walls a neutral color and good furniture, do not translate into a greater revelation of the will of the buyer to pay for the house (Turnbull & Zahirovic-Herbert, 2011).

3. Conclusion

The properties are very complex products, acquired rare and demanding commitment by the buyer (both institutional and individual) of large financial resources. The above-mentioned study shows that the crucial question in the sale of the property is its adequate preparation for sale. For this purpose, more and more real estate agencies, both Polish and foreign techniques used home staging, for better promotion and presentation of the property.

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Chapter **13**

Significance of the Information System in Project Management

Ewa Kozień

1. Introduction

In the information era the way of development of modern organization is an ability of efficient obtaining, gathering and processing of information. This is the information and use of modern IT and communication technologies making its transmission possible that will decide on success of an organization in the 21st century. Currently information is a key resource impacting the functioning of each organization in competitive environments. Similarly, in project organization focused on implementation of various projects, the process of obtaining information and well-functioning information system will play an important role at every stage of project implementation.

The purpose of this article is definition to what extent the information system will influence the effectiveness of projects implementation.

2. Essence of information in a project

A notion of information comes from a Latin word *informatio* and means an image, an outline (Słownik, 1979). A synonym of information is a message and database. Data do not have informative value, they are a collection of numbers and facts expressed in a form of a sign (Stoner, 2001, p. 589). Only when organized into databases will they constitute information for a user. In theory of information it is accepted that information is a primary notion, therefore non-definable in a normative sense (Kolbusz, 1993, p. 51).

In the reference sources it is emphasized that information is a primary resource of each organization, although its perception varies, for example: as economic resource, product, consumer goods, public property, measurable quantity, potential and change. Ambiguous interpretation of a notion of information is characterized as below:
- it is an intangible notion,
- is objective,
- interpretation of information by various recipients is of subjective nature,

- is subject to dissemination in time and space,
- constitutes an informative effect arising as a result of combining various pieces of information,
- it is measurable,
- is subject to distortion,
- its distribution is uneven, there is a phenomenon of asymmetry.

Despite diversified characteristics of information and possibility of its perception it may be recognized as a valuable resource necessary for development of each organization.

Also, the strategic significance of information for an organization is of key importance. According to Porter each activity connected with creation of value contains both material and informative element. This is the informative function which assists making decisions and performance of activities in an organization both on a strategic as well as an operational level. These activities may be performed in a form of projects.

Project in reference sources is unanimously interpreted as a temporary and unique enterprise, the management of which involves planning, organization, monitoring and control in the scope of integration, scope, time, costs, human resources quality, communication and risk. Process of project management requires the establishment of flexible structural solutions of temporary character. For this purpose the organizations of project type are being established, focused on implementation of projects, in which the particular significance is attached to its informative function connected with the information needs for research specified by the project scope. Information function in the project is narrowed down to two aspects of management:

- obtaining and gathering information necessary in the process of searching a solution to a problem defined in the project,
- construction of an information system, facilitating the effective implementation of a project.

At an initial stage of preparation of the project a significant role is assigned to obtaining necessary information. Depending on project complexity a situation of both shortage and excess of information may occur. Along with an increase of complexity of problems and searching for innovative solutions defined in the project, the information gap increases as well, being a difference between information which is necessary and possible to obtain in order to complete a project. Difference in the amount of available and desired information may have impact on a decision on implementation or abandonment of a project. The benefit arising from completion of the project may be a decrease of an information gap. But then again, excess of information in a project requires its selection[1]. In a situation of making a decision on implementation of a project the effective functioning of the IT system, supported by IT tools is of key importance.

3. Elements and requirements of the information system

In a situation of organizations competing on international and global markets a problem remains of making members of an organization aware of significance of the information system. Designing

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[1] In theory of information a trend of information ecology has appeared, which is of practical importance and pertains to prevention of generating information which does not meet quality norms and they litter information system of a given organization. Effectiveness of acting in this direction as perceived by J. Oleński (2001) depends on specification of information quality norms.

modern management systems should concentrate on setting up effective information systems. In some organizations there is an erroneous conviction that IT system may replace the information system. Correct order of activities in an organization should include: understanding of a mission, goals, forming strategies, designing the management system, specification of information needs in order to build an effective information system.

Information system is a human activity system which is a joint creation of the following elements: data, methods, techniques, organization and people (Steinmuller, 1977). It allows for transforming specific information within an organization, appearing at an entrance into desired output information (Kisielnicki & Sroka, 1999, p. 19).

Architecture of the information system is created by (Nowicki, 1999, p. 17):
- information sets which are presented in a form of a text, number, graph or sound, using computer systems,
- sender and recipient of information, such as physical persons, organizational entities,
- information channels making the information flow among entities possible, creating an effective communicative system,
- technical devices of sending and processing information with information carriers.

But then again, the dynamics of the information system remains under the impact of an informative process, which includes (Oleński, 2003, p. 39):
- generating information by giving a message an appropriate form,
- gathering information meaning collecting messages in a form of datasets,
- storing information, meaning recording them on a given carrier,
- transmitting information,
- processing information, such as e.g. arithmetic processes on stored information,
- making information available in a specific scope, place and form,
- interpretation of information, what is connected with recipient's skills and knowledge, this is a particularly difficult activity in a situation of the so-called information overload,
- using information by recipients, concerning for example, a decision-making process, creating new knowledge, modeling of processes, etc.

In the process of organization management the important role is entrusted to the information system, which aims at (Krupski, 2003, p. 231):
- delivery of information (source of information),
- influencing the effectiveness of activity of remaining systems, including the management system,
- correcting current and planned actions inside an organization, as well as in relations with external entities,
- contributing to the development of competitive enterprises.

If the information system is to perform the above tasks it must take into consideration diversified needs of a user and meet the following requirements (Kisielnicki & Sroka, 1999, pp. 35-37):
- ongoing pertinence, meaning the introduction of new data to the system, allowing users to obtain current information,
- accuracy, meaning truthfulness and credibility of data. Erroneous information prevent the solution of problems arising in an organization and it may put the organization at risk, this is why the data contained in the information system must be subjected to control,
- completeness, concerning the receipt of full information by a user. Measurement of completeness is loss of data, which occurs at the stage of transmitting and processing information,

- availability, meaning the provision of data to a user, which are necessary to perform a task,
- reliability, meaning effectively functioning system. The more reliable the system is, the higher its effectiveness,
- comparability, meaning gathering information from various areas in order to analyze the created datasets. In practice problems may appear with comparability of information placed in various systems,
- ability to be processed, depending on the kind of information and selection of an appropriate system,
- effectiveness, measured by a capacity of the system to gather, process and send information in a unit of time,
- economy, concerning designing costs as well as operation of the information system,
- flexibility of information system, meaning the ability to adjust to changes, user's requirements and the environment,
- system reaction time, meaning the length of time a user waits to obtain information,
- level of detail, concerning the comprehensiveness of information,
- stability within the meaning of securing the system from interference,
- easiness of using a system dependent on a skill of operating the system by a user,
- setting priorities, specified by the organization management,
- safety, concerning the security of the system from break-ins and data recovery in case of losing data,
- confidentiality, meaning the information available only to authorized personnel.

Process of organization management must be supported by setting up integrated information systems, which combine a process of obtaining and gathering information with the effectiveness of its communication, using information technologies. In the projects it is of particular importance on account of creating unique solutions and harmonizing project tasks in time.

4. Information system in CERN

European Organization for Nuclear Research (CERN) in Geneva was established in 1954. CERN implements projects, the management of which requires effectively functioning information system.

Elements of the information system are:
- states which signed an agreement of cooperation of scientific organizations in the scope of implementation of international and global projects,
- Scientific and Research Centers belonging to organizations associated with CERN, for scientific and research cooperation,
- universities who took up or intend to cooperate with CERN,
- enterprises which manufacture machines and devices necessary for experimental verification of scientific projects,
- scientists, students, who are behind projects and implement them.

Information channels:
- electronic system of communication dominates (Internet, Intranet),
- personal contact in project teams and during scientific meetings being organized,
- by telephone or videoconferences.

Information systems in the scope of:
- Administrative Information Services – AIS,
- System of LHC Project Management (Large Hadron Collider) using the EVM method (LHC Project Earned Value Management System),
- Accounting Systems,
- Contract Management System,
- Human Resources System,
- MTF base, established in order to gather technical information concerning the project,
- Library resources base, established in 1954 and gathering vast scientific and research literature collections.

Information systems are protected by access codes with an exception of widespread access to the library resources.

Table 1. Requirements from the information system in CERN during project implementation

No.	Requirements of the information system for the need of project implementation	Characteristics
1.	Ongoing pertinence	information concerning the implemented project are introduced on the ongoing basis, members of project teams work based on current information
2.	Accuracy	members of groups and sections connected with projects, who grant one another credible information concerning the performance of tasks at every stage of project implementation
3.	Completeness	project works results are described in detail
4.	Accessibility	access to information on the project being implemented only to authorized members of project teams by means of access code
5.	Reliability	if a member of any project team cannot finish tasks connected with a project, another scientist substitutes for this person
6.	Comparability	gathers information in the scope of scientific concepts and management systems on various projects, although they are difficult to compare, since every project constitutes a new solution
7.	Ability to process information	uses specialist systems of IT data analysis
8.	Productivity	high ability to process and transmit information, new IT systems are used, with large design power
9.	Economy	high costs of operations of the system
10.	Flexibility	high capacity of the information system to introduce and correct on the ongoing basis of data at every moment of implementation of the project
11.	Time for system reaction	varied, depends on the degree of project complexity
12.	Level of detail	information is comprehensive, because this is required in the process of project implementation
13.	Stability	stability secured through the control system
14.	Easiness of using the system	easiness of use arises from user's high competence

15.	Setting priorities	dependent on key project tasks
16.	Security	information security system, some of them being classified as confidential
17.	Confidentiality	information is systematically selected, a part of information is made available only to authorized persons.

Source: own elaboration.

Information systems in CERN are assisted by specialist information system. The management information systems – MIS used by the organization include:

- decision support systems – DSS, which is used to solve non-structuralized or slightly structuralized problems. Computerized decision support system enables project managers to use data and models in order to understand also the problem solving. Moreover, it assists the support of projects of new solutions with a possibility of using bases of knowledge. Particular application can be found for information systems giving a possibility to simulate effects of various variants of decisions on the basis of introduced data and parameters using mathematical models (algorithms). Created models of probability type prevent making a decision in a situation of incomplete information.
- executive information systems – EIS and executive support systems – ESS, facilitate analysis, visualization and communication of data in the scope of other applications, creating a system of informing managers with the use of simple databases and models.
- expert systems – ES created by knowledge engineers to solve complex problems. Expert systems implement the ideas of continuous learning on the basis of use the current knowledge. Development of complex expert systems requires very high calculation power of computers. Increase of calculation power of computers is a research problem of the GRID project implemented in CERN.
- knowledge based systems – KBS includes setting up interdisciplinary knowledge bases, containing information on implemented concepts and creative solutions which are a subject of scientists' research. Moreover, technical knowledge is gathered, which is supplemented with new knowledge arising as a result of application of innovative solutions in implemented projects.

Moreover, artificial intelligence – AI is applied, i.e. the so-called artificial neuron networks, the advantage of which in relation to typical information processing algorithms is ability of generalization, i.e. approximation of value of functions of numerous different variables.

Comprehensive approach to creation of information system using information tools impacts effective management of complex projects.

5. Conclusion

Building information systems is a key factor of effective project management. Access to information facilitates a project organization the implementation of projects based on current scope of information from a given field. Taking up new challenges within the framework of implemented projects impacts the supplementation of knowledge resources with new information. Moreover, current information on the time and cost of project implementation prevents monitoring of the project phases pursuant to the planned schedule. It should be emphasized that information systems should

be assisted by information systems, but they should not replace them. In the project management information can be treated as a resource directly pertaining to the implementation of function of planning and monitoring of the project implementation, as well as connected with the increase of knowledge as well as creation of new knowledge.

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Information Needs of Environmental Management – Research Case of Life Cycle Assessment Use in a Manufacturer of Fertilizers[1]

Tomasz Nitkiewicz, Marcin Rychwalski

1. Introduction

The problem of environmental information in companies is usually addressed by environmental management. According to Poskrobko (1996) environmental management could be defined as a set of resources including knowledge, skills and company management techniques that assures achieving high economic efficiency of manufacturing and services offering with minimal pressures on natural environment and high comfort of work in a company. He also defines it as a concept of integrated management in the context of management of use, protection and shaping of environment and its elements and includes organizational structure, codes and practices of conduct, procedures, processes and resources required to its implementation (Poskrobko, 1998).

Lesourd and Schilizzi (2001) indicate that environmental management should refer to such elements of company functioning as ethics, accounting, reporting, investment policy, risk management, organizational structure, management systems, marketing and quality assurance systems. The objective of environmental management introduction in a company is to create conditions for systemic and organized decrease of environmental pressures related to its activities (Muweis, 2010).

Sheldon and Yoxon consider environmental management from the perspective of limited control of a company over environmental impacts and pressures. According to this perspective, environmental management should be focused on indirect, but still effective, ways of managing company practices that are responsible for environmental impacts and pressures. The scope of environmental management is the interrelation between the company and natural environment and flexible and intangible interface between them (Sheldon & Yoxon, 2006, p. 2).

Adamczyk (2001) points out that proecological orientation of management is mostly present in long-term horizon of company functioning and affects its strategic decisions and formulating of environmental and sustainability strategies. System approach to environmental management

should be interpreted as complementing with environmental issues the general management system of a company that leads to development and implementation of environmental policy and to definition of environmental management practices in a company (Matuszak-Flejszman, 2010, p. 30).

Environmental management should be treated as the most complex form of including environmental aspects in company's functioning and, in its normalized variant, is completely integrated with company management system. Through such integration, environmental aspects are equally present and considered in production factors, such as capital, work, knowledge and technology, in work organization and in marketing (Nitkiewicz, 2013). According to ISO 14001 the objective of an EMS is to arrange and unification of company activities oriented to protection of the environment and to present these efforts to public opinion (ISO, 2004).

2. Role of information in environmental management

Environmental information is an element of environmental management that highly determines its range and scope. Figure 1 presents simplified map of environmental management system (EMS) implementation in a company. Important factors that determine the effectiveness of EMS implementation are: appropriate evaluation of environmental aspects before implementation of EMS, efficient use of knowledge and skills in order to include key environmental issues in EMS and its integration with existing management systems, defining appropriate monitoring and control procedures that would lead to generation of useful information and feedback loops and to triggering of correction procedures for environmental practices in a company. Environmental information plays important role in defining each one of the abovementioned factors. It is an integral component of EMS and should be purposefully gathered and managed across the organization. Accordingly, the development of environmental management information systems (EMIS) is an attempt to simplify and automate environmental management tasks and introduce supporting techniques such as lifecycle assessment, environmental cost accounting, lifecycle costing, as well as auditing and compliance (Rikhardsson, 2001). The prevalence of these techniques indicates that firms need increasingly accurate and sophisticated environmental management information systems that adapt to managers' changing needs (Pérez-Méndez & Machado-Cabezas, 2015).

Figure 1. Role of information in environmental management system implementation
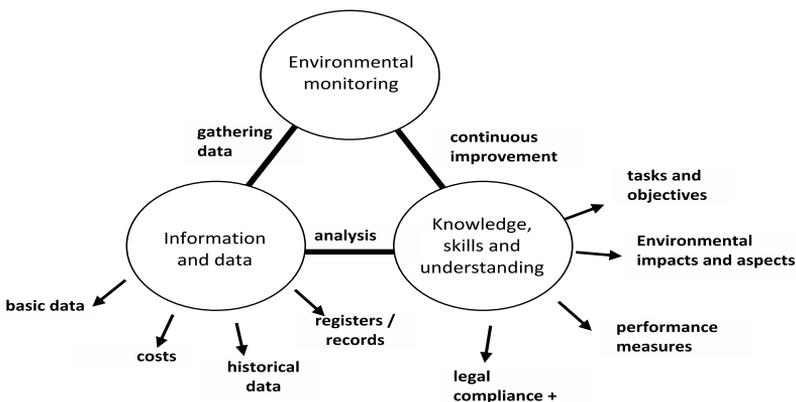
Source: own compilation based on (Sheldon & Yoxon, 2006, p. 122).

3. Structure of environmental management information systems

EMIS is defined as organizational-technical or socio-technological systems for systematically collecting environmental information, its processing, and making it available to decision makers when need (El-Gayar & Fritz, 2006; Isenmann, 2008; Page & Rautenstrauch, 2001). Recently, various information systems have been developed for the purpose of collecting, transforming and providing the environmental information (Buhren & Decker, 2008; Kouziokas, 2016; Mugerezi, 2006).

While traditionally EMIS has been oriented on regulatory requirements, the key challenge nowadays is to use EMIS for building up strategic advantage through the development, deployment and management of such systems (Moore, 2002). EMIS techniques should be implemented with strategic direction, aligning tools with business strategy, which requires a high level of managerial staff involvement. The positive contribution of EMIS to company performance depends mostly on its capability to manage and improve key strategic areas of the business (Ravichandran & Lertwongsatien, 2005). therefore, developing and investing in EMIS should be well planned, in order to guarantee their appropriate contribution to the development of company strategy (Byrd, Thrasher, Lang & Davidson, 2006).

It is crucial to define condition of successful EMIS implementation. There are different methods for measuring EMIS success rates. DeLone and McLean (2003) define seven dimensions to measure EMIS success: information quality, service quality, system quality, intention to use, use, user satisfaction and net benefits. User satisfaction seems to be the most important indicator of EMIS success (Urbach & Müller, 2012) but, at the same time it is disputable (Livari, 2005). Managers, that are EMIS users await high quality information that provide important benefits in decision making (Wu & Wang, 2006). Their satisfaction could be measured by EMIS relevance, content, accuracy, and timeliness (Seddon & Yip, 1992). The possible measure for EMIS successful implementation is the assessment whether its objectives have been achieved. The problem is that these objectives are usually generic and are rather difficult in testing whether have been met or not (Pérez-Méndez & Machado-Cabezas, 2015).

Figure 2 presents the interrelation between elements constituting and influencing EMIS in a company. According to El-Gayar and Fritz (2006), the triad of people, processes, and technology forms the central core of the EMIS. It includes the technological and organizational subsystems in addition to the core production processes central to the business model, and relates fundamentally to revenue-generating activity. Here also are found the basic processes that are the source of performance data gathered, aggregated, and synthesized by the higher levels of the organization.

EMIS is concerned with the efficient collection of performance data to directly support performance measurement and process improvement. EMIS data is consumed by higher strategic levels in order to assess the effectiveness of, and in turn, to modify as necessary the EMS that guide operations.

EDSS include aggregation, ad-hoc querying, and modeling of environmental data and processes. It facilitates strategies of business process re-engineering, and technological innovation. It supports strategies of process improvement and workflow optimization.

The assurance of regulatory compliance as well as meeting of operational performance objectives is enforced and overseen directly at the EMS level. EMS primarily assures compliance and accountability of processes and personnel involved in the operational activities of the firm.

Stakeholders internal and external to the organization are the primary consumers and drivers of demand for access to environmental information. Increased awareness of environmental issues and the importance of sustainability further fuel corporate accountability and transparency.

Figure 2. A framework for information system support for environmental management

Operational Core
People - Technology - Processes

Environmental Management Information System

Environmental Decision Support System

Environmental Management System

Stakeholders
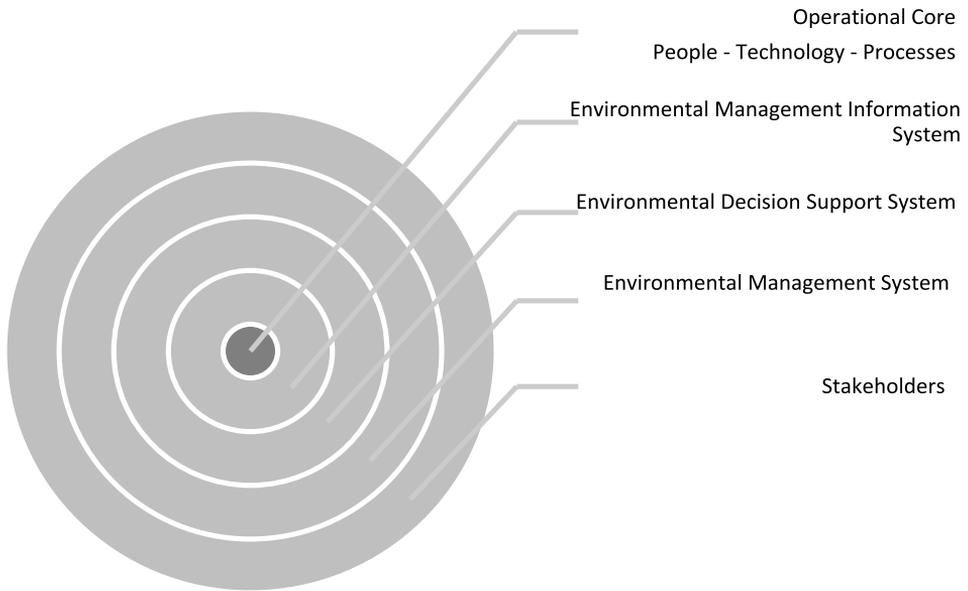
Source: own compilation based on (El-Gayar & Fritz, 2006).

4. Research case on EMIS use in decision making

4.1. Profile of fertilizers manufacturing company

In order to present the relevance of EMIS to environmentally driven decision making in companies a single case is analyzed. Research case is based on the company that wishes not to disclose its identity, and, therefore, its name is not used in the paper. The company under investigation operates in a chemical sector with orientation on manufacturing of mineral non-organic fertilizers and sulphur based products. Additionally, company offers some services related to its business core, namely heat and energy distribution and specific laboratory measurements and diagnostics. Major product line consists of several type of agricultural and garden fertilizers, including the following:
• powdered and granulated phosphorite fertilizer (P(CaS)),
• multi-ingridient powdered and granulated fertilizers (i.e. NPK(CaMgS), NPK(CaS)),
• specific use fertilizers (i.e. CaMgS, S, MgS).

Company has ISO 9001 and ISO 14001 certificates for their non-organic fertilizers and sulphur based product manufacturing processes. Laboratory of a company is also compliant with ISO/IEC 17025 standard on "General requirements for the competence of testing and calibration laboratories".

4.2. Manufacturing processes of granulated phosphorite fertilizer

Key product of the company is powdered phosphorite fertilizer (PPF). Its production process is presented on Figure 2. The production sequence includes the following processes: unloading, transportation, crumbling, mixing with diluted H_2SO_4, chemical chain reacting and phosphorite decomposing, adding fluorosilicic acid, fixing of superphosphate, transportation and maturing, distribution or mixing for granulated fertilizers production.

It is worth to mention, that PPF manufacturing process provides not only PPF itself but also some by-products for different fertilizers and tradable elements and compounds.

Figure 3. Simplified scheme of PPF production process
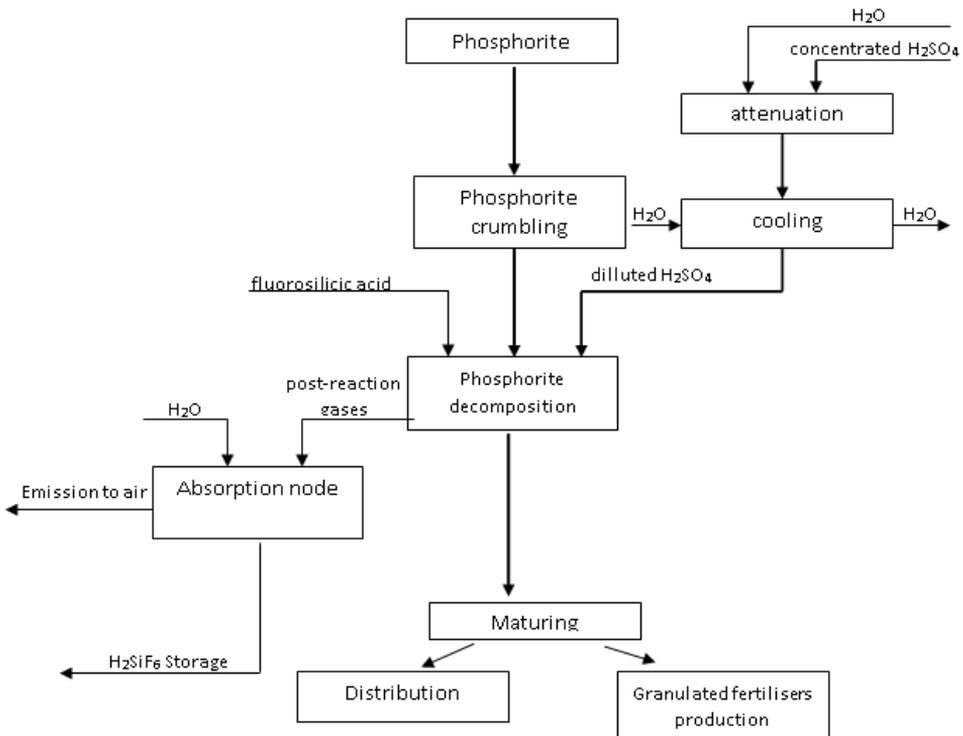
Source: own elaboration.

Since the company is using dangerous elements and substances in their manufacturing processes, it is obliged to run environmental monitoring, reporting and risk assessments. Additionally,

environmental monitoring and diagnostics is developed for the purpose of ISO 14001 certification. All the information generated throughout this monitoring systems are gathered in their EMIS. Finally, laboratory is capable of performing on-site measurements and experiments concerning environmental impacts in manufacturing processes.

5. Testing company EMIS for supporting capability of potential actions

5.1. Hypothetical environmentally oriented actions of the company

The capacity of EMIS is tested with the possible information needs incurred by the following actions:
- preparation of Environmental Product Declaration (EPD) for PPF,
- PPF manufacturing process environmental optimization.

Preparation of EPD is a type of environmental certification process and is oriented on measurement of environmental impacts of current manufacturing practices while process optimization additionally measures potential variants of manufacturing process realization.

Undertaking EPD or optimizing manufacturing processes requires certain environmental information. Table 1 presents the data requirements for certain activities and describes assessments needed for their implementation. The differences between the two activities are quite significant. EPD is type of actual state-of-art assessment concerning life cycle of selected product (PPF in our case). Moreover, concerning official requirements of EPD, the physical flows of materials, energy, emissions and wastes are needed. Environmental optimization of PPF manufacturing process requires, first of all, producing experimental data on potential variants of its manufacturing. The only possibilities in such a case are: laboratory experiments and external data simulations. In order to get life cycle oriented results, it is necessary to combine both laboratory data with external database records.

Table 1. Data requirements and type of environmental assessments for analyzed activities

Type of activity	Data requirements	Type of assessment
Preparation of EPD	Data on selected environmental impacts and resource flows within life cycle of selected product	Retrospective, based on internal data, formally defined, single method (EPD 2013)
Environmental optimization	Data on all environmental impacts and resource flows within manufacturing phase of selected product and its potential variants	Prospective, based both on internal and external data, adjustable in a sense of life cycle phases covered and methods used (p.e. ReCiPe)

Source: own elaboration.

As presented above, implementation of selected activities requires certain environmental data. There is no centralized EMIS in the company. In order to prepare selected activities, company needs to use all its internal information sources. Table 2 presents the data

requirements for selected activities. Preparation of EPD is focused on depicturing environmental impacts and resources use that occur during the whole life cycle of PPF. In fact, internal EMIS is sufficient for preparation of basic EPD. Environmental optimization of PPF manufacturing process is more challenging and besides internal data sources uses also external databases. In our paper we consider six following variants of PPF manufacturing process optimization:

V1. current practice (H_2SiF_6 21.70%)
V2. reducing flourosilic acid use (H_2O instead of H_2SiF_6)
V3. reducing sulphuric acid use (H_2SiF_6 only)
V4. suplementing flourosilic acid with sulphuric acid (H_2SO_4 instead of H_2SiF_6)
V5. concentrating flourosilic acid (H_2SiF_6 24.50%)
V6. adding flourosilic acid (+H_2SiF_6 21.70%)

All the potential (V2-V6) are defined in a way that allows meeting product quality requirements for PPF. Table 2 presents the content of raw materials in PPF manufacturing processes, as well as, flour fate in end product.

Table 2. Specification of material use in PPF manufacturing process optimization

Raw materials	V1	V2	V3	V4	V5	V6
	[g]					
Phosphorite	265.00	265.00	265.00	265.00	265.00	265.00
H_2SO_4 "nitro" 68%	149.95	149.95	-	174.42	145.95	145.95
H_2SO_4 94%	64.09	64.09	-	64.09	64.09	64.09
H_2O	-	23.80	-	23.80	-	-
H_2SiF_6 21.7%	23.80	-	120.00	-	-	60.00
H_2SiF_6 24.5%	-	-	-	-	23.80	-
Product and output characteristics	[g]					
Fluor content in product	11.04	9.47	30.45	9.38	10.45	10.86
Fluor content in flue gases	4.02	0.68	0.30	0.77	5.28	11.61
Stopping fluor in H_2SiF_6 [%]	18.10	-	98.50	-	5.50	6.00

Source: own elaboration.

5.2. Data sources use for implementation of potential actions

Table 3 presents the requirements of selected activities concerning data sources. The major difference between the two potential activities is the use of external databases. In the case of EPD, there is no specific need to use them, and specific impact categories (acidification, eutrophication, global warming and photochemical oxidant creation) could be calculated with simple LCA software. In the case of environmental optimization, description of all the potential variants of PPF manufacturing are based on experimental data and some assumptions. In order to calculate

environmental impacts that could possibly occur it is necessary to introduce some external data. As an information source life cycle inventory databases would be especially useful, i.e. ecoinvent or SPINE databases.

Table 3. Data sources required for implementing activities

Data sources	Preparation of EPD	Environmental optimization
Manufacturing environmental monitoring	Manufacturing flows, raw materials use, chemical structures and hazardous substances content	Manufacturing flows, raw materials use, chemical structures and hazardous substances content
ISO 14001 monitoring and reporting	Emissions, hazardous substances content	Emissions, hazardous substances content
Laboratory measurements and records	Emissions	Data on experimental processing, emissions
Suppliers	Quantities and chemical structures of supplied materials, environmental load of electricity and heat generation environmental load	Quantities and chemical structures of supplied materials, processing specification, environmental load of electricity and heat generation environmental load
Environmental databases (external)		Impacts of average manufacturing processes

Source: own elaboration.

5.3. Environmental impact assessments for potential actions

For preparing EPD the EPD 2013 method is used. In the standard EPDs one only has to report on the following impact categories (PRe, 2015):
•   Acidification potential,
•   Eutrophication potential,
•   Global warming potential,
•   Photochemical oxidant creation potential.

The results of EPD based impact assessment are presented on Figure 4 as flow diagram. The thickness of lines indicates the significance of environmental impacts related to certain material used in the production process and its processing. The biggest impact is posed by preparation and delivery of phosphate rock, while all the other materials used are responsible for 35% of impacts.

For life cycle impact assessment of PPF environmental optimization ReCiPe method is used. Its selection is justified mainly by its timeliness, comprehensiveness, compatibility with Ecoinvent database and inclusion of recycling effects (PRe, 2015). In order to assess the environmental impacts of PPF manufacturing process ReCiPe endpoint method is used. The method is referenced to Europe and uses hierarchist perspective (signature *Recipe Endpoint (H) 1.08/Europe Recipe H/A* in SimaPro 8.0.4 software). The details concerning the impact and damage categories, allocation procedures and calculation steps are presented by (Goedkoop et al., 2013).

PRe consultants, a group of LCA experts that developed ReCiPe method, define damage categories as (PRe, 2015):

- Damage to human health (expressed in disability-adjusted loss of life years),
- Damage to ecosystem diversity (expressed in loss of species during a year),
- Damage to resources availability (expressed in costs increase).

    Damage category indicators are calculated on the basis of the following impact categories (PRe, 2015):
- climate change impacts on human,
- ozone depletion,

Figure 4. EPD based flow diagram for PPF manufacturing
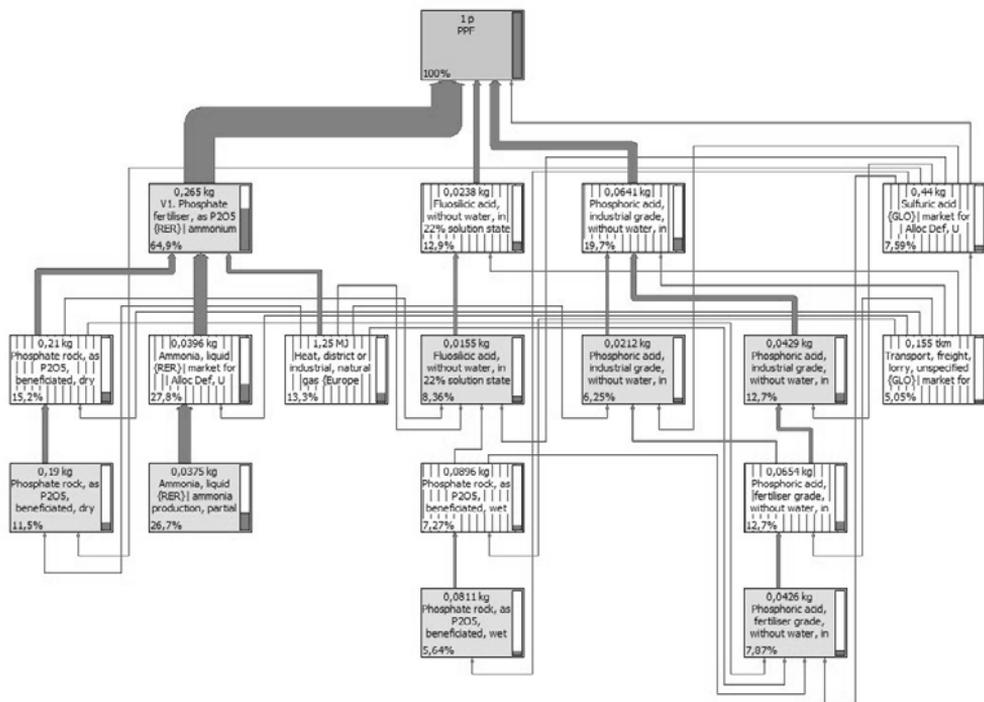
Source: own elaboration.

- human toxicity,
- photochemical oxidant formation,
- particulate matter formation,
- ionising radiation,
- climate change impacts on ecosystems,
- terrestrial acidification,
- freshwater eutrophication,
- terrestrial ecotoxicity,
- freshwater ecotoxicity,
- marine ecotoxicity,

- agricultural land occupation,
- urban land occupation,
- natural land transformation,
- metal resource depletion,
- fossil fuel depletion.

The results of assessments are presented on Figure 3 and Figure 4. We could observe that current variant (V1) of PPF manufacturing process is quite well balanced with regard to environmental impacts. It poses significant environmental threats in contributing to climate change, particulate matter formulation, urban land occupation, metal and fossil fuel depletion. To some extent it contributes to human toxicity impacts. Only variants without H_2SiF_6 use (V2 and V4) perform better in a sense of environmental impacts.

Figure 5. LCA of PPF manufacturing process variants – normalized impact category indicators
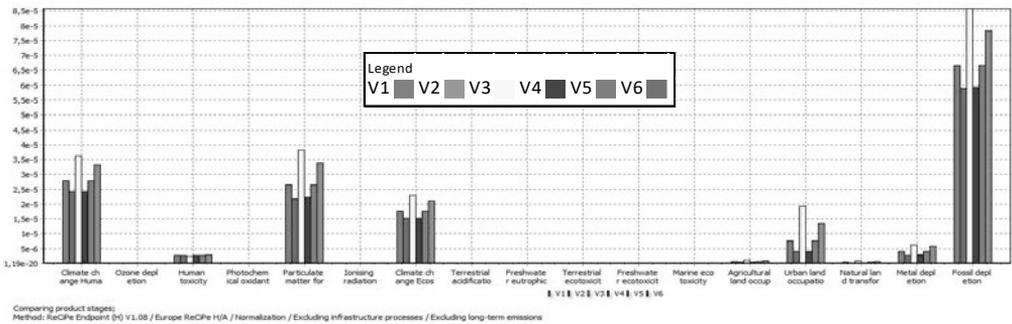
Source: own elaboration.

Figure 6. LCA of PPF manufacturing process variants – normalized damage category indicators
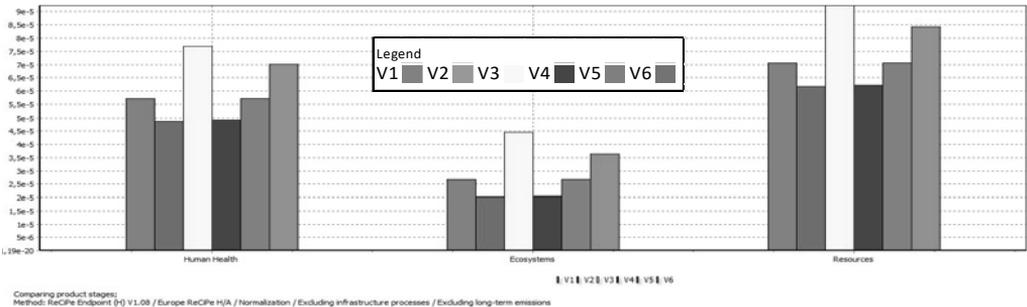
Source: own elaboration.

6. Conclusion

EMIS used in the company under investigation is build upon few separated elements that serve for different purposes. It perfectly serves for current company's functioning by providing appropriate environmental information. Undertaking any development initiative that refers to the company environmental performance will possibly require some external information that is needed to decision making.

Examples of EPD preparation and environmental optimization of manufacturing process are used to test the capacity of EMIS. In case of EPD, EMIS is sufficient to meet information requirements, and its eventual supplementation is rather simple and is not related to high costs or high engagement needs. As opposed to environmental optimization, which needs external data to supplement experiments that are made in the laboratory.

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Chapter **15**

Environmental Protection as Growth Opportunity for Producers of Renewable Energy in Italy

Giovanna Centorrino, Luisa Pulejo

1. Introduction

In the current economic system characterized by international competition, the aims of development and business growth, and the strategies adopted for the realization of significant economic results, need to be combined with socially responsible behaviour and actions that can also ensure development from a social and environmental perspective, now considered and treated as an essential factor in modern business culture. Therefore, in order to ensure sustainable development, the aims today pursued by companies go well beyond mere economic growth; they also concern environmental protection, natural resources, safeguarding cultural biodiversity, respect for human rights and the fight against poverty.

In other words, the concept is constantly evolving and is subject to different interpretations. In particular, it is noted that the growing awareness of environmental issues – which, to various degrees and extent involves business stakeholders – today requires companies to consider the effects generated by their production process on the natural environment, and adopt good behaviours that go beyond mere compliance with laws designed to protect the environment.

This process, from the declaration of principles to the definition of policy that allows practical implementation, however, often comes up against the economic, social and cultural life of the place where the principle itself has evolved, namely with the *hic et nunc* and against rulers' political and legal skills to outline future scenarios, suitable for new needs. The issue, therefore, takes on a considerably pragmatic dimension, especially in relation to companies' perspective regarding a series of norms and official documents that, both at European and Italian level, require and promote virtuous behaviour aimed at preserving the environment. Such a situation has produced significant consequences by changing the various implications of respect and protection of the environment, from "obligations" for economic action, into "opportunities" as a key factor for growth and competitiveness of enterprises.

Starting from this premises, the present work intends to carry out some brief considerations on the strategic approach of companies towards environmental sustainability, with specific reference to the field of renewable energy. After an introductory section on strategic orientation

to sustainability and its impact on companies, the study will focus on business organization and management of the environmental market in Italy, with respect to the issues that concern the scope of incentives aimed at companies that produce electricity from renewable sources.

2. Strategic approach towards environmental sustainability: impact on companies

The profile associated with the environmental effects of production and consumption of goods was, in the past, considered almost a "necessary evil" linked to the satisfaction of the growing needs of the community; in other words, almost a "burden" that the community had to bear for the benefits of economic development and expansion of consumption (Bertolini & Triolo, 1996). For several years now, however, sustainable development has become a categorical imperative in the aims of a company, becoming a key role for a company's competitive advantage.

We are facing a radical rethink of the development model adopted where economic growth and environmental protection are synergistically combined. The need to pursue development, as is now universally accepted, is no longer only related to an increase of wealth produced – with exclusively economic parameters being used – but must also enable present generations to meet their own needs without compromising the ability for future generations to meet their own.

Although not attributing the origin of the environmental theme to the "Brundtland Report" (United Nations, 1987), this however, did arouse the interest of the scientific, cultural and political community and focused public opinion on issues related to economic development pursued at all costs. The debate that followed led to the consolidation of a "multi-dimensional" vision of sustainable development (Fig. 1).

Figure 1. The dimensions of sustainable development
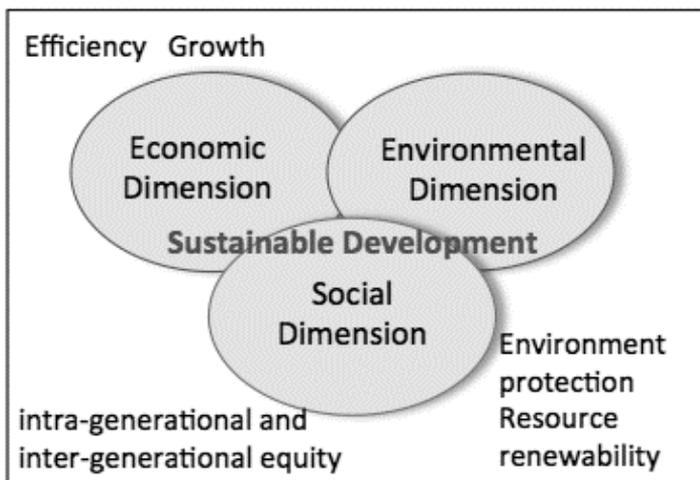
Source: (Pulejo, 2014).

It is a development whose policies can no longer exclude instruments and measures aimed at preserving the environment and ecosystem.

This realization of moral responsibility reveals the cultural change of our own time, in which ethics, namely "the ability to testify the core values of one's existence in daily life" (Vermiglio, 2014) intersects with the economy, giving importance, amongst others, to the conviction that environmental protection also depends on creating dignified living conditions for all populations. The concept of sustainable development, therefore, refers not only to the bipolar tension between economic development and environmental protection, but also, to "social development", a third crucial component that synergistically combines with the other two. In the last few years, in fact, our social structure, with its norms and values has broadened out to guidelines aimed at reconciling economic behaviour with ethical values. Sustainability, today, does not only concern a profile linked to the management of physical and natural resources, but also includes the ethical principle of equity, in the double meaning of "intra-generational equity", according to a synchronic approach, and "inter-generational equity" according to a diachronic approach (Carley & Spapens, 1999).

In other words, the issue is not just about what is "good for man", but rather, what "is good for development of the system". The wide interest in this issue has a transversal value; the environment transcends political and legal barriers, referring also to religious issues. In the last half-century, in fact, the Popes have repeatedly addressed the issue of protection of Creation; at the Second Vatican Council with the publication of the Pastoral Constitution *Gaudium et Spes*, for example, it was stated that "man should regard the external things that he legitimately possesses not only as his own but also as common in the sense that they should be able to benefit not only him but also others"[1]. More recently, Pope Francis addressed the ecological question, tracing out a set of lines of thought and action designed to guide, encourage and inspire legislation and technical solutions programs in the *Laudato Si'* Encyclical[2].

The Holy Father states that: "Greater investment needs to be made in research aimed at understanding more fully the function of ecosystems and adequately analysing the different variables associated with any significant modification of the environment" (Francesco, 2015, p. 42).

The reflections expressed in the Encyclical also significantly refer to the role of entrepreneurial activity, defined as a noble vocation oriented to produce wealth and a better world for all, whose service is an essential part of the pursuit of the common good.

He stresses, moreover, the need for such activities to be supported within the fold of broader academic freedom. "Due to the number and variety of factors to be taken into account when determining the environmental impact of a concrete undertaking, it is essential to give researchers their due role, to facilitate their interaction, and to ensure broad academic freedom" (Francesco, 2015, p. 140).

The consequences of the Papal Encyclical have had a great impact on public opinion and also influenced the decisions and strategic choices of the Paris Conference on "Climate Change", at the 21st annual United Nations Framework Convention on Climate Change (UNFCCC), from

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[1]   CONCILIO ECUMENICO VATICANO II (1965), *Costituzione Gaudium et Spes*, 69. I beni della terra e loro destinazione a tutti gli uomini"*,* Città del Vaticano.

[2]   "Caring for ecosystems demands far-sightedness, since no one looking for quick and easy profit is truly interested in their preservation. But the cost of the damage caused by such selfish lack of concern is much greater than the economic benefits to be obtained", *On care for our common home LAUDATO SI' The Encyclical of Pope Francis on the environment*, 2015, p. 36.

November 30 to 12 December 12 2015, with a total of 195 countries – many of them oil-rich economies – committed to keeping the global temperature increase to well below 2°C, and ideally 1.5°C, above pre-industrial levels.

Such an important event shifts the entire world economy, and has huge implications for business (Garton, 2016). It continues along the road already taken as a constant commitment by the European Union's governing bodies, on the relevance of sustainability assumed in the definition and adoption of Community policies. It is evident that, beyond mere compliance with the rules of law, sustainable development involves a commitment by all operators, public and private, aimed at meeting legitimate expectations and expectations expressed by the community, and at pursuing "the long-term maintenance of systems according to environmental, economic and social considerations" (Crane & Matten, 2007).

Its realization therefore involves the sharing of responsibility and partnership of many actors, as well as the commitment of all parties, whose consumer habits and lifestyles are reflected in the dynamics of the economic system.

While, however, it is up to governments and public institutions to define a uniform framework of policies and long-term strategies and, at the same time, to sensitize public opinion and the business community to the benefits that can derive, it is mainly companies, both public and private, that can play the role of "driving forces" for the realization of economic growth that is sustainable socially and environmentally. It must, however, be pointed out that for "sustainable development" to not only represent a slogan to advertise, but a goal to be pursued and realized in practice, sustainability should be a core value of "vision" and organizational culture that guides behaviour and actions of government bodies and of those working at different corporate levels, and be likewise integrated into the strategy definition process and translated into policy interventions and tools (Bonn & Fisher, 2011). Sustainable development, in other words, should be the result, on the one hand, of a deliberate strategy, "which embodies the top-down side of the analytical-rational strategy" (Coda & Mollona, 2002; Mintzberg, 1994) and, secondly, of an emerging strategy in which the bottom-up component is fundamental, that is, the contribution made by individuals inside the companies that implement production consumption.

The aim is, therefore, to change attitudes and behaviours of individuals and of economically and politically organized social groups and, above all, to reconfigure corporate decision-making. Only in this way will it be possible to prevent the pursuit of sustainable development from remaining a "mere declaration of intentions and desires, a reminder of "high moral character", but of little influence on daily life, an unattainable utopia" (Borgonovi, 2005).

From what we have briefly mentioned, it appears that all companies, in performing their typical function of "value creation", must necessarily take into account the positive and negative consequences that their activities determine in the context in which they operate and, at the same time, promote behaviours and best practices that meet international standards of environmental protection. Emphasis should be placed on the importance of abandoning a vision centred on the short run and on preferring the qualitative aspects of development rather than its quantitative dimension. Instead of dramatically increasing production volumes, now more than ever, it is a "moral obligation" for companies to produce better quality goods without offending the environment and human dignity. In the long term, social and environmental goals converge with those of an economic nature; their pursuit and realization, reducing the risk of conflicts, promotes the enduring consensus of the community and the realization of tangible positive results (Cochran, 2007). The adoption by companies of a strategic approach to social responsibility, therefore, can be a driving force for competitiveness and economic growth of the country.

The "rules of the game" then, today, have changed. National and international legal systems have introduced "new" rules and principles on the environment that companies must comply with in order to obtain "legal justification" to operate. It should also be considered that the environmental dimension transversally affects all business functions ranging from research and development to production, from marketing to accounting. Thus, for example, dissemination into corporate culture of a different system of values, suggested also by greater sensitivity toward ecological action in economics, for several years now, has favoured, in public and private businesses, research and the dissemination of different methods of execution of production processes and new measurement tools of business phenomena needed to guide choices in policy-making and support the activities of planning and management control.

The awareness acquired by companies of risks linked to their responsibility for the physical impacts on the environment generated by processes involved in some industrial sectors, has meant that companies themselves could play a leading role in providing an answer to meet growing environmental pressures. Their efforts, supported both locally and by the European Union with appropriate incentives, have led to the endogenous development of technical solutions called "clean technology" for the implementation of production processes and the production of new products that respect the environment. "Zero environmental impact" is the buzzword in technological innovation for the next decades.

3. Environmental protection in view of the structure of the electricity market in Italy

From a company perspective, the issue of environmental protection carries considerable implications, which are both theoretical and practical.

At the heart of this debate is the issue concerning production and use of energy, which is responsible for two-thirds of global emissions of greenhouse gases, the main sources of climate changes.

The benefits of lower emissions of carbon dioxide contribute to slowing global warming and to mitigating impact on air quality. An important recent study carried out in this field in Europe, attributes great importance to investments that concern the energy sector:

"The European electricity mix is becoming more diverse: by 2020 renewable electricity is set to make up 35% of European power production, with fossil fuel fired plants increasingly operating as back-up. This step change implies a need for significant investment in power generation and transport capacity – and a coherent policy framework to support such investment and the necessary innovation"[3].

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[3] Commission Staff Working Document Impact Assessment *Accompanying the documents*.
Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions -a Clean Air Programme for Europe
Proposal for a Directive of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from medium combustion plants
Proposal for a Directive of the European Parliament and of the Council on the reduction of national emissions of certain atmospheric pollutants and amending Directive 2003/35/EC
Proposal for a Council Decision on the acceptance of the Amendment to the 1999 Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution to Abate Acidification, Eutrophication and Ground-level Ozone, European Commission , p. 269, www.ec.europa.eu.

In addition, lower levels of importation of fossil fuels means not only saving money, but also less geopolitical dependence on foreign producer countries (e.g. Russia, Iran, Algeria, Libya). In fact, a shift towards the use of renewable energies subtracts the power of blackmail that could be exerted by non-democratic governments.

The creation of benefits in terms of green economy regarding new jobs, added value, business opportunities, research and development, and exports is also significant.

In the framework briefly described it is also important to consider that the energy sector, significantly involved in policies to reduce emissions, must, at the same time, ensure adequate supplies and the availability of affordable energy to support economic growth.

Taking all the above elements into consideration, and with reference to the intense debate on climate change that has affected and interested national and international governments, we are witnessing today, in numerous projects related to the development of research, the development of economic and fiscal policy actions, the establishment of rules and definition of reporting standards that have variously affected companies.

It is a considerable challenge that requires an unprecedented change in modes of production and global energy use.

With this guiding line, the reform that led to the current organizational structure of the electricity market began in Italy in 1999, with decree n.79[4]. The situation went from a monopoly to a market based on the principles of competition, transparency and neutrality in which a plurality of entities offer services and products to customers. Elements of such a complex mechanism are:
- energy production companies,
- transmission companies,
- distribution firms,
- trading and marketing providers.

The affirmation of a structured electricity market, governed by the laws of supply and demand, creating prospects for value creation, has promoted significant investments that have allowed, contextually, technological renewal as well as a variety of supply offers, and a general improvement of service.

Since 1 January 2005, operators can buy coverage for consumption at the Italian Power Exchange (MPE Electricity Market Ready), while with the setting up of the forward physical market (MTE) and the Italian Derivatives Energy Exchange (IDEX) in November 2008, the physical supply of energy can be provided for, and also price indications for a longer future period.

The electricity market has also fixed several trading places for various products and services. In particular, Gestore dei Servizi Energetici (GSE S.p.A.) (*Power Services Manager*) set up both GME (*Power Markets Manager*)[5] which is responsible for the organization and economic man-

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[4]   D. L. 16 marzo 1999, n. 79 "*Attuazione della direttiva 96/92/CE recante norme comuni per il mercato interno dell'energia elettrica*" Gazzetta Ufficiale n. 75, 31 marzo 1999, also known as the "Bersani Decree".

[5]   In such a scenario, it is important to survey the work carried out by GME which, besides managing the Italian power exchange, plays an important role in the implementation of environmental protection policies through the management and organization of markets for the environment allowing companies to implement sustainable environmental choices in compliance with national and international norms, such as:
   • the market for green certificates,
   • the Energy Efficiency Certificates Market,
   • the Emissions Trading Market Unit.
   See more at: http://www.mercatoelettrico.org.

agement of the electricity market, and Acquirente Unico (AU) (*Single Buyer*) which has the role of ensuring the supply of electricity to households and small businesses.

The physical process of generation and supply of energy to cover market requirements represents the basis of this integrated system, while an expressly constituted authority (Authority for Electricity and Gas), oversees the market.

4. Public support for renewable energy sources

The issue of sustainability brings important implications to the fore that relate to financial aspects which arise from the huge investments required to enable the achievement of environmental policy objectives set at local and European levels. Therefore, energy policy choices that involve fundamental objectives such as those concerning renewable energy, must necessarily be combined with appropriate industrial policies that can transform constraints into opportunities for growth and economic development. For this purpose, incentives to companies in the energy sector are tools that provide indisputable advantages, and whose impact is evident in many areas.

In short, the incentive systems can operate:
- on raising the cost for those who produce energy from non-renewable sources, thus making renewable sources more competitive,
- on the decrease of the production costs of renewable energy,
- on the increase of revenues, for the production of renewable energy.

Currently in Italy, for energy producers, investment incentives are mainly based on the following mechanisms:
- Green Certificates[6] (feed-in tariff mechanisms);
- incentive Rate ex Green Certificates.

Following the adoption of Directive 96/92/EC concerning the single European electricity market, with Legislative Decree n. 79/99, the so-called "Bersani Decree", new incentive mechanisms for the production of electricity from renewable sources, based on market rules were set up.

The Green Certificates[7] − terminology used in Europe − also known as Renewable Energy Certificates (RECs) in the USA, represent the environmental value of renewable energy generated. They delineate one of the forms of state support to companies to face the high initial costs of the development of renewable energy sources. They fall into the category of incentive schemes which fix an amount of energy from renewable sources (RES) to be produced or bought.

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[6]   Green Certificates were first introduced in Europe, in Holland, in 1997, as a method of obliging companies to use energy produced from renewable sources. The innovative system came from Dutch electric energy producers who, through their EnergieNed association, voluntarily set emission allowances. This agreement was later made public through a law called "Environmental Action Plan 2000". On the basis of this agreement, a green labels market was created, parallel to a market where the corresponding physical quantity of renewable energy was exchanged. Following implementation of Directive 96/92/EC the green certificate market system became obligatory, with the Government attributing emission allowances and the contemporary halt of the voluntary system, from 2001. (Centorrino, 2014, p. 48).

[7]   In Italy, since 2013, accounting for green certificates has been regulated by accounting standard OIC 7 for producers of energy from renewable sources, from non-renewable sources, and also for trading companies.

Green certificates (GC) are negotiable securities issued by the Power Services Manager (GSE) in proportion to the energy produced by a qualified facility, such as: Plant Powered by Renewable Sources (RES).

Formally they consist of certifications or securities in the power exchange market or through bilateral contracts.

Their mechanism is based on the obligation, through legislation, for producers and importers of electricity produced from non-renewable sources, to put a minimum share of electricity produced by plants using renewable sources, into the national electric grid, annually. The percentage share of the renewable source is calculated on the basis of production or importation of the previous year.

In other words, producers of fossil fuels are required to convert an annual percentage of their production from fossil fuels to renewable sources; if the obligation has been kept, the manager obtains a corresponding share of Green Certificates from GSE which they can sell at market price to businesses that fail to fulfil their obligation to produce the amount of energy due from renewable sources. If they do not, or can only do so partially, they must purchase green certificates, in amounts corresponding to the non-transformed quota and surrender them to the GSE.

Instead, producers of renewable sources are granted a Green Certificate for each MWh produced, every year, which they may trade that is, yield to producers from fossil fuels that have not reached the required quota. The Green Certificate in bearer form can then be traded freely both through the platform of the Manager of the energy markets, and with bilateral contracts between the parties.

In summary, the mechanism is essentially based on the following points:

1) the energy produced from renewable sources is certified by a title denominated Green Certificate,
2) the sale of energy is separate from the transfer of GC,
3) the sale of energy prices and GC are governed by market mechanisms,
4) the obligation of annulment of GC falls on the producers who are therefore encouraged to develop renewable energy plants.

The mechanism foresees that GSE may issue forward or consumption certificates. Forward certificates are related to expected production and may be issued in the current year or in the year preceding production. Also green certificates issued on the basis of monthly measurements of generated energy are part of this type. If actual production is lower than expected production (production deficit) the producer must return the green certificates issued in excess. Alternatively, the GSE can compensate for the difference by holding certificates which apply to other installations for the same year or by using the certificates for the year following the one which produced a deficit. Instead, if actual production is higher than expected (over-production), the GSE will issue a number of green certificates for the excess amount.

With regard to green certificates issued regarding consumption, issuance takes place in the year following the one in which the production was realized in a quantity equivalent to the same production. Producers and importers of electricity from non-renewable sources must present green certificates to the GSE equal to their requirement by 31 March of the year following the reference year.

The mechanism of green certificates is an incentive for companies that produce energy from renewable energy sources and penalizes those that produce from non-renewable sources. For

the former, the certificates can be considered as a supplement to income for the period which offsets the higher costs associated with the production of energy from renewable sources. For producers from non-renewable sources, however, the mechanism involves an increase in production costs related to the purchase, on the market, of certificates which are necessary to comply with legal obligations (Centorrino, 2014).

The certificate market started in 2003 with the delivery of GC which related to the insertion, into the network, of energy from renewable sources for 2002. During the first year, certificates were sold almost exclusively by GSE. In the years following, until 2007, the price of GC traded on the stock exchange was the same as that of GSE.

Since 2007, there has been a surplus of supply and falling prices, which intensified after 2008, following the approval of the Finance Act, showing a growing dissociation between the sale price of GSE and the market price (GME) (Fig. 2).

Figure 2. Price of CV (net) on the GME market and GSE selling price
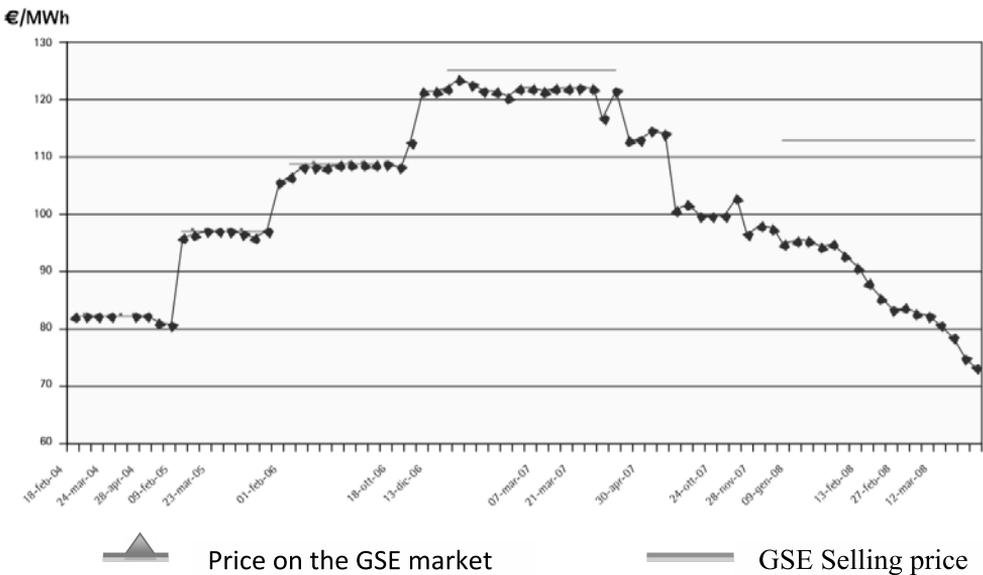
Source: (De Paoli, 2008).

The incentive system based on GC, despite frequent changes in the law, was characterized by discontinuity trends in terms of incentives for the production of renewable energy, probably because of the strong interconnection with market trends which, significantly affecting the variability of prices, as shown in Figure 2, has not always ensured the advantage of production from renewable sources supported by GC.

It should be remembered that, in Italy, the electricity sector has exceeded the targets set, in advance, at a European level for renewable energy by 2020[8] (Fig. 3).

Figure 3. Development of the installed capacity of renewable energy plants in Italy
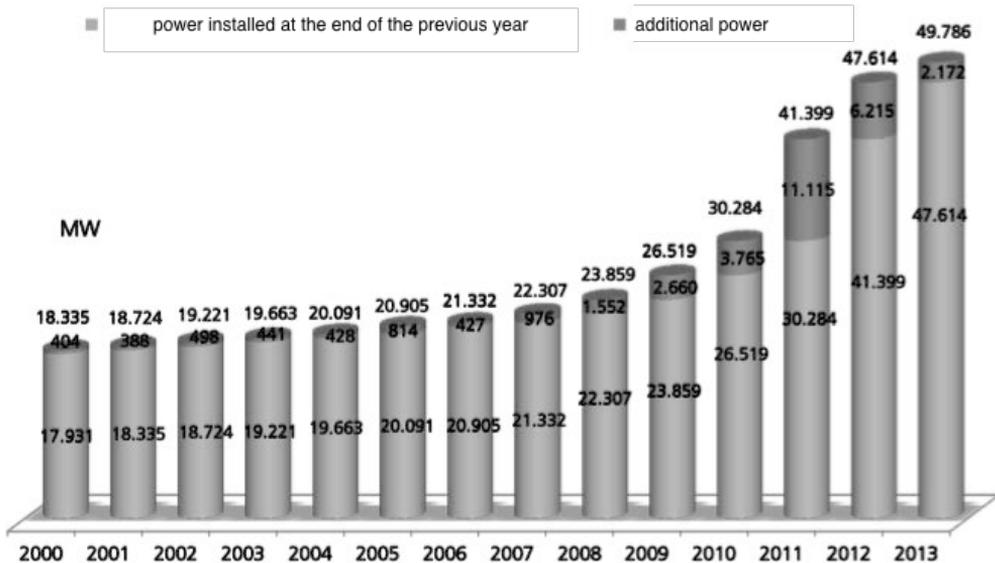
Source: (GSE Statistical Report, 2014).

Indeed, despite a goal of 26% of consumption to be covered by renewable energy, corresponding to a production of about 100 TWh/year, at the end of 2012, the installed capacity was already able to guarantee about 94 TWh/year (Fig. 4). More recently, the production of electricity in Italy from renewable sources (RES) has reached 38% and 34%, respectively, of the total in 2014 and 2015.

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[8]　Increase in production of electricity from renewable sources is one of the priorities of the energy policy set at Community level; the European Directive 2001/77/EC recognizes the development of alternative energy sources as a necessary measure in order to ensure the timely achievement of the objectives set by the Kyoto Protocol and to be able to promote security of supply and diversification of sources of production. In order to ensure an increase of the renewable energy source production rate up to 12% by 2010 in the EU (as indicated in the White Paper of the European Commission) Directive 2001/77/EC established that Member States should adopt "appropriate steps to encourage greater consumption of electricity produced from renewable energy sources in conformity with the national indicative targets." This target has been revised and made even more ambitious in the presentation, in January 2008, of the packet of the European Commission's measures on energy and climate change, which foresees the achievement of 20% renewable energy by 2020.

Figure 4. Development of the production of electricity from RES in Italy
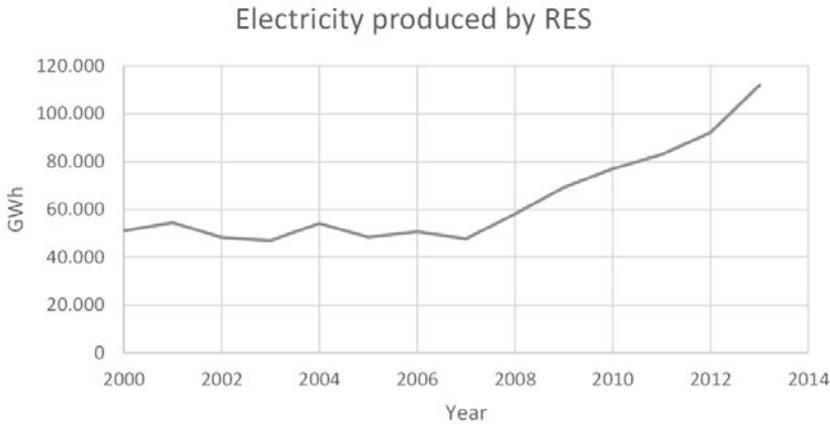
Source: own elaboration based on (GSE Statistical Report, 2014).

This state of things, however, did not lead to a decrease of interest in renewable sources, rather it gave rise to some innovations more in line with the current situation.

Taking into account conviction on the fundamental function of public support measures for the competitive production of energy from renewable sources compared to traditional ones, doctrine shows that durable and important policies to support renewable sources based on government incentives risk altering the markets and the evaluation of sustainability of renewable sources if continued for long periods. In the light of this, today, there is the chance of reducing incentives compared to those of recent years, also considering the levels of incentives in other European countries and typical returns on investment. Indeed, recent remarkable technological advances and economies of scale have led to a reduction in the investment cost of plants.

Moreover, despite the prospect of further development of the sector, a more virtuous approach to growth is needed, considering that in other European countries, due to the financial crisis, there are on-going changes in national policies on renewable energy which have sometimes led to drastic reductions of contributions from the government.

The need to change the incentive system in Italy has derived from this context, and also following the implementation of the Directive on renewable sources of energy 28/2009/EC. To this end, a new incentive instrument has been introduced, as foreseen in DM-6 July 2012, which adopted the directive, being considered more suitable for the new objectives to be pursued.

From 2016, the GC incentive mechanism will be gradually replaced by a new form of incentive feed-in premium type, under which the owners who have already acquired the right to GC, or owners of plants with IAFR qualification (plants powered by renewable sources), will retain the benefit of incentives, but in a new form that ensures they obtain an additional fee on revenues, derived from the exploitation of the energy produced, from net energy production. The exchange can either be made through the so-called Dedicated Withdrawal (RID) or on the free market by the operator.

Dedicated Withdrawal is a form of indirect sale of electricity produced from renewable sources, which is effected by signing an agreement with the Power Services Manager − GSE S.p.A. (GSE),

as commercial mediator between the energy producer and the electricity system. This method allows manufacturers to achieve returns at a guaranteed price for every kWh withdrawn by GSE.

The above Decree established the incentive rules for the production of electricity from plants using renewable sources that are new or completely reconstructed, having a capacity of not less than 1kW and which started operation after 31 December 2012. However, there are cases where the use of GC it is still allowed. In addition, the modalities for passing from the previous Certificate mechanism to the incentive rate are indicated[9].

The incentive scheme is recognized in relation to net electricity generated from plants using renewable sources and fed into the grid, i.e. at the lower value between net production and energy actually fed into the grid.

Specifically, there are two types of incentives foreseen (art. 7, Annex 1):

1) a comprehensive incentive rate **(To)** for power plants not exceeding 1 MW calculated according to the following formula:

$$To = Tb + Pr \tag{1}$$

where:
Tb   –   incentive base rate,
Pr   –   total amount of the possible premiums.

2) an incentive **(I)** for power plants exceeding 1 MW and for those of not more than 1 MW, which do not opt for the all-inclusive tariff, calculated as the difference between a fixed value (total revenue) and the zone time price of energy (referred to the area where it is fed into the grid electricity produced by the plant):

$$I = Tb + Pr - Pz \tag{2}$$

where:
Pz   –   zone time price.

In the case of all-inclusive tariff, the sale price paid includes remuneration for energy that is withdrawn by GSE; in the case of incentive (I), the energy remains in the supply of the producer.

5. Conclusion

Attention to issues concerning environmental protection imposes difficult and burdensome choices on society, especially from an economic-financial point of view.

Nevertheless, as we have tried to highlight briefly in this paper, the limitations imposed by the need for lower environmental impact and a better use of natural resources can lead to virtuous economic improvement processes.

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[9]   *Disposizioni inerenti la Transizione dai precedenti Meccanismi di Incentivazione al Meccanismo disciplinato dal presente Decreto,* DM July-6-2012, p. 25.

Despite being such a long and complex path, however, it suggest we observe the environmental crisis as a time of transition from a situation of risk to an opportunity for the growth of society with evident collective benefit developments.

Establishing and abiding by acceptable levels of business activities that may be less harmful to the environment, means, in fact, changing certain behaviours to get results which are sufficient for expectations regarding environmental protection, and which also give rise to new economic opportunities.

Such is the case in the Italian energy sector.

Companies engaged in the production and exchange of energy have had to adapt to new constraints, supported by incentives resulting from industrial and energy policies.

Green certificates, as a policy instrument for encouraging the production of energy from renewable sources, have contributed significantly to the achievement of the expected results set out in Community legislation, thanks also to all those provisions that have governed exchanges and development.

Initially, they were designed especially to support the high initial costs that needed to be addressed for the development of activities related to renewable energy sources.

However, as suggested by economic theory, "we must first clearly define what the objectives to be achieved are and then adapt the tools" (De Paoli, 2008).

Today, the primary goal is to increase energy efficiency and reduce energy consumption[10]. For this purpose, and in the perspective of having to adopt more appropriate instruments to new needs, as seen, a recent decree was introduced in which a new form of incentive was indicated: the incentive rate ex green certificates which, from 2016, will be applied in the field of energy production. This new incentive tool should introduce more elements of stability and certainty into the sector, reducing the risk of possible elements of speculation. At the same time, however, the system of GC will continue to coexist with appropriate modifications and adjustments that will allow greater stabilization of certificate prices.

The emphasis on the approach of companies to environmental issues can also be read in terms of national standard setters. The Italian Accounting Body (OIC), in fact, in February 2013, published accounting standard n. 7 on "green certificates" for companies that prepare their financial statements according to national principles. It also represents a reference point at European level for companies using IFRS, since the European principle, addressed to these issues, has not yet been passed.

As seen, therefore, in a scenario that appears all the more dynamic and full of interesting ideas, companies have started to improve their environmental impact increasing, at the same time, their financial and economic performance.

In other words, today, there would appear to be a phase of cognitive change directed to the development of so-called *ecological intelligence* defined as "the ability to perceive the connections between human activities and the range of consequences that they bring in natural and social systems" (Goleman, 2009).

In such a situation, current scientific progress must be based on a fundamentally ethical duty: the expected destiny of the planet must be considered, for mankind, as a sort of intellectual fear,

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[10] Ministero dello Sviluppo Economico, *Piano di azione nazionale per le energie rinnovabili dell'Italia (conforme alla direttiva 2009/28/CEe alla decisione della Commissione del 30 giugno 2009)*, 30 giugno 2010, p. 4.

an attitude that must lead to and promote a constant focus on the idea of the welfare of future generations (Jonas, 2002).

To do this we need to focus on, and actively contribute to, overcoming the following main obstacles: the scarcity of information available to the community, the tendency to repeat learned behaviours and the use of obsolete technologies that were typical of an industrial world that was not aware of the delicate balances of the ecosystem.

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Chapter **16**

Office Work Spatial Organisation – Key Determinants and Selected Solutions[1]

Maciej Walczak

1. Introduction

Similarly to the concepts of spatial organisation of posts in industry, the models of shaping office workspace have underwent many changes as the time passed by. New solutions were created under the influence of numerous factors, from which the most crucial ones seem to be development of information processing technology, new trends in the theory of work organisation, as well as social transformations.

The purpose of this study is to present the issue of spatial organisation of office work. Having studied the literature, an author undertook to identify the most important factors which should be considered when determining the spatial arrangement of administrative-office workplaces. The study presents also the solutions with regard to the concerned issue most often used in practice.

2. Space as an essential element of office work organisation

The time and space are basic factors determining organisation of work processes (Potocki, 1993, p. 37). If we assume that the course over time refers to dynamic aspects of process implementation, the spatial layout of posts is one of the basic elements describing its statics. In the case of production processes, it is assumed that arrangement of particular objects, that is the production system elements taking active part in implementation of the analysed process, has a significant impact on the stream of production. As a result, the issue of arrangement of objects is so important that the decisions of strategic character relating to organisation, methods and sequence of implementation of tasks should be taken before arranging the objects. Otherwise, it is necessary to subordinate organisation, methods and sequence of implementation of tasks to the existing spatial

structure (Muhlemann, Oakland & Lockyer, 2001, p. 176) or the distances on which work objects are transported become longer. Therefore, the primary focus of arrangement planning is to find the best physical location in space for operations of the examined process (Waters, 2001, p. 262). The best arrangement reduces the cost and time of process implementation.

By analogy, optimisation of the layout of office objects shortens information transfer path submitted in the form other than electronic or telephonic, that is using physical media[2] such as: paper documents, employees and external customers. A well-thought-out layout of the objects leads also to rational use of space contributing, at the same time, to reduction in the costs of functioning of offices (Potocki, 1993, p. 37). It is also important to provide employees with conditions optimal for conceptual work.

A. Potocki indicates the presence of two basic problems with optimisation of the layout of office objects. The first of them is consideration of the size of area occupied by objects located there. Depending on the hierarchy in the organisational structure, equipment used, intensity and rank of external contacts – the area demand of particular posts will be different. Relocation of all the requirements with regard to space is not always possible when it comes to arranging posts in the existing building with spaces enclosed by design. The second problem is to fit the office into the vertical layout of the building (multi-story layout). In this case it is necessary to optimise the layout of posts not only within each floor, but also between stories (Potocki, 1993, p. 38).

Moreover, it should be stressed that in the case of processes implemented in organisations (not only production processes) there are certain types of the post layout used with regard to particular types of production or specific nature of work object. This division, probably not so clear anymore, is also present in the layout of office workplaces. Selection of a specific solution depends on the type of work and the degree of its diversification. These will be, based on the classification presented by D. Waters (2001, p. 235), the following layouts:
- technological – a criterion of grouping is the specific character of activities performed on posts (e.g.: accounting department, personnel department),
- subjective – posts are grouped so as to allow implementation of all the activities required in a given process (e.g.: liquidation of damages done to property, registration of vehicles),
- hybrid – combination of the technological and subjective layout,
- mobile – when there is the need to move a work post to the sources of information (e.g. insurance claim investigators, site manager's office),
- specialised – used usually in the case of administrative-office works specific for a given type of operations (e.g. bank, wholesale store, returns department in the large-surface stores).

A number of methods of optimisation of the spatial layout of objects has been developed with regard to the production processes. Historically, the first method is the triangle method of W. Bloch published in 1950. This method was used, both with regard to the production and administrative-office processes (Martyniak, 1999, p. 122). With the passage of time, subsequent methods and their varieties were being created: linking method – according to which objects are to be located on orthogonal nets (most often square ones), CORELAP – using the concept of the severity degree of relations and orthogonal nets, CRAFT – based on a discrete programming

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[2]   Z. Martyniak, when discussing spatial organisation of work processes, compares information media to material used in production processes (Martyniak, 1999, p. 125).

and swapping of objects, method of division and limitations, or methods based on circle graphs (Martyniak, 1999, pp. 122-123).

The first general methodology of spatial arrangement of organisation of the work processes was proposed by R. Muther along with presentation of the SLP method (Systematic Layout Planning). According to it, spatial organisation of work should be executed at the following stages (Martyniak, 1999, p. 123):

1. Collection and analysis of information.
2. Determination of necessary surface.
3. Determination of the general concept of arrangement of objects.
4. Preparation of the detailed arrangement of objects.
5. Project implementation.

In practice, selection of the method of spatial arrangement of organisation of the work process should depend on the number and type of factors which are to be included in the optimisation procedure. Attention should also be paid to the need of distinguishing the terms of office space planning, the post layout types, optimisation of post layout and office space shaping. The first of them is the most general term, covering three others. Types of layout and layout optimisation are strongly interrelated and selection of a specific type of layout will translate into physical possibilities of post organisation. On the other hand, space shaping includes, among others, such activities as: closing and opening of space, personalisation of space, giving personal features to a post (Zientek, 2008, p. 69).

3. Evolution of the solutions with regard to office space designing

Historically speaking, certain traits of spatial organisation of administrative-office work can be traced back to a thought-out structure of writing desks of monastic writers, scribes or writers involved in registration of commercial exchange in the Middle Ages and at the beginning of the modern age. However, the first offices were writing chambers which constituted a separated space intended for works, such as writing and calculating. The next step of the evolution was establishment of exchange offices with separate writing rooms and principal's room. With the passage of time, intensive development of industrial operations, financial companies, press, etc. led to the growth in demand for information processing and therefore differentiating separate departments determined as the offices (Urbanowicz, 2011, p. 53).

Establishment of organisation and management science as well as its first three development trends, which include also the following trends: engineering (Industrial Engineering), universal and humanistic (Martyniak, 2002, p. 6), affected organisation of work in offices.

An engineering trend was reflected in the analysed area in creation of large-area offices of growing number of posts. An example is Larkin Building in New York built in 1904 (Urbanowicz, 2011, p. 55). The architectonic-organisational solutions in the above-mentioned office building were subjected to Taylor's principles of work, including far-reaching control over employee. In order to shorten transfer paths of paper documents, the distances between desks were reduced to the minimum, employees often sat opposite to one another. The structure of furniture was an expression of the then achievements in ergonomics and usability, and their massiveness and fixing to the floor excluded the possibility of any change in settings. Employee environment was expressed in "rationality, order, stiffness and rigidity" (Urbanowicz, 2011, p. 55).

An office was supposed to create conditions to synchronous teamwork consisting in transferring subsequent documents from desk to desk in the very same way the work of workers in factories of industrial age was organised. This simple analogy was possible owing to the lack of solutions which allow for separating information from its physical medium – namely paper, and hence the need for gathering all the contractors of the process in one place. Defects of the then large-area offices were noise fatigue, constant surveillance, as well as suppression of any signs of employee creativity.

A humanistic trend in management sciences was an impulse for establishing new models of office organisation. Highlighting the impact of interpersonal relations on the work efficiency became the basis for the landscape office concept. The office of this type is a large-area solution with a possibility of making any changes in setting and configuration of work posts. The flexibility in this respect was provided by light furniture, high number of installation connections and even lighting of the whole space. The assumption is that the landscape office was supposed to enable work in flexible working groups. A team arranged the layout of posts on his own, as necessary, and the subsequent reconfiguration of the layout was possible after completion of tasks and dissolution of the group. Particular units could separate themselves from the rest of office with portable walls. Experiences in using landscape offices revealed their weaknesses. M. Złowodzki emphasises: irritating and tiring sound background, no isolation of transport routes from posts, no access to windows and sunlight, impression of permanent control, no personalisation of posts and constant changes in the layout of posts (quot. from: Urbanowicz, 2011, p. 58).

Another solution of the humanistic trend are office cubicles. The purpose of using cubicles is to provide employees with both the conditions for individual work (low walls from three sides) and team work. Properly designed walls allow to expose information placed on them, suspend shelves and cabinets and to connect necessary cables. In this way it improves usage of surface. Providing box storage places for files makes it possible to hold documents within one's grasp without the need of sending them back to the archive every day. Flaws of the concerned solution is an employee's impression of being closed in a labyrinth, and hence the occurrence of orientation problems, darkened places and no access to window for most posts (Urbanowicz, 2011, p. 59).

The contemporary organisation models resulted in development of subsequent spatial solutions with regard to organisation of office. In the 1970's and 1980's the combi office layout appeared, constituting an attempt to connect the need to work in separation at conceptual projects, as well as to be involved in team work and social life. The combi office layout consists of separated cubicles for individual work. They are located along the external walls of the building and thus have an access to windows. The central part of office is a common part intended for meetings and conferences, installation of commonly used devices, cabinets for archiving documents and auxiliary rooms. Partition walls between individual work cubicles are permanent and their function is to isolate from sight and sounds. On the other hand, the central part is fenced from cubicles with glass in such a way, so as to let sunlight into the central part of office, if it is possible (Urbanowicz, 2011, p. 62).

Review of the aforementioned solutions indicates the complexity of the issue of optimisation of the post layout in offices. The need to consider many factors for this issue at the same time was noticed already in the early 20th century.

Table 1. Factors included in spatial organisation of office

	Author			
D. Waters	**A.P. Muhlemann, J.S. Oakland, K.G. Lockyer**		**A. Potocki**	**Z. Mikołajczyk**
• frequency of direct contacts determining the need for movement, • the need for direct contacts within the specific groups of employees, • the type of work determining the type of office (from open space to closed rooms), • the size, location and equipment of post, • work associated or not associated with customer service, • special functions of room, e.g. conferences, trainings, area for relaxation, storage of various types of equipment, • free access to all areas in office, • separation of transport routes from workplaces, • ensuring good access for everyone to common equipment (e.g. multi-purpose devices, coffee machines).	Maximised: • flexibility – the possibility of easy adjustment to the changing needs, • interdependence – enabling easy exchange of information between cooperating units, • surface usage – treating office as a 3D object, permitting not only horizontal but also vertical layout (e.g. high cabinets and shelves, mezzanines), • transparency – ensuring the possibility of optical control of the condition of staff and posts, so as to limit places where there is a potential risk of withholding of process implementation, isolation of people or unreasonable storage of information media, • availability – any points at which process implementation is carried out or those requiring maintenance service should be easily accessible.	Minimised: • distance – any physical movement should take place on the shortest possible distance and only when it is justified, • transhipments and relocations – these activities as the ones not creating values in the process should be eliminated from it (e.g. putting files on the floor results in the need to pick them up after some time), • inconvenience – elimination of environment factors adversely affecting the comfort of work, e.g.: draughts, bad lighting, excessive insolation, too high temperature, noise, vibrations, smells. • safe environment for working and presence of customers, • fire protection, burglary protection, etc., • effectiveness of the course of processes – elimination of crossing flows of people and documents, unidirectional flow of documents, • employee-workplace identification – assignment of groups of employees, which may be perceived as individual work space – to raise morale of work and create bond with organisation.	• the length of movement paths of documents, employees and customers, • rational use of space, • interpersonal relations, • common use of the same devices and information sets, • functional-trade linkages, • technical equipment of buildings facilitating information movement, • size of the area occupied by objects located there, • building layout (horizontal or vertical), • adopted system of internal architecture (open space, office, mixed).	• character of organisational structure, • information and communication linkages inside and outside the organisation, • the scope of mechanisation and automation of creating, processing and transferring of information, • etc.

Source: own work based on (Waters, 2001, p. 260; Muhlemann, Oakland & Lockyer, 2001, pp. 177-179; Potocki, 1993, pp. 37-38; Mikołajczyk, 2002, p. 291).

4. Review of factors currently taken into consideration in spatial organisation of office

The basic criterion considered in planning the layout of posts and other elements of office work space is optimisation of implementation terms of information processes. Owing to the progressing level of using information-communication technologies, issues of physical transfer of information media and face-to-face contacts between providers of the abovementioned processes are less important nowadays than they were in the early 20th century. However, there is a very large number of factors which should be considered at spatial planning of offices (Tab. 1).

It is also important to consider in plans the opinions of future users of created offices. An example of recognising employees' needs is "Innovative office" project, under which ING Bank Śląski ordered at the turn of 2011 and 2012 a survey concerning assessments and preferences concerning office space. The method used consists in group discussion (focus group interview) conducted in two groups – employees of the Bank and students as potential future users of space office. Participants of two groups were recruited by scientific circles operating at the Economic-Sociologic Faculty of Łódź University. One of the parts of the described survey was to identify "a wish list concerning necessary equipment and organisation of office space, as well as those situations and artefacts which are perceived as unfavourable with regard to work and implementation of tasks entrusted to employee" (Dymarczyk & Kowalczyk, 2013, p. 95). Identification consisted in using open questions. The effects of this part of the survey are presented in Table 2.

Another important determinant having impact on the spatial layout of office is a customer/ interested party being present or not at a work post. When it is necessary to provide customer service in special conditions, the so-called front office and back office concept may be used. This solution aims at separating the customer service zone – known as the first contact zone – from an adjacent zone having no direct contact with customers. Front office is supposed to build the image of organisation and provide efficient customer service, while back office is where main activities of a given administration-office process are performed (Fig. 1).

Figure. 1 Front and back office concept
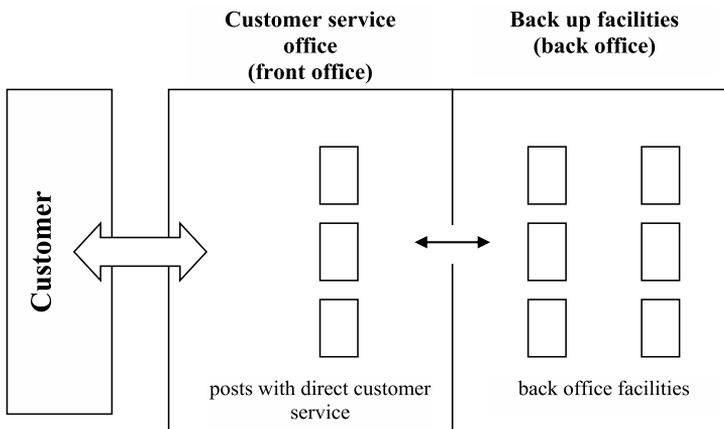
Source: own work based on (Muhlemann, Oakland & Lockyer, 1995, p. 76).

Table 2. Environmental factors desirable and undesirable at office work – results of survey carried out at the Economic-Sociologic Faculty of Łódź University

Question	Employees*	Students*
I cannot imagine my work post in office without:	• people, • computer, • desk, • telephone, • air-conditioning, • good atmosphere, • good lighting, • comfort, heating, windows, • flowers, loyalty, • sunlight, • spaciousness;	• space for themselves, • windows, • computer, • desk, • car park, • sunlight, • The Internet connection, • people, privacy, • place for relaxation, air conditioning, perspectives, • heating, • kitchen, ambition;
The things in office which will surely disturb me at work:	• noise, • mess, • bad atmosphere, • cold, • no respect, lack of intimacy, • too intensive lighting, • surveillance, lack of safety • dark rooms, movement of other persons, • odour, • no air conditioning, • lack of trust;	• noise, • gossiping, • cold, mess, • other employees, rat race, • music, • dust, • no air, • no light, two-faced employees, • tightness.

* the order represents an approximate hierarchy of factors in particular groups

Source: own work based on (Dymarczyk & Kowalczyk, 2013, pp. 94-95).

5. Conclusion

The development information processing technology over the last decades became the basis for creating new forms of work, such as: shared office, group seating, hot desking, home office, hoteling, satellite, co-working (Dessoulavy-Śliwiński & Płatek, 2015, p. 368). This does not mean, however, that the issue of office work organisation in space taken up in the study becomes out-of-date. Currently, the researchers indicate emergence of new factors, which should be taken into account when designing office space. An example is the study of I. Zientek concerning the impact of the open space and office types of office layout on the course of the employee's professional adaptation process (2008). Consideration of all the identified factors in arranging posts may be a very difficult in practice. Thus, the optimisation procedure is vastly simplified (Muhlemann, Oakland & Lockyer, 2001, p. 193).

It should be also pointed out that the process of work organisation in space is of creative character, and thus the quality of an adopted solution depends on the skills and experience of a designer. The methods offered in this respect are tools that may support work of a designer

rather than replace him. It is also necessary to assume that developed solution is not final and irrevocable (Muhlemann, Oakland & Lockyer, 2001, p. 177). This view is taken into account already at the stage of designing office buildings. The specific structure of these objects is supposed to enable adjustment of building to individual needs of tenants (Dessoulavy-Śliwiński & Płatek, 2015, p. 364) at present and at an unspecified time in the future.

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PART III

IMPLEMENTATION OF KNOWLEDGE
IN THE CONTEMPORARY ECONOMIC PROCESSES

A Transfer of Quality Knowledge into Economy: A Role of Quality Infrastructure[1]

Slavko Arsovski, Zora Arsovski, Slaviša Moljević, Dušan Đurović

1. Introduction

Knowledge is now key determinant of organizational or state excellence and sustainability (Nonaka & Takeuchi, 1995; Liebowitz, 2011; Wiig, 2008). On other side, quality paradigm has crucial impact on economy and society as whole (Juran, 1995; Foster, 2004). That implies needs to transfer and in next phase integrate knowledge and quality. Prerequisite for is quality infrastructure on: (1) global, (2) country, and (3) organization level. The purposes of the article is to present analyze and model the transfer of quality knowledge from higher to lower level of organization. On higher level each country has own system of accreditation, standardization, certification and conformity assessment, as „hard" pillars of quality infrastructure. "Soft" added pillars are related to knowledge sources (universities, consultants, certifications bodies, agencies, etc.). Also, on organization level quality knowledge is generating through quality professionals, employees, management, based on organizational infrastructure (Moljević, 2016).

The article has aim to analyze role of quality infrastructure on process of transferring the quality knowledge from environment to organizations. The objective of the article is to: (1) determine key variables in the transfer process, (2) to design the transfer process and (3) to benchmark the process of transfer of quality knowledge between EU and transition countries. Results of research are dominantly qualitative based on the model developed for quality knowledge transfer. At the end of the article, the results of quality knowledge transfer in Serbia and Bosnia and Herzegovina (as transition countries) have been presented with emphasised kez variables determined success of the transfer process.

2. The key variables of quality knowledge transfer in transition economies

2.1. Literature review

A knowledge transfer is part of knowledge management. In this area there are lot approaches concerning on different topics as knowledge strategy, knowledge processes, quality of business process modeling, knowledge modeling techniques, knowledge platforms etc. For purpose of the article important is paper of Tolvanen (1998) in which is introduced a business process oriented knowledge infrastructure development (B – KIDE) with four phases: (1) business process modeling, (2) knowledge process modeling, (3) designing knowledge architecture, and (4) implementation through technology knowledge infrastructure (Fig. 1).

Figure 1. A Business process oriented Knowledge Infrastructure Development (B-KIDE) according
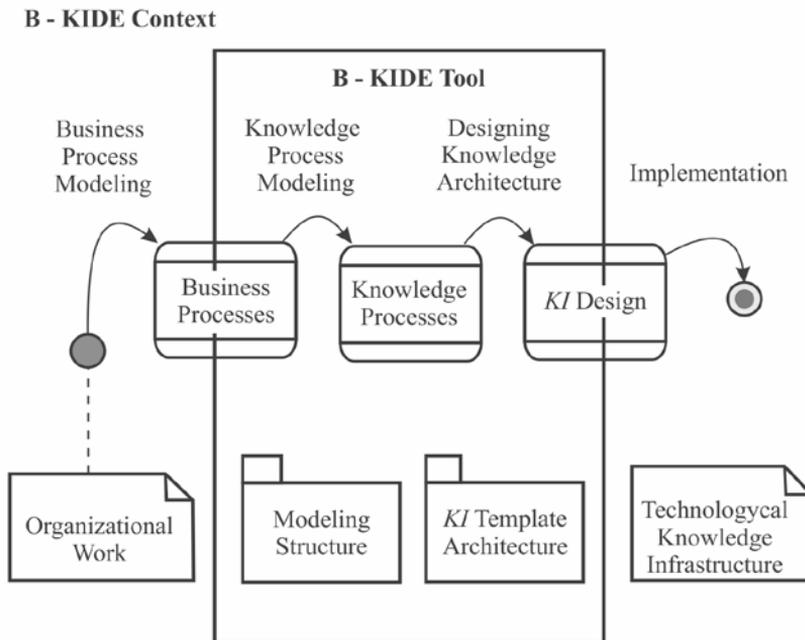
Source: (Tolvanen, 1998).

Stohmayer (2005) analyzed phases of resulting knowledge process (Fig. 2) with emphasized: (1) knowledge domains, (2) knowledge generation, (3) knowledge transfer, and (4) knowledge application.

For purpose of the article is especially significant phase 3 (knowledge transfer) which is integrate with the second and fourth phase using knowledge community environment, supported by appropriate ICT.

Figure 2. Phases of resulting Knowledge Process Knowledge Community
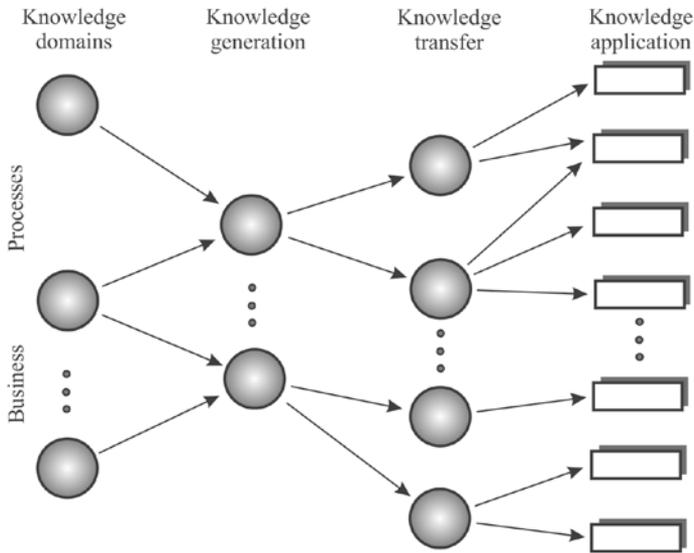
Source: (Stohmaier, 2005).

Hansen et al. (1999) analyzed strategy for managing knowledge. In this process KM may has risks for achieving success of organizations. A one part of strategy is oriented on reduction of relevant knowledge risks, through reduction of probability of risks occurrence or reduction of the consequences evoked by these risks. This approach is also adapted in works of Maier & Remus (2002, 2003).

Hommes & Van Reijswoud (2000) analyzed quality aspects of techniques for business process modeling. They used appropriate ISO 9000 standard and concept of process maturity.

Mertins et al. (2003) analyzed concepts and structure of Process-Oriented Knowledge Management. On this way is possible to integrate KM and QM approaches.

A quality aspect in KM analyzed Paulzen & Perc (2002), from aspect of knowledge process maturity. A social aspect of ICT described Preece (2000) with analysis of on-live communities.

Tolvanen (1998) developed an incremental method for KM modeling and implementation, based on process approach.

Watson (2003) applied KM methodology for building corporate memories with emphasizing a KM solutions from aspects of benefits, team building, implementation plan, hardware and software and system architecture.

A gaining competitive advantage through Social networking is very important in Digital Economy (Liebowitz, 2011), especially based on fostering innovation through social networking.

Al-Karaghouli et al. (2003) analyzed relationships among business sector and systems developers, what could be extended for area of quality infrastructure.

Becerra-Fernandez & Sabherwal (2010) analyzed different aspects of KM, as: (1) principles of knowledge management, (2) knowledge management technologies and systems, and (3)

management and the future of knowledge management. For purpose of the article especially important is chapter 8Z "Knowledge Sharing Systems: Systems that Organize and Distribute Knowledge" with emphasizing a knowledge designing and sharing systems, based on expertise locator systems (Becerra-Fernandez & Sabherwal, 2010, p. 168).

Wiig (2008) analyzed different KM approaches, relations between KM and business changes, intellectual capital for Competent Enterprise. He emphasized that skills and knowledge are not sufficient and worker competency categories in function of complexity of work (Wiig, 2008, pp.6-7). Also be defined structure of corporate intellectual capital and KM strategies and initiatives, as well as knowledge path ways and options with integration knowledge holders and knowledge workers (Wiig, 2008, p. 13).

Honarpour et al. (2012) analyzed relationships among KM, Total Quality Management (TQM) and innovation. They find a joint variation among them and approved hypotheses: (1) TQM is positively associates with innovation and (2) KM is positively associates with innovation.

2.2. Key variable in quality knowledge transfer process

For knowledge transfer process is necessary to develop KM metrics, with: (1) system measures, (2) output measures, and (3) outcome measures. Structure of outcome measures covers: (1) expertise locator systems, (2) after-action reviews, (3) system of lesson learned, (4) knowledge capture interviews, (5) knowledge video nuggets, (6) knowledge café's (knowledge sharing), (7) collaborative editing logs, and (8) blogs.

A most used outcome measures in Serbia, Montenegro, and Bosnia and Herzegovina are: (1) after action review, (2) system of lesson learned, (3) knowledge capture interviews, and (4) expertise locator systems and collaborative editing logs.

After reviews action as outcome measures: (1) are most used, because all certified organizations have to realize reviews in planed periods and make corrective and preventive actions. In this view those actions are focused on knowledge. A similar case is regarding a measure 2 (system of lesson learned). Other outcome measures are less used in analyzed transition countries.

For quality infrastructure all sources of KM matrix are applicable.

For quality knowledge transfer in center has be a quality problem (Fig. 3), which could be internal end or external focused for incorporating in organizational intelligence.

Figure 3. A quality problem and organizational intelligence
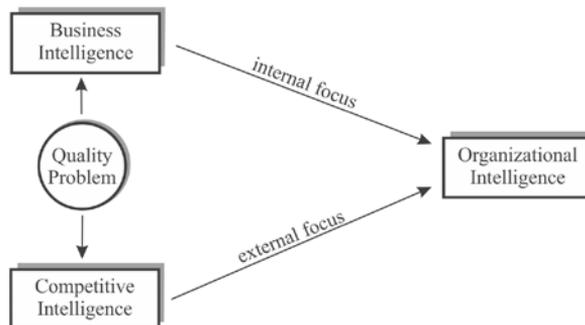
Source: own study.

A characteristics of quality problem regarding needed knowledge are sources for business – or competitive intelligence. In first case is used dominantly internal knowledge for solving internal Quality problems. A opposite situation is in second case. An outcome is higher level of organizational intelligence.

Each participant in quality infrastructure could be on different levels of KM engagement (Fig. 4).

Figure 4. Levels of KM engagement
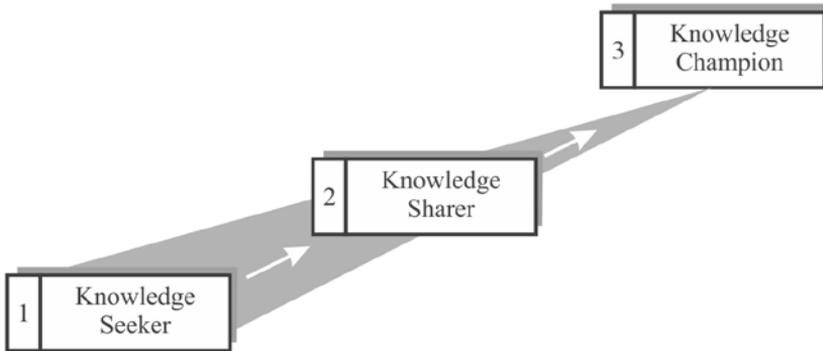
Source: own study.

Through enhancement of quality infrastructure participants will make steps to higher levels. For first phase, it is necessary to transfer KM engagement from level 1 (knowledge seeker) to level 2 (knowledge sharer). In quality infrastructure same participants are on third level (knowledge champions) and all other participants have to try to achieve this level.

For it is necessary to sharing knowledge through different proficiencies (Fig. 5).

Figure 5. Sources of knowledge sharing proficiencies/competencies
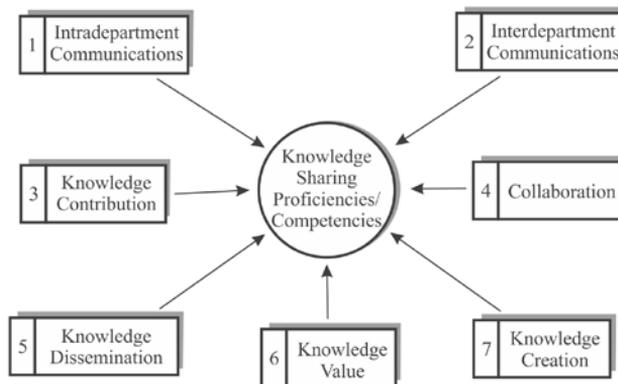
Source: own study.

Each participant in quality infrastructure has to have own role in knowledge sharing in purpose to achieve Knowledge Management Maturity (Fig. 6).

Figure 6. Leading practice of Knowledge Management Maturity (KMM)
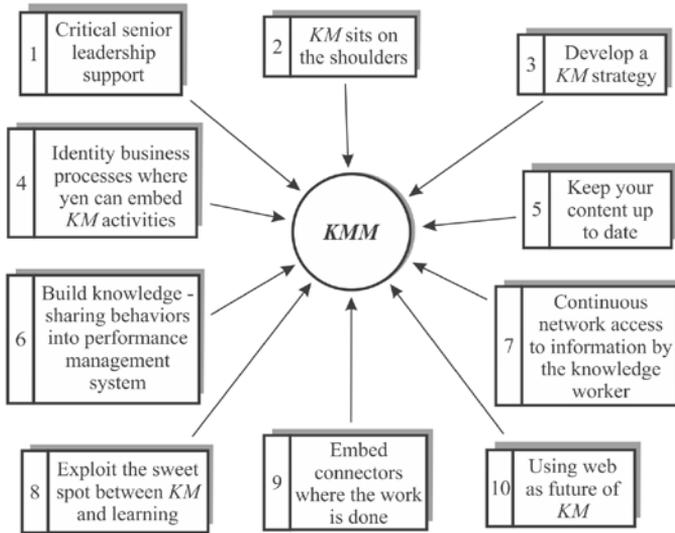
Source: own study.

For quality knowledge transfer crucial are relationships building (Fig. 7).

Figure 7. Creating competitive advantage through Building Relationship (BR)
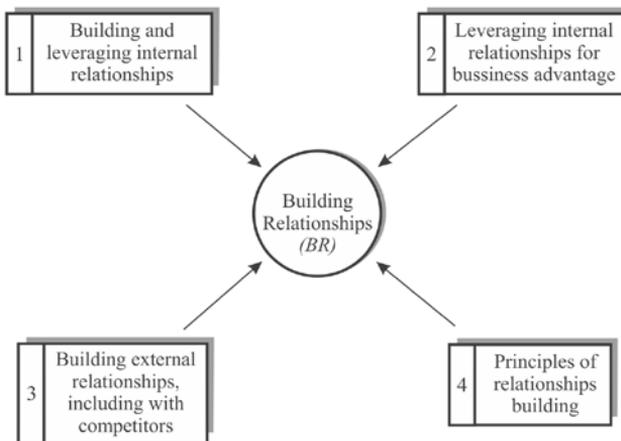
Source: own study.

For knowledge related to quality infrastructure and KM knowledge in analyzed transition countries dominant is external relationship.

On other side, explicit and tacit knowledge are parts in knowledge discovery, knowledge capture, knowledge sharing and knowledge application (Fig. 8).

Figure 8. Creating competitive advantage through Building Relationship (BR)
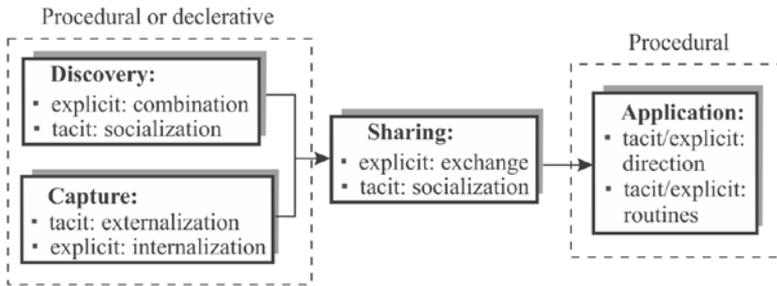
Source: own study.

For each phase in SECI model of Nonaka & Takeuchi (1995), is possible to distinguish: (1) environmental characteristics, (2) organizational characteristics, (3) task characteristics, and knowledge characteristics (Fig. 9). The two last characteristics are bounded through knowledge management.

Figure 9. Contingency factors
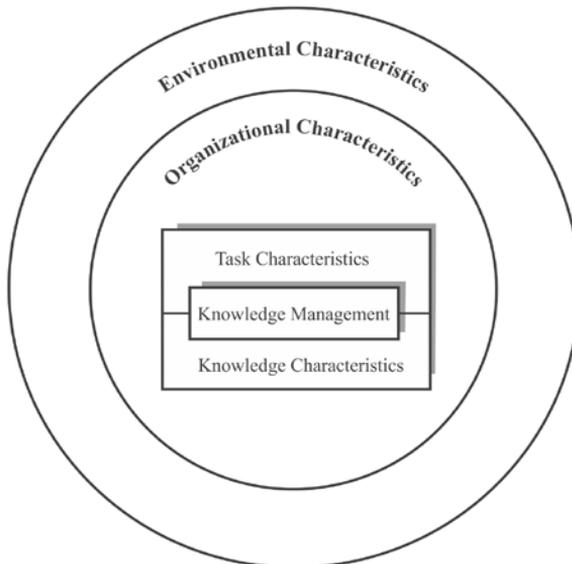
Source: own study.

In center of characteristics is knowledge management, with task characteristics and knowledge characteristics, as part of organizational characteristics. The analysis of knowledge characteristics in Bosnia and Herzegovina, as well as in Serbia and Montenegro, shows that knowledge characteristics related to quality is relatively low (about 4 on scale 1-10). Other knowledge organizational characteristics about business are higher (cca 4.5 on scale 1-10). In transition economics more influenced are environmental characteristics because their high impact on business in transition countries.

3. Knowledge level analysis related to quality infrastructure in EU and transition countries

In all official documents of EU quality infrastructure is defined by four pillars: (1) standardization, (2) accreditation, (3) certification, and (4) metrology, with emphasize on state and international level. Each pillar is developed and founded in EU countries based on EU directives and standards, so we can speak about successful level of quality infrastructure. For its functioning is necessary to have appropriate knowledge, located in each pillar and other "soft" elements, especially in quality associations, business organizations, educational and training organizations, consultants organizations and so on. That means that quality knowledge is in most cases effective transferred into economy through quality infrastructure in each EU country.

In transition countries situation is different, because of the altering of this process. Some pillars on state level are well organized according EU rules, but there is not enough state support, economy is week for supporting a transfer process of quality knowledge, certification is without control and so on. In Figure 10 is presented extended model of quality infrastructure in transition countries, presented as "house of quality" infrastructure.

Figure 10. Extended model of Quality Infrastructure
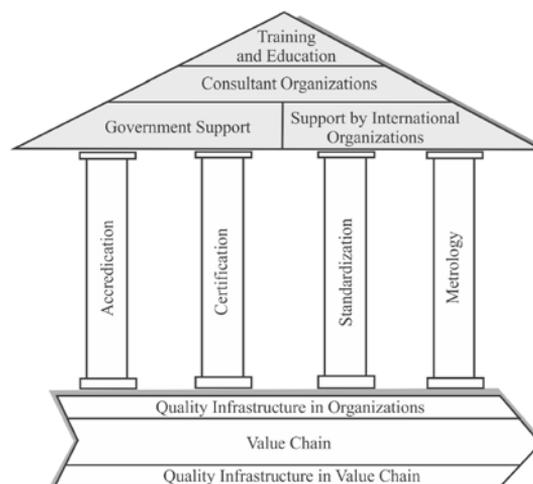
Source: own study.

Besides a lack of government support there is also lack of support by international organizations, consultant and education and training organization. Because a week position of business and quality infrastructure in value chain, a general assessment of knowledge transfer author made on expert opinion using *Delphy* method (Fig. 11).

Figure 11. Level of quality knowledge and support for effective transfer to business organizations in transition countries
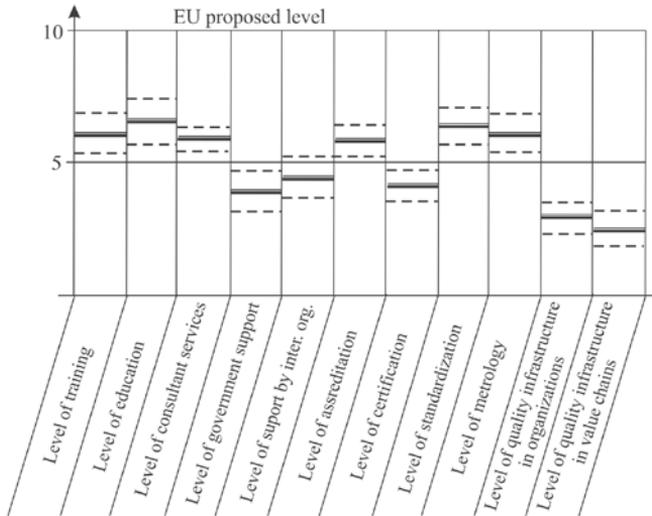
Source: own study.

Is obviously that assessed quality knowledge located in quality infrastructure is not enough for factor development of transition economy. The key missing variable is government orchestration and week position of business sector, as well as missing knowledge about quality role for business success.

4. Modeling a transfer process of quality knowledge

Previous research in Center of Quality in Kragujevac, (Serbia) related to quality knowledge led to use two approaches: (1 using statistical methods for identifying the relation and impact of variables (factors) in this process, and (2) using business dynamics for simulation an impact of previous identified key variables. On this way is developed hierarchical model presented in Figure 12.

Figure 12. Key variables (factors) in knowledge transfer
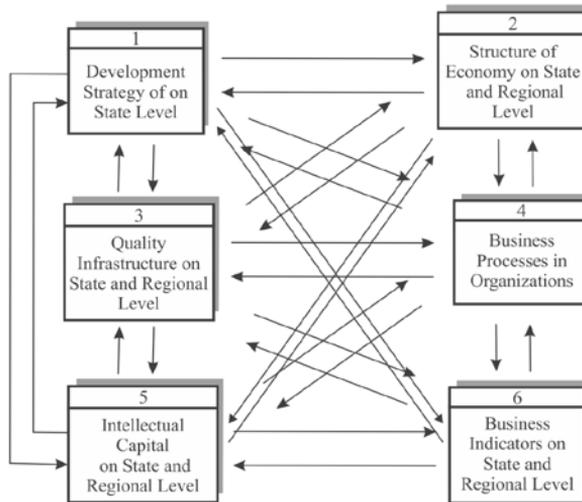
Source: own study.

In this model the left presented sub-models are on regional/state level, as well as sub-models 2 and 6. Knowledge located in processes of business organizations are modeled in sub-model 4. Based on research of Moljević (2010) all presented sub-models are analyzed in one region in Bosnia and Hercegovina. Using technique of questionnaires are defined factors and relationships among them all sub-models.

In Figure 13 is presented relationship among factors determined knowledge in business organizations. In Figure 14 is presented indicators of key variables related to intellectual capital.

Figure 13. Knowledge flow in Business Processes in Organizations
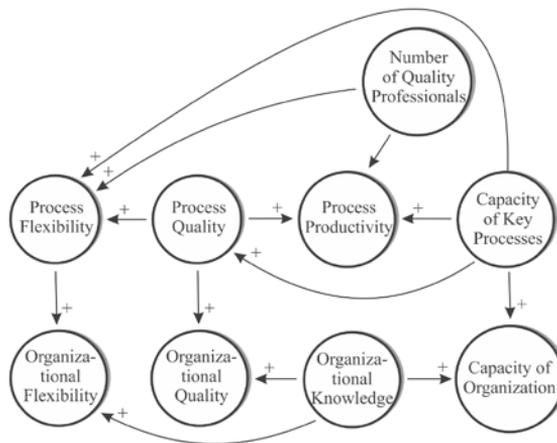
Source: own study.

In this knowledge flow sources are: (1) organizational knowledge, (2) capacity of key process, (3) process quality and (4) number of quality professionals. A outcome of this flow are related to: (1) organizational quality, (2) organizational flexibility. Both outcomes are very important for leading business in transition economics.

Figure 14. Indicators of key variables related to Intellectual capital (IC)
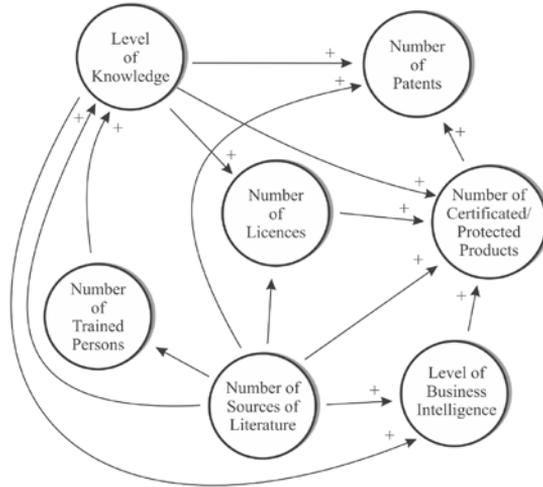
Source: own study.

On similar way is defined knowledge in quality infrastructure (Fig. 15).

Figure 15. Knowledge in Quality Infrastructure
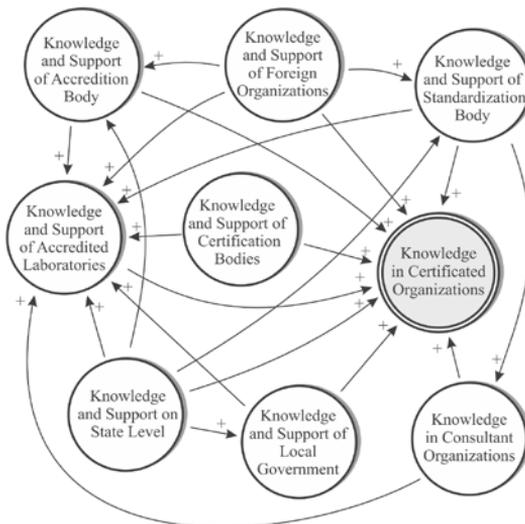
Source: own study.

In this sub-module a crucial role have: (1) knowledge and support of foreign organizations, (2) knowledge and support of certification bodies, (3) knowledge and support on state level, and (4) knowledge in consultation organizations. Through transfer process of knowledge and support, in next step are involved: (1) knowledge and support of standardization body, (2) knowledge and support of local government, and (3) knowledge and support of accredited laboratories. An outcome of this process is knowledge in certified organizations.

A quality knowledge process is elicitated, maintained, and applied. Design of the quality knowledge transfer process (Fig. 16) starts from knowledge generation, based on knowledge elicitation from quality infrastructure.

Figure 16. Design of the knowledge transfer process
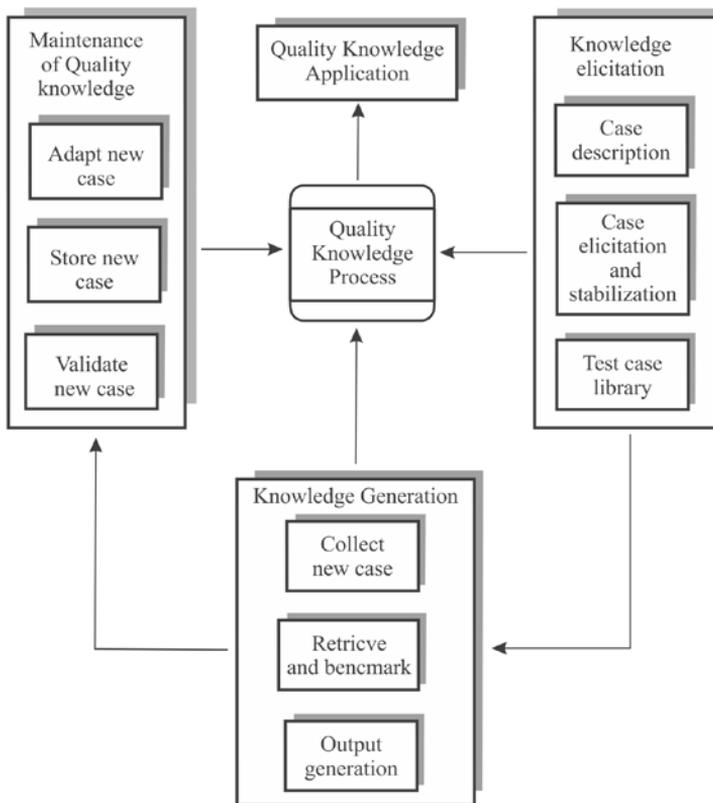
Source: own study.

Quality knowledge, as crucial business success factor in era of Digital Economy or Knowledge Economy, has impact on other business factors. In Figure 17 are presented level of impact quality of products and services (sub-model 6) on business indicators on regional/state level in Bosnia and Hercegovina.

Figure 17. Impact of change of quality on business indicators (sub-module 6)
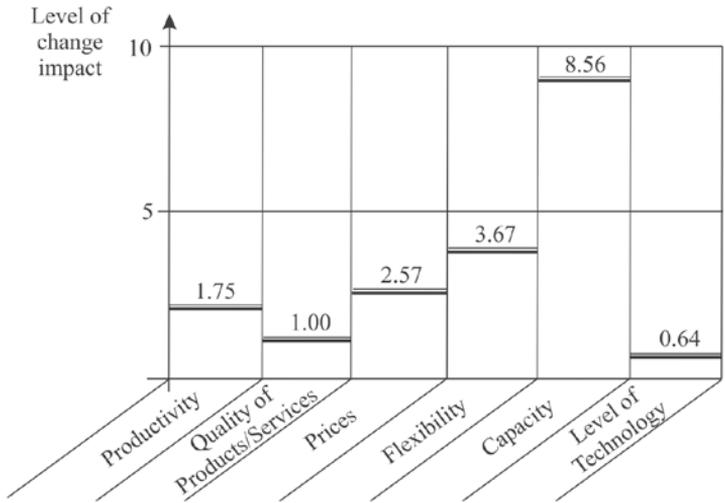
Source: own study.

Except level of technology all other factors are very sensitive for change of quality of products/services. That means knowledge about it has a great effect on especially to capacity.

Using simulation techniques based on Dynamic Modeling approach (Sterman, 2000) are generated a lot of scenarios with relative impact of factors in sub-module 5 on intellectual capital (Fig. 18).

Figure 18. Impact of change of quality on business indicators (sub-module 6)
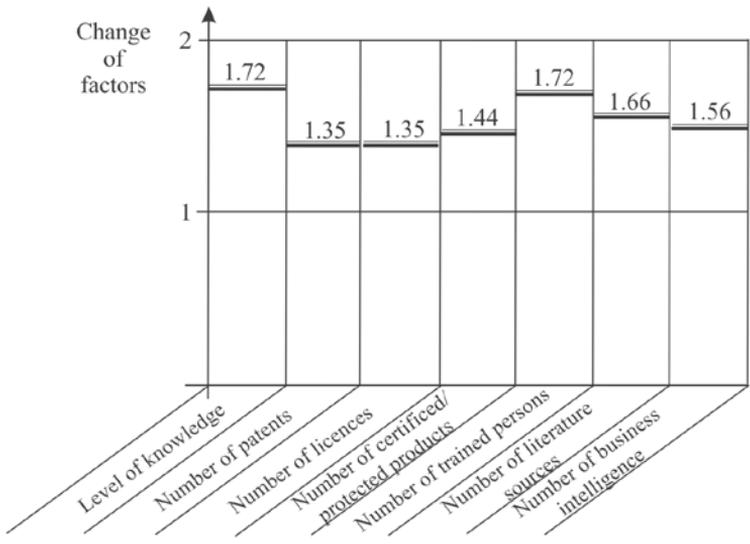
Source: own study.

With same change of factors its impacts on intellectual capital is different. The highest impact had level of knowledge and number of trained persons (1.72 in relation with previous value 1.00). That suggests importance of knowledge and trained persons for quality knowledge transfer process into economy.

5. Conclusion

An infrastructure of quality is now in maturity phase in EU countries. The question is how much it supports the basic purpose to be source of quality knowledge for business organizations. As infrastructure it is available, but how much it support knowledge transfer processes to business organizations? This question is and related problem is emphasized in transition economics, especially because it is not enough completed quality infrastructure and many problems related to its functioning.

In the paper are presented only a part of results of investigation in Serbia, Bosnia and Hercegovina, and Montenegro. Using different methods, techniques and tools are developed appropriate models for identifying knowledge, generating and transfer knowledge in business organizations. Results of simulations proved that quality knowledge could be high ranked factor for success of business organizations in era of turbulent changes in transition economies.

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Chapter **18**

Intransitive Preferences in Teacher Evaluation[1]

Paweł Wołoszyn, Przemysław Płyś, Jacek Wołoszyn

1. Introduction

Typical teaching quality assurance systems in higher education utilize closed question Likert-like scale questionnaires as the main source of data about student opinions (Fabrice, 2010; Cieciora, 2012). In spite of several flaws discussed in published literature (Emery, Kramer & Tian, 2003; Carrell & West, 2008) such form of evaluation is used for mostly practical reasons: designing questions in satisfaction questionnaire is relatively easy, the survey can be conveniently supported by a computer system and data analysis is in most cases reduced to calculating arithmetic means and simple sorting. Although the data acquired in the process can be very informative, the usual method of processing involves aggregation into single scalar indicator of teacher performance which is further used to produce ordered rankings.

This raises some doubts about what exactly is measured in the survey. The answer is actually encoded in the questionnaire itself as it asks the respondent to state to what extent the evaluated teacher resembles an abstract role model obtained by extrapolating observed characteristics of good teachers to their extremes. This complex archetype comprises several characteristics, therefore multiple independent criteria are needed to systematically judge the differences between particular teacher and the role model. Consequently the survey gains a mathematical context of finite multidimensional feature space in the shape of a hypercube stretched between the worst possible teacher, or anti-model, and the role model. For example in the quality assurance system adopted in the Cracow University of Economics (Wiktor, 2010) there is a total of 11 graded criteria in the questionnaire which defines an 11-dimensional feature space.

The data collected in teacher evaluation survey are in fact point clouds dispersed in the feature space, containing as many points as there are questionnaires submitted. Before they could be used for further analysis, their complexity is reduced to a single point per teacher, usually by calculating the representative centroid. It is especially problematic when confronted with the fact that Likert scales are purely ordinal and not interval type of scales which directly prohibits the use

of mean as the measure of central tendency (Jamieson, 2004). However, regardless of the exact method of aggregation, there is an important and often overlooked problem with comparing thus obtained teacher grades and drawing conclusions about which teacher is preferred most or least of all: the issue of intransitive preferences.

2. Structure of preferences

In a multidimensional space there is always a difficulty in providing total ordering of points which would have a reasonable interpretation, and well known total orders such as lexicographical order are rather meaningless if all dimensions are equally important. If anything can be said for sure about domination or superiority within the feature space of teacher evaluation it is that the role model is superior to any other teacher and the anti-model on the opposite extreme is dominated by any other teacher. Comparing teachers between themselves yet poses a non-trivial problem.

The distance to the role model can be used as a scalar metric of teacher performance. In fact the distance from anti-model is chosen as it is covariant with teacher performance. It is not obvious however which metric should be used for computing the distance. In the Cracow University of Economics (CUE) and perhaps in the vast majority of universities the taxicab metric, or rectilinear distance, is chosen more or less intentionally because it coincides with arithmetic mean of all graded criteria linearly scaled by the number of dimensions. Apparently it allows to compare teachers by comparing their distance from anti-model. There is however a dangerous caveat in this approach: regardless of the exact choice of the metric it is actually applied before any two teachers are compared thus defeating the very purpose of metric function. Given the distances of two teachers measured from the origin of the feature space nothing can be deduced about the distance between teachers themselves.

The problem of irrelevant comparison between averaged grades can be seen as a consequence of massive information loss occurring when 11-element vector is reduced to a single number. Aggregation to a scalar value allows to answer such questions as who is the best teacher but at the same time it ruins the structure of relations between teachers. In order to preserve those relations a different concept of preference should be selected which allows to compare whole feature vectors.

The task of finding the best teacher can be reformulated into answering the question about which teacher is not worse than any other teacher, thus bringing the problem into domain of multi objective optimization. Clearly there can be many teachers not dominated by any other in the sense that they are better than any other in at least one graded criterion, although the criterion can be different in each compared case. This can be seen as an alternative to scalarisation of feature vectors: instead of building a ranking of aggregated grades and finding the highest ranked teacher one can apply the skyline operator (Borzsony, Kossmann & Stocker, 2001) to the original set of feature vectors and compute the entire Pareto efficient frontier consisting of several teachers who are performing optimally. Choosing a single champion from the Pareto frontier is impossible without making a trade-off between graded criteria.

Figure 1. The graph of preference for a group of teachers in traditional grading strategy
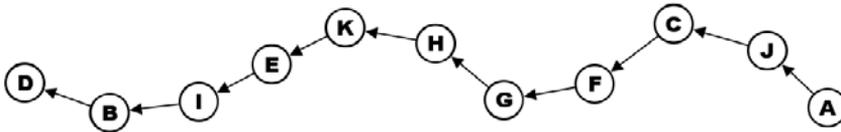
Note: Vertices represent teachers randomly assigned alphabet letters. Arrows on all figures are oriented in the direction of preference, i.e. they point to less preferred teacher. Transitive edges removed for clarity. Vertex positions and edge lengths are arbitrary on this and following figures.

Source: own work.

To illustrate the difference between scalar ordering and Pareto dominance we carried out an experiment on actual data recorded in one of teacher evaluation surveys administered in CUE. To make the results more comprehensible we limited the analysis to eleven teachers employed in the same department of computer science. All of them are involved in courses within the same study programme so they are evaluated by the same population of students. The data consisted of 11 grades for each teacher, averaged across all collected questionnaires, corresponding to 11 criteria of evaluation. For this data we created several graphs depicting the relation of dominance computed with different strategies.

First, the basic strategy of comparing the average of 11 grades was applied producing a linear chain of total order as expected (Fig. 1). Then the skyline strategy was used resulting in much more interesting graph of dominance in Pareto sense (Fig. 2). Pareto dominance is transitive, however the order imposed on the set of teachers is only partial leading to incomparability of several teachers which is perhaps the most noticeable difference from the basic strategy of ordering.

Figure 2. The graph of preference in Pareto dominance comparison strategy
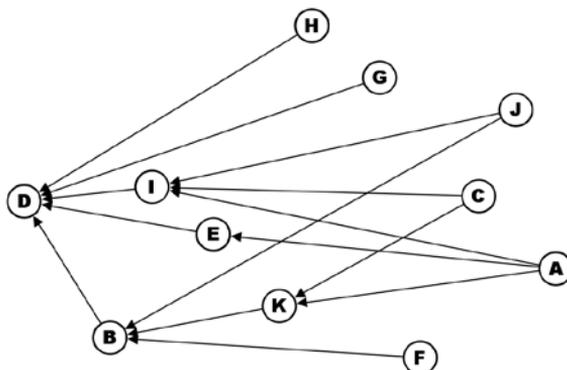
Note: Vertices represent the same group of teachers as in Fig. 1. Transitive edges removed for clarity. Teachers are distributed horizontally in the order of mean grade with A having the highest mean grade and D having the lowest.

Source: own work.

Teachers are no longer only better or worse than others but can also be recognized as being just different without establishing any objective preference. For example it cannot be decided which one of teachers E and I should be preferred more because they belong to the same Pareto frontier. In fact there are four such frontiers in our dataset, two of them degenerated to a single entity: {A, J, C, F, G, H}, {K, E, I}, {B} and {D} listed in descending order of mean grade computed in the basic strategy. It is important to emphasize that these frontiers are not merely clusters of teachers with similar mean grades. As a matter of fact the widest interval between consecutive mean grades within the first frontier is 2 times wider than the gap between first and second frontier.

The structure of Pareto frontiers and dominance is simply not existent in traditional grading strategy and averaging grades causes irreversible loss of that kind of information. On the other hand interpretation of the graph of dominance is more challenging than studying the ranking of grades. There is no simple answer to the question which teacher should be followed as a mentor. Instead the entire optimal frontier dispersed in 11-dimensional space should be considered in the search for desired and highly valued characteristics of good teachers, appreciating the indispensable diversity of academic staff.

Taking into consideration the entire feature vectors without collapsing them to scalars reveals rich structure of preferences within the set of teachers. Using Pareto dominance strategy to obtain the graph of preferences is not the only possible option although it produces at least partial order which meets the intuitive expectation of transitivity. There are however other reasonable strategies of comparing teachers which come with a trade-off: they offer totality of comparison but at the cost of transitivity.

3. Preference cycles in traditional survey

Common intuition suggests that given a set of choices it should be equally correct to compare them in several distinct pairs and to compare all choices at once seeking the best one of them. Both procedures should select exactly the same supreme choice or at least the same subset of optimal choices equivalent to each other. In fact the first procedure is often the only possible method of emulating the second one because the applied relational operator is binary and does not accept more than two operands. The intuition is based on an assumption of transitivity of preferences which in turn is a property as natural in the context of rational decision making as the triangle inequality in the context of everyday life experience.

However, the triangle inequality does not always hold in the real life when the concept of distance becomes more complex and non-metric, as for example in the case of city traffic. Similarly the notion of preference can become complex, either explicitly by using multiple criteria and their dependencies in comparing choices or implicitly when those criteria are hidden and comparison is done more or less unconsciously. Consequently the resulting structure of preferences can become intransitive and cyclic. Intransitivity does not imply irrationality or randomness, as the choices remain consistent, deterministic and justifiable (Regenwetter et al., 2011). Instead the presence of cyclic preferences indicates that the context of comparison is as much important as the object of choice. The very same option can be judged differently depending on the other one with which it is paired. When the pairing changes, the criteria and their relations also change and there is no single globally optimal choice because there is no global context common to all pairs.

This harmonizes very well with the problem of comparing teachers graded in multiple criteria. Let us consider an example of three teachers, X, Y and Z, graded with respect to three criteria in the same 5-point scale and assigned following feature vectors:

$$X = (4.92, 4.20, 4.43)$$
$$Y = (4.11, 4.81, 4.58)$$
$$Z = (4.29, 4.51, 4.68)$$

Each of them has one strong and two weaker features, but relative configuration of their values is different in each case. It seems unfair to compare the same feature between two teachers if it is the strongest attribute of one of them and the weakest point of the other. For example 4.92 score of X should not be directly matched with 4.11 score of Y, even if it is the same feature. Since features are equally important it is more justified to match scores which are possibly close to each other, an analogy to distinguishing several weight classes in boxing competition. Hence the most proper match for 4.92 score of X would be 4.81 score of Y. It should be noted that if it is regarded meaningful to sum and average scores for all features then it is also meaningful to compare scores of different features.

The comparison strategy for two feature vectors could be therefore specified as the following greedy algorithm:
- find two elements, one from each vector, which are closest to each other,
- compare the elements found and score 1 point to the vector which provided the preferred element,
- remove compared elements from feature vectors,
- repeat the above steps until all elements are exhausted.

At the end the vector which scored more points wins as preferred over the other. Depending on the treatment of ties this strategy can produce partial and strict or total and weak ordering. Informal interpretation of such preference relation can be such that for any two teachers the more preferred is the one who prevails in greater number of similarly developed skills. Intuitively such preference is sensitive to the context of comparison as changing the rival can result in the same values being compared with entirely different features in different order. One can suspect that such relation is intransitive.

Indeed, applying this strategy to the artificial example of three teachers results in a cycle of domination: X is preferred over Y, Y over Z and Z over X when confronted in that pairs. It may seem irrational at first but it is quite conceivable that all three subjects comprise together a balanced ensemble and only forcing them to compete in pairs gives rise to intransitivity as in the popular game of rock-paper-scissors. The selection of matched features based on their strength rather than specialization further emphasizes the similarity of comparison strategy to a battle of parties with diverse abilities.

Figure 3. The graph of preference in closest feature comparison strategy
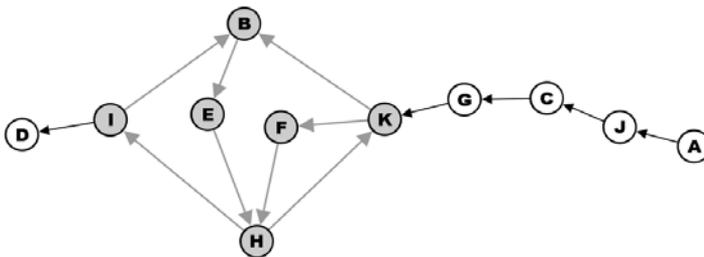
Note: Vertices represent the same group of teachers as in Fig. 1 and 2. Transitive edges removed for clarity. Shaded vertices form strongly connected component.
Source: own work.

By applying the strict variant of the same strategy to the real dataset of eleven teachers considered earlier we obtained another graph of preference (Fig. 3) which happens to depict a total relation of reachability of its vertices because there are no ties. In the graph three distinct cycles can be noticed: {I, B, E, H}, {K, B, E, H} and {K, F, H}. These cycles share common vertices and form a strongly connected component. All teachers belonging to the component form a balanced group equipped with diversified but complementary abilities. Within this structure it cannot be decided who of them is the best or the worst member of the group. Instead they should be treated as a whole even though some of them (F) have higher mean grades than those who are preferred above the group (G).

4. Cycles in pairwise comparison

The closest feature comparison strategy described above is slightly convoluted and not as straightforward as Pareto dominance or mean grade comparison. This raises an important question whether the intransitivity of preferences is genuinely present in the context of teacher evaluation or it is merely an artefact of more or less unusual comparison strategy. This question can be answered by studying transitivity of student preferences in their most primary form as teachers are judged personally and subjectively without the aid of questionnaires and grading schemes. If student preferences are inherently intransitive then this property should manifest itself without the need for any kind of comparison strategy. It is worth emphasizing that student preferences need not be rational as they are not making decisions based on well-defined criteria and the laws of logic. We believe that imposing grading criteria on evaluation survey forces students to make their answers artificially rational and dissociate their private opinions into several independent grades which are recombined again into a single grade afterwards. Grading teachers independently also inhibits the natural mechanisms of pairing-dependent comparison which are innate for human judgement (Kalenscher et al., 2010).

Therefore as an alternative approach we chose pairwise comparison method as described in (Wołoszyn, 2015). In this method students are presented with randomly drawn pairs of teachers and asked to indicate which one of them they prefer more. No formal criteria of comparison are given, furthermore students are explicitly encouraged to follow their feelings and subjective sentiments. We carried out an experiment with CUE students of the same faculty and the same curriculum as in examples discussed above. The students participating were different due to natural succession of age groups caused by time flow. Participants were judging 9 out of 11 teachers considered in previous examples. Our intention however was not to compare results of traditional and alternative method but to inspect transitivity of spontaneously declared preferences.

After gathering 4913 choices from 189 participants we constructed the graph of preferences. It required aggregating several matches of the same pair of teachers into single relation of preference. For that purpose we used the most straightforward aggregation strategy: for each pair of teachers we counted how many times each member of the pair was preferred over the other and we added an edge between corresponding vertices in the graph oriented in the prevailing direction. In case of a draw no edge was added at all. It is important to emphasize that answers involving each teacher pair were counted independently and therefore we can study only transitivity of resulting aggregated preferences, not individual preferences of particular students.

On the other hand complete pairwise comparison of a group of several teachers requires significant number of choices, for example comparing 10 teachers requires 45 choices. For the sake of limited patience of users the web application used for gathering responses explicitly offers the option to prematurely finish the interview before completion. In practice students often use this option and leave several pairs unanswered which makes it difficult to examine transitivity of incomplete choices.

Figure 4. The graph of preference in pairwise comparison survey
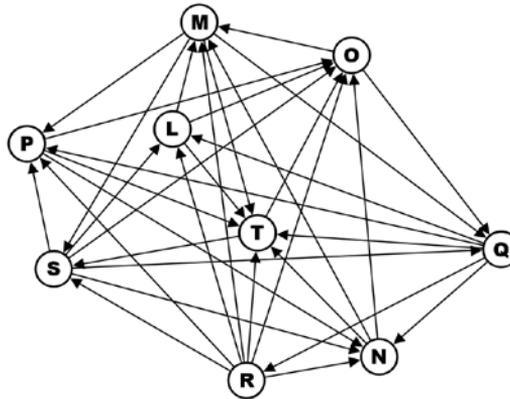
Note: Vertices represent a subset of the same group of teachers as in previous figures. Letters were changed randomly to avoid relation to previous figures obtained in different context. All edges are visible.
Source: own work.

The resulting digraph (Fig. 4) is quite surprising as it occurs that it is strongly connected as a whole. It means that intransitive preferences are not restricted to a smaller subgraph but instead all teachers belong to at least one cycle. It is unlikely that such structure is induced artificially by aggregating initially transitive preferences disturbed by random errors made by students when filling up the survey. It seems therefore that preferences concerning teachers are inherently intransitive and cannot be simply translated to linear ordering. There are however some features which can be used to establish at least weak ordering of graph vertices, for example their indegree and outdegree.

The outdegree of a vertex corresponds to the number of teachers over whom this particular teacher is preferred more. The higher the outdegree, the more popular is the teacher so perhaps this measure can be treated as an indicator of teacher performance. On Figure 4 the vertex with highest outdegree (7) is the teacher R. However one should be cautious not to conclude that R is the best teacher as Q is still preferred over R despite having lower outdegree (5). Conversely the indegree of a vertex counts the number of teachers with whom this teacher compares inferior. The interpretation is reverse to that of outdegree. There are two teachers with highest indegree (6) on Fig. 4, namely O and T. Certainly they are not the worst teachers since T wins over O, O over Q and in turn Q over R which is the champion of outdegree. The graph is not balanced and not complete which is the result of ties between some pairs of teachers. Total degree of a vertex is therefore less informative than outdegree to indegree ratio.

5. Conclusion and further work

Traditional teacher evaluation questionnaires yield numerical grades which can be compared, sorted and processed according to the assumption that teachers comprise totally ordered set with grades denoting teacher performance on an absolute scale. It seems natural that each teacher can be described independently as objectively "good" or "bad" and from all good teachers the "best" one can be chosen. Our findings show that this intuition can be wrong.

We demonstrate that even in the traditional grading scheme it is possible to encounter intransitive, cyclic chains of preference by adopting non-standard comparison strategy. Some teachers remain linearly ordered while other become involved in a strongly connected component within the graph of preference. It means that they cannot be arranged in an ordered ranking and perhaps should be treated with respect to each other not as "better" or "worse" but rather as members of coherent but heterogeneous group. Nevertheless there are some teachers "better" or "worse" than the entire group and the one with the "best" grades can still be found.

Much more complex network of preferences is observed if purely subjective and unguided by any criteria personal student preferences are recorded. In an experiment of pairwise comparison we obtained a graph of preferences which is not only cyclic but also strongly connected meaning that regardless of how "good" any teacher is there is always another teacher who is "better". Such a structure renders any attempt to build an ordered ranking futile. We do not treat it yet as a proof of intrinsic intransitivity of student preferences however our findings suggest that teacher performance is relative and moreover it is sensitive for the choice with whom the evaluated teacher is compared. The most radical interpretation would postulate that total ordering seen in the traditional survey is actually only an artefact of the method chosen for teacher evaluation. In reality evaluating teachers may be much more difficult than simply averaging and sorting grades just as the graph on Figure 4 is much more complex than that on Figure 1 although both of them represent nearly the same group of teachers. On the other hand analysing the intricate network of preferences may provide more useful feedback on teaching quality and better help in improving it than mere comparison of numeric grades.

Our further work will be focused on adapting existing graph processing tools or developing new methods for more conclusive analysis of strongly connected preference graphs, possibly including also weighted edges. We have found intransitivity in aggregated preferences of many students but it would be desirable to investigate transitivity of individual preferences and explore the possibility that students are strictly rational but use different criteria in comparison of different pairs of teachers. The results presented in this paper also expose the need for further research on teacher evaluation methods directly addressing the issue of intransitive preferences.

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Chapter 19

Scientific Information Systems *BazEkon* and Citations in *BazEkon*: their Relation to the Expert Evaluation of Polish Journals in Economic Sciences

Anna Osiewalska

1. Introduction

The parametric evaluation of Polish scientific journals has been organized by the Ministry of Science and Higher Education since 1991. In 2015, in addition to the existing criteria, expert assessment was introduced (*Komunikat MNiSW*, 2015) and – also for the first time – all the evaluation results have been available in the internet (Kulczycki, 2016). We analyses this data for individually selected 360 journals which publish articles of the economics field. The selection process was supported by expert of fields[1].

We analyse journals which have been finally categorized as group B (Polish journals without IF in WoS or SJR in Scopus). Additionally, the journals have been checked with respect to the following criteria:

- at least one (of maximum two main scientific disciplines) has been determined by editorial staff in Journal Questionnaires 2015 as: economics, finance, management (within economic sciences), commodity science,

  or

- are indexed in subject-oriented *BazEkon* database – let's add: on the basis of agreement signed by editors.

Does expert assessment of these journals provide new information to the evaluation process? Which journals are qualified as *excellent* by experts? Are the journals with the highest experts notes indexed in *BazEkon* database? Are they influent journals according to *Citations in BazEkon* bibliometric program?

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[1] Special thanks for prof. dr hab. Jacek Osiewalski.

2. 2015 Polish Journal Ranking data scheme

Data from journal evaluating process usually have been published in the format of list of journals with the final result only. For 2015, detailed evaluation results are available on the blog of Emmanuel Kulczycki – one of members of currently working Specialized Team for Scientific Journals Evaluation (Zarządzenie MNiSW, 2016). The screen of the page with data is presented in Figure 1.

Figure 1. Detailed results of the evaluation of scientific journals containing information on the number of points awarded for each evaluated parameter

Source: (http://ekulczycki.pl/wp-content/uploads/2016/03/szczegolowe_wyniki_wykaz_2015.pdf, Retrieved on 30/05/2016).

The main data, used in our research, are presented in three blocks:
- Journal descriptors = Dane czasopisma,
- Scores for particular 11 so called formal criteria referred to point 13 a) – k) = Przyznana punktacja z tytułu kryteriów o których mowa w pkt 13 a) – k),
- Journal final score = Punktacja czasopisma.
  The data are presented in 18 columns:
1. Position on the list of "B" Minister of Science and Higher Education,
2. Journal title as given in Journal Questionnaires,
3. ISSN,
4. e-ISSN,
5. journal citation rate,
6. foreign affiliation of the authors,
7. indexation in databases,
8. number of scientific papers published per year,

  9. internationalization of the reviewers,

10. issue frequency,

11. language of publication,

12. internationalization of the scientific council,

13. on-line version,

14. period of operation of the journal,

15. submitting data to POL-index database,

16. Pp – Sum of score counted as formulated in point 19) (*Komunikat MNiSW,* 2015),

17. Pe – expert assessment according to point 20) (*Komunikat MNiSW,* 2015),

18. P – final result.

    The so called formal criteria (columns 5-15) have got different threshold values for journals classified as:

- technical – sciences – medical – natural,
- social,
- humanities.

    This fact enables direct comparisons of scores obtained by journals from different gropus. Expert assessments, however, have not been varied among sciences; they always take values from 0 to 5.

3. Journals representing economic sciences

    Our set of 360 journals consists of 285 which represent: economics, finance, management (within economic sciences), or commodity science. 241 of 360 (2/3 of titles) are indexed in *BazEkon*. Final scores for our 360 selected journals vary in a similar way as in the whole set of evaluated journals (2212), as it is shown in Figure 2.

    Note that the fraction of journals with high scores is grater within economic sciences. We also see favorable relationship between the fact of being indexed in *BazEkon* and the number of points received by the journal.

Figure 2. Percentage of journals: all (2212), representing economic sciences (360), indexed in *BazEkon* (241) with a determined number of points of final score (1-15)
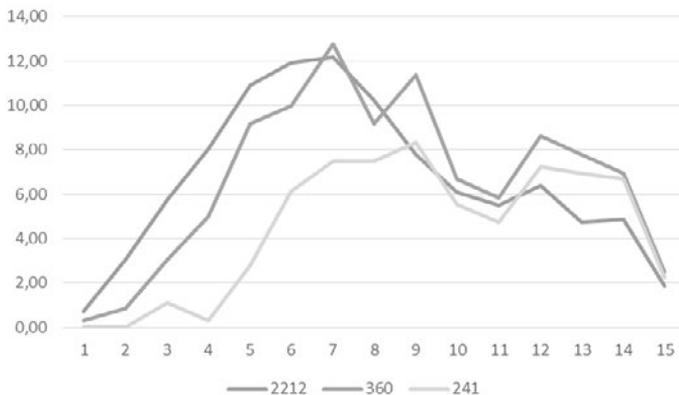
Source: own calculation.

4. Expert evaluation of journals representing economic sciences

Expert assessment has been introduced in order to help to point at (indicate?) the best (outstanding, important) journals. In fact, experts most frequently evaluated Polish academic journals as unimportant (category: "the other"). In particular that tendency can be observed in the case of journals representing economic sciences. The half of our 360 journals have obtained the very low expert scores (0 or 1 point). The distribution of expert assessment of economics journals has the same shape as for all evaluated journals (see: Fig. 3).

Figure 3. Percentage of journals: all (2212), representing economic sciences (360), indexed in *BazEkon* (241) with a given experts' score
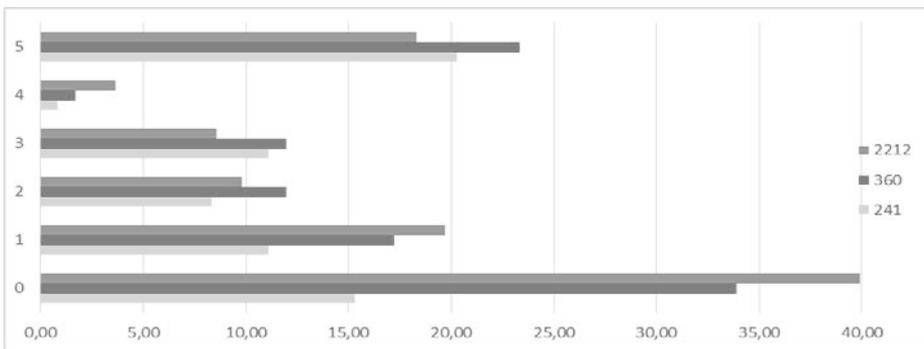
Source: own calculation.

In all journals expert notes are correlated with notes counted as the sum of all other "formal" criteria (this sum is presented in column 16 in Table 1). This correlation is the strongest with journal citations rates (in Web of Science or Scopus databases). On the basis of this fact, expert evaluation could be – and in fact it is – questioned (Kulczycki, et al., 2016).

Expert evaluations of journals representing economic sciences shows the same dependencies as of all other academic journals. Using the simple linear regression model, estimated by the least squares method (see LINEST Excel function) we have found that, however, the determination coefficient for models which explain expert notes by the total value of formal criteria or journal citation rates is rather low (expert notes are not well explained by variation of any of this two explanatory variables).

Below we present the first simple model: expert notes explained by the total value of all other ("formal") evaluation criteria:

$$y = mx + b \qquad (1)$$

where:
y – expert notes of journal (column 17 of Figure 1),
x – formal assessment of journal (column 16 of Figure 1),
m – slope coefficient,
b – constant.

The result of this and next regression functions we will presented in form of Excel table in which the all regression statistics are returned:

slope coefficient *m*	constant *b*
standard error values for the coefficient *m*	standard error value for the constant *b*
coefficient of determination	standard error for the *y* estimate
F statistic	degrees of freedom
regression sum of squares	residual sum of squares

Table 1. Excel table of results for regression model (1)

0.544	1.647802
0.049	0.340375
0.2564	1.688689
123.47	358
352.1	1020.898

Source: own calculation.

Expert notes are explained by formal assessment in 25%.

The next simple model: expert notes are explained by journal citation rate (in WoS or Scopus databases) as the equation (2) and Excel results are presented in Table 2.

$$y = mx + b \tag{2}$$

where:

y – expert note for journal (column 17 of Table 1),

x – 2012-2014 journal citation rate in Web of Science or Scopus databases (column 5 of Table 1),

m – slope coefficient,

b – constant.

Table 2. Excel table of results for regression model (2)

2.2794	1.5611
0.274	0.1084
0.162	1.7928
69.188	358
222.37	1150.6

Source: own calculation.

The role of citation rates in Web of Science or Scopus should be interpreted with care as 72% of journals have 0 points in this category. Thus expert evaluation is explained by citation rates in WoS or Scopus in 16% only.

In search of factors which could explain expert decisions better we introduce an additional variable: journal citation in *BazEkon*. This database was created in 2010 as the local supplement of world scientific information in economic sciences. The data for this analysis are available in internet via bibliometric program *Citations in BazEkon* created by Cracow University of Economics Main Library in 2012. Screenshot of the program is presented in Figure 4.

Figure 4. Data about journal citations in *BazEkon* database
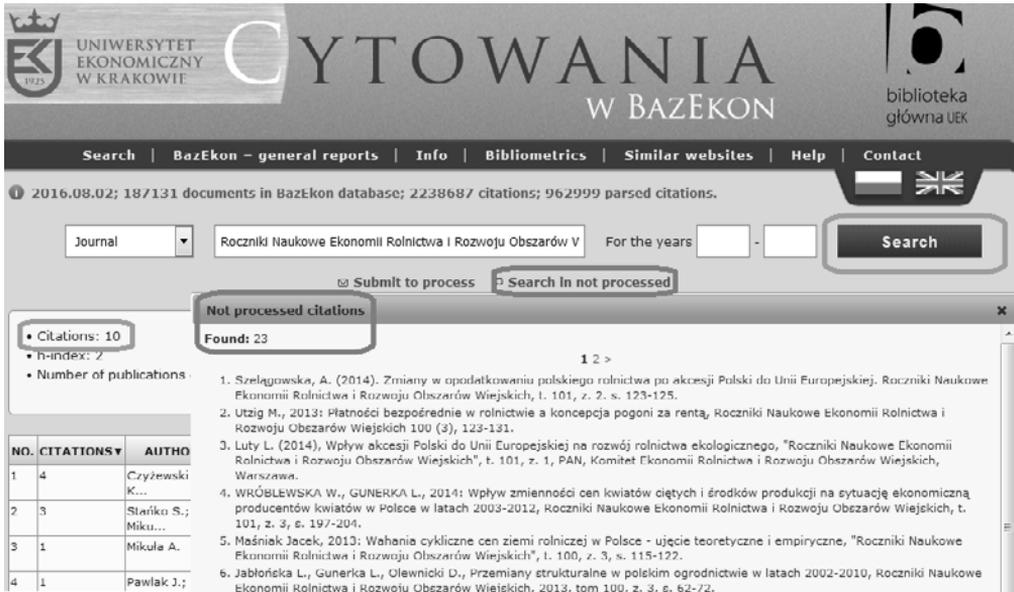
Source: (http://bazybg.uek.krakow.pl/cytowania/en, Retrieved on 30/05/2016).

Manually collected data from this source we have used to evaluate the third simple model. The results (Tab. 3) show that this information explained variation of expert notes in 15% only.

$$y = mx + b \tag{3}$$

where:

y – expert notes of journal (column 17 of Table 1),

x – overall journal citations counts in *BazEkon*,

m –   slope coefficient,

b – constant.

Table 3. Excel table of results for regression model (3)

0.001	1.7185
0.00013	0.102
0.14653	1.8092
61.464	358
201.185	1171.8

Source: own calculation.

Although the determination coefficient is not high, the results in Table 3 justify the maintenance of *Cytowania w BazEkon* bibliometric program as important tool for information purposes. We should remind in this place, that the program operates on citations collected from the sources

indexed in *BazEkon,* which are mainly Polish journals representing economic sciences. *BazEkon* also includes working papers of different Polish institutions, Polish conference series and other sources recommended by scientific staff of Polish economics universities, which formed *BazEcon* Consortium in 2012. Information provided by the program gives useful hints about journal local recognition. For sure this information constitutes part of experts knowledge, which is obviously the sum of many components. How many and which ones? The answer to this question could be provided by regression models with wider set of explanatory variables. First we present a model with two variables (4) and its estimation results (Tab. 4).

$$y = m_1 x_1 + m_2 x_2 + b \tag{4}$$

where:

y	–	expert notes of journal (column 17 of Table 1),
x_1	–	overall journal citations counts in BazEkon database,
x_2	–	formal assessment of journal (column 16 of Figure 1),
m_1, m_2	–	partial parameters,
b	–	constant.

Table 4. Excel table of results for regression model (4)

0.462638	0.000769	-1.29947
0.046805	0.000116	0.320135
0.323298	1.598489	
85.27927	357	
435.8055	912.1945	

Source: own calculation.

where:

partial parameter m_2 of variable x_2 (formal assessment of journal)	partial parameter m_1 of variable x_1 (citations counts in BazEkon)	constant b
standard error values for the coefficients m_2	standard error values for the coefficients m_1	standard error value for the constant b
coefficient of determination	standard error for the y estimate	
F statistic	degrees of freedom	
regression sum of squares	residual sum of squares	

In model (4) expert notes are explained by overall citations counts in BazEkon and formal assessment of journal in 32%. The model use compound variable (formal assessment counted as the sum of all detailed scores of columns 5 to 15 according to (Kulczycki, 2016). Our last model (5) helps to find the most important factors among the eleven "formal" criteria, keeping citations in BazEkon as an additional (the twelfth variable).

$$y = m_1 x_1 + m_2 x_2 + m_3 x_3 + m_4 x_4 + m_5 x_5 + m_6 x_6 + m_7 x_7 + m_8 x_8 + m_9 x_9 + m_{10} x_{10} + m_{11} x_{11} + m_{12} x_{12} + b \tag{5}$$

In Table 5 we present Excel results for the regression model (5). In Table 6 the explanatory variables of model (5) together with their estimates and significance measured by Student-*t* ratio are shown.

Table 5. Excel results for the model (5): expert notes are explained by model (5) in 40%

0.0006	0.3767	0.4312	0.4394	0.0431	0.1897	0.1685	-0.1233	1.2027	1.0525	0.5075	1.6430	-1.3631
0.0001	0.1120	0.2348	0.2740	0.5187	0.2659	0.1948	0.3852	0.3849	0.3022	0.3313	0.2633	0.3631
0.4014	1.5390											
19.3930	347.0000											
551.1634	821.8339											

Source: own calculation.

Table 6. Variables in the model (5) and their significance measured by Student-t ratio

i	m_i estimates	Student-t ratio	xi
1	1.6430	6.2394	journal citation rate (*WoS* or *Scopus*)
2	0.5075	1.5317	foreign affiliation of the authors;
3	1.0525	3.4824	indexation in databases;
4	1.2027	3.1244	number of scientific papers published per year;
5	-0.1233	-0.3201	internationalization of the reviewers;
6	0.1685	0.8650	issue frequency;
7	0.1897	0.7133	language of publication;
8	0.0431	0.0831	internationalization of the scientific council;
9	0.4394	1.6034	on-line version;
10	0.4312	1.8361	period of operation of the journal;
11	0.3767	3.3628	submitting data to POL-index database;
12	0.0006	5.2841	citation counts in *BazEkon*

Source: own calculation.

Gradual reduction of the number of explanatory variables in model (5) has been performed on the basis of the lowest Student-t ratio; it was stopped at the model with five variables: 1, 3, 4, 11 and 12 (listed in Tab. 6). Each of these characteristics significantly influences the final expert evaluation. After deleting of seven insignificant variables the model fit has remained at almost the same level (0.3845) and the appropriate F statistic has justified this operation (with the *p*-value 0.205).

5. Conclusion

Our simple analysis of the factors that explain the final expert evaluation confirms the importance of classical bibliometric indicators: journals productivity and citation. The fact of indexing journals in databases and preparing data to the database POL-index can be interpreted as an appreciation of the editors ability to adopt to the requirements of Ministry of Higher Education (preparation xhtml files by the editors had to be organized in 4 months). However, a large part (60%) of the expert evaluations remains unexplained yet. We suggest to continue this effort and to look for the factors which may represent the knowledge or intuition of experts. The international and country-wide position of chief editors can be such an important factor. Also the subdiscipline or methodological tools represented by the journal may influence expert evaluation. As long as this

additional factors are not automatically measured our list of explanatory variables cannot be easily enlarged. Thus, at this stage of data availability, we think that the determination coefficient 0.4 is quite a high value that, however, shows the subtle character of expert evaluation and the need for further research.

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Chapter **20**

Role of Intangible Assets in the Ecosystem of Academic Libraries – Example of Main Library of the Cracow University of Economics

Urszula Cieraszewska

1. Introduction

It is difficult to talk about the ecology of information without reference to the challenges posed by the development of a knowledge-based society. The progress of civilization has caused huge changes in the lives of each of us – moved from the industrial era (industrial) to the information society, where information becomes the basis for the smooth functioning of all levels of companies, governments but also individuals. Each person using the benefits of the Internet, which in addition to valuable information contains significant amount of unverified data must learn to manage knowledge by its proper collection and later use.

Information society is one in which information becomes the main commodity which is a particular intangible asset of an equivalent or even higher value than material possessions. In that sort of society, acquisition, processing, collection and storage of data are becoming duties of high importance. This moves the centre of gravity of the economies from industrial, agricultural, service, resource-based capital, land and labour, to more advanced technologically and institutionally social and economic structures, growing out primarily on knowledge and intellectual capital.

The Organisation for Economic Co-operation and Development (OECD) describes 'intellectual capital' as the economic value of two categories of intangible assets of a company: (a) organisational ("structural") capital; and (b) human capital. Structural capital in this definition is presented as a property software computer systems, distribution networks and supply systems. Human capital does include: human resources organization (staffing) and external resources, such as customers and suppliers (Dudycz, 2005, p. 213).

Intellectual capital is now considered not only in the context of commercial institutions, but also centres of culture and science, e.g. universities or libraries. A new era of civilization is characterized by, among others, insistent desire for openness, rapid and relatively cheap exchange of information, permanent education (Krzysztofek, 2014, pp. 19-42). This can be achieved through the computerization of society, and thus the computerization of information management. Such conversion requires continuous education, and reflection on the opportunities of development and the risks that this development can bring.

2. Intangible resources

Knowledge management is the process of creating value from an organization's intangible assets. Simply put, KM refers to sharing and leveraging knowledge within an organization and outwards toward customers and stakeholders (Love, 2005, p. 1). Full value of intangible resources appears in conjunction with material resources. The benefits of having intangible assets are resulting from of the accumulation of knowledge. Intellectual capital is both a science per se, and a result of its transformation to intangible assets. Intellectual assets are a part of the intellectual capital. It is the knowledge of the staff, which has been articulated, codified, and often combined with a fund of knowledge already accumulated in the enterprise. Intellectual assets include e.g. Software, business processes, agreements with suppliers and customers, databases, reports, manuals (Urbanek, 2008, p. 36). The division between tangible and intangible resources in regard of libraries has been made by M. Wojciechowska (2014, p. 31), including among the latter the human capital, leadership, strategy, organizational culture, communication and relationships, reputation, brand, flexibility and innovation, networks and consortia, support for new technologies and processes, intellectual property and other. Besides this multiplicity, each library has its own individual and unique intangible resource component of the ecosystem of the library.

In modern academic library a special emphasis is being put on knowledge management. Processes ensuring the collection, sharing and development of knowledge resources are held within a specific organizational culture associated with the culture of information and ethics. Library constantly seeks to identify the needs and adjust their resources to individual or institutional users. In addition to the basic training (in the traditional form and e-learning) familiarizing users with the library, there are also offered trainings dedicated for previously submitted groups of undergraduate, master's, doctoral and postgraduate studies participants in both: Polish and English. They are distinguished by a specific training program built in response to the particular order. Individual help is also offered in form of: phone line, queries, e-mail support or via chat.

They are distinguished by a specific training program built in response to the particular order. Individual help is also offered in form of: phone line, queries, e-mail support or via chat. ML CUE participates in many initiatives, both: academic and from fields of library community. Main examples may include cooperation with NUKAT, Krakow Team the Library or the Conference of Directors of Libraries of Polish Academic Schools, the Consortium of Economic Libraries (ML CUE was the initiator of this undertaking).

When taking on the issue of intangible assets in the library, you can use the postulates of environmental information, relying heavily on the resource approach.

3. Information ecology

XXI century is the period of development of technological innovations that allowed to increase the flow of information and access to them. Such a development of information resources leads to their uncontrolled growth (information overload, the rise of information noise). There are more and more unstructured information (chaotic, inconsistent, scattered), and difficulties arise when trying to verify the collected data. It is information ecology's role to prevent it from happening through building awareness of the importance of information in today's world.

Definition of Information ecology is ambiguous, often used as a metaphor for the information space as an ecosystem, or infosystem. This concept consists of many interacting and interdependent social and cultural subsystems and political processes that shape the creation, transfer and use of information in the organization.

By the term of "information ecology" it is meant the total of information quality, management, products and value, as well as the evaluation of information services and needs and liability. (...) Information ecology is the science which studies the laws governing the influence of information:

- on the formation and functioning of bio-systems, including that of individuals, human communities and humanity in general,
- on the health and psychological, physical and social well-being of the human being,
- and which undertakes to develop methodologies to improve the information environment (Eryomin, 1998, pp. 241-253)*,*
  Information ecology is committed to sustainable human development in the information society. According to W. Babik (2016, p. 39) practical measures for information ecology shall consist of:
- efforts to increase awareness of information of humans as an entity responsible for the process of information,
- protecting man against his objectification by means of information (manipulation),
- the development of information literacy enabling to rational management of information, control of the excessiveness of information, prevention from the influx of unwanted information, especially connected to the manipulation of human attitudes and behaviours,
- education about responsibility for the creation/generation, processing, dissemination and use of information,
- balancing human development in the world of technology and information,
- education in the skilful use of the information to build individual and collective knowledge for individual and common good of humanity.

Guidelines of Canadian Research Knowledge Network (CRKN) state that academic libraries should be understood as support centres for ecology of information by creating new spaces with technological support integrated with the needs of users, increasing the role of librarians, professionals and placing the library in the development plans of the university. The library is to be a partner supporting this development. Such changes are nothing new to the libraries; every library adopts to computerization making it the asset of their activities. Not everyone perceive the role of the library that way – some see library only as a place where books are stored and borrowed.

In paper about Integrated Digital Scholarship Ecosystem (IDSE) Project, team response for this project wrote: While we acknowledge the changing or emerging role of academic libraries in the ecosystem, it is also important to recognize that the roles of others in that same ecosystem are changing as well. This is not a matrix we slot into, it is a river we flow in. The blending and swirling are part of the key processes. Other stakeholders are also taking on new forms, exploring new places, and bringing forward different, non-traditional, contributions. It is one thing to emphasize what academic libraries can do, it is another for us to understand that others are in a similar position. Will those emergent new roles (mandates?) collide or comingle? (...) That the academic library is evolving and changing is not news to the library community but it is not fully understood by other stakeholders within the ecosystem. The academic library community has the opportunity to play a very significant leadership role in the emergent ecosystem if it portrays and positions itself as able to contribute (able to partner) by bringing new resources, expertise, facilities, and innovative thinking to the table. For some in the ecosystem this will require convincing ("show

me"), for others it will be welcomed ("partner with me"), and for yet others it will be an acknowledgement of the new status quo ("you are us") (Ridley, 2015, p. 679).

In cooperation with ML (students and academics) the Library is purchasing databases with articles, books and magazines. In addition, to meet the need of searching for good information library leads BazEkon base (bibliographic and full-text literature database in the field of economics and related disciplines) and Dorobek (bibliography of works of employees of the Cracow University of Economics).

BazEkon, which is one of the bases listed in a list of preferred databases of Ministry of Science and Higher Education, can be regarded as the source of information about what new is written on the subject and who is working on it. Base co-created by libraries of economic universities (Cracow University of Economics, Poznan University of Economics, University of Economics in Katowice, Wrocław University of Economics, Warsaw School of Economics and Szczecin University – Faculty of Economics and Management and Faculty of Management and Economics of Services) is a great way of advertising publishers and magazines by providing its resources on several platforms that can be read the not only on the Polish market, but also worldwide. BazEkon is available through the Virtual Library of Science, CEON, Infona, Google Schoolar, and multi-searches EBSCO Discovery Service and Primo. The core publications indexed in BazEkon represent the university publishing house, which are on ministerial lists. Additionally, there are trade magazines recommended by users (researchers) getting introduced. In addition to basic bibliographic data, affiliation of the author is given, and the new version of the database will contain full imprint of each magazine (publishing address, contact information, the website and the ministerial score). According to current assessment of journal data for the period of 2009-2014 (and in some cases from the first issue) nearly 200 publishers downloaded .xml format files to import them into the POL-index. Some publishers have already benefited from this option, supplying POL-index data for the year 2015.

Research units applying for funds for statutory activity are obliged to submit data related to the research and development activities to Information System Science. Library is responsible for providing information about scientific publications. The data from the Dorobek is imported as a .xml file to the Reporting Module as part of the Polish Scientific Bibliography. Module was sent almost 5 thousand publications (articles, monographs and conference proceedings) from 2013-2015. The data from this database is also used by service Akredytacja, which allows to collect data about the achievements of employees of CUE used to prepare a survey of the scientific unit, the interim evaluation of the employee and the self-assessment report required by the Polish Accreditation Commission. In addition to the data needed for full reporting, database records all publications, expertises, patents, research work prepared during statutory research.

4. Academic libraries in numbers

Data collected by the Central Statistical Office include information about the electronic services offered by library including on-line catalogue, remote ordering library materials or electronic notification of the deadlines of returning of library materials, as well as information on creating the library databases, digital library and repository.

Changes have been occurring in relation to the development of new technologies in recent years, changes which are occurring at library institutions in terms of diversity offered by library

Table 1. Scientific libraries as of 31 XII 2014

No.	SPECIFICATION	Libraries	Space of library rooms in square meters	Seats for readers		Employees of principal activity in library positions						
						grand total			of which full-time		
							of which librarians trained with			of which librarians trained with	
				total	of which for disabled people	grand total	tertiary education	upper secondary education	total	tertiary education	upper secondary education
01	POLAND 2012	1087	837338	52307	2946	8053	5575	831	7501	5186	751
02	2013	1086	862249	52062	2037	7869	5382	750	7361	5036	694
03	**2014**	**1043**	**876583**	**51920**	**2148**	**7665**	**5379**	**654**	**7164**	**5035**	**601**
04	*National Library of Poland*	1	23335	528	52	351	148	35	336	143	34
05	*Polish Academy of Sciences*	67	32816	1066	43	275	225	24	213	176	16
06	*Research and development units*	111	21509	1207	38	163	89	36	125	66	28
07	*Higher education institutions*	823	663213	45349	1952	5607	4054	381	5295	3840	356
08	*Public libraries*	13	76194	3069	49	938	642	115	887	599	111
09	*Other*	28	59516	701	14	331	221	63	308	211	56

Source: (*Culture in 2014*. 2015).

Table 2. Computerization of scientific libraries

No.	SPECIFICATION	Libraries			Computers in use in libraries and branches				Number of libraries having website
		grand total	of which equipped with computers		grand total	of which available for library users		in "grand total" purchased in 2014	
			total	in percent		total	of which with access to the Internet		
01	POLAND 2012	1087	905	83.3	21963	10091	8743	x	x
02	2013	1086	918	84.5	36551	10519	9159	x	x
03	**2014**	**1043**	**867**	**83.1**	**22991**	**11502**	**10621**	**2089**	**950**
04	National Library of Poland	1	1	100,0	923	55	42	144	1
05	Polish Academy of Sciences	67	63	94.0	485	276	271	24	64
06	Research and development units	111	101	91.0	373	175	165	36	106
07	Higher education institutions	823	661	80.3	17827	10144	9459	1695	739
08	Public libraries	13	13	100,0	2502	691	537	83	13
09	Other	28	28	100,0	881	161	147	107	27

Source: (*Culture in 2014*. 2015).

resources. Although still the primary source of knowledge remains books or journals in print, libraries more and more often hold the license for databases with access to electronic books, journals.

In 2014 libraries had access to 28.2 million licensed electronic collections: electronic books (18.2 million), electronic journals (1.8 million) and database (6.3 thousand). All Polish scientific libraries had the widest access to resources mentioned above – up to 84.7% of all licensed collections.

Libraries increasingly are taking steps to facilitate access to library resources and in the process are creating the possibility of levelling educational chances for disabled people. These actions consist of: access to facilities, reading equipment, a special computer equipment for people with different kind of disability.

Libraries try to focus on the major changes, for example ML CUE try to make a friendly environment for all users like special website for people with visually impaired with books prepared special for them. The Web is an increasingly important resource in many aspects of life: education, employment, government, commerce, health care, recreation, and more. It is essential that the Web be accessible in order to provide equal access and equal opportunity to people with disabilities. An accessible Web can also help people with disabilities more actively participate in society.

In Library we prepared space for group work – to create projects, joint preparation for classes or exams. Besides of helping with using databases (reserve/rent a librarian), often special programmes (Statistica, gretl) are installed on library computers to facilitate learning. Libraries are cooperating with other institutions to facilitate the work of both students and academics.

Table 3. Annual additions of library materials to scientific libraries

No.	SPECIFICATION	Collection			Catalogued electronic collections	Number of current periodicals titles
		grand total	books	periodicals		
	POLAND					
01	2012	2167466	1585344	582122	63940	344658
02	2013	2529281	1898368	630913	96686	334673
03	**2014**	**2489420**	**1799766**	**689654**	**128932**	**154527**
04	*National Library of Poland*	248532	80070	168462	81777	7338
05	*Polish Academy of Sciences*	39119	25512	13607	772	6050
06	*Research and development units*	25009	14639	10370	171	3341
07	*Higher education institutions*	1853913	1402255	451658	35283	107534
08	*Public libraries*	275668	242492	33176	9657	24940
09	*Other*	47179	34798	12381	1272	5324

Source: (*Culture in 2014*. 2015).

5. Conclusion

In the information society intangible resources are of great importance. This kind of resources in libraries are essential in the process of acquisition, collection and dissemination of information and knowledge. Information ecology is important in the development of information services and competence in the management of intangible assets. The value of the library is increasingly dependent on intangible assets related to the abilities of the knowledge exploitation and to creating the potential of the intellectual capital. Activities of the Main Library of the Cracow University of Economics show how initiatives in this area allow you to develop institutions and enhance its status within the organization and outside of it.

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Chapter **21**

The Activities of Academic Business Incubators in the Evaluation of Students

Małgorzata Ćwiek

1. Introduction

Economy of the twenty-first century is called knowledge-based economy. This is due to the dominant character of intangible assets, especially intellectual and social capital, in the creation of enterprise value. The latest technologies are being developed on the basis of intellectual resources, usually in cooperation with scientific research institutions. Academic environments play the greatest role in creating intellectual resources. Transfer of knowledge and technology from research centers to economic practice and active participation of people linked to academic environments in the economic life increasingly determine the competitiveness of the economy.

Recognition of knowledge and innovation as key factors affecting the competitive position of individual companies and the economy as a whole constitutes the basis for the creation of support systems for entrepreneurship and innovation processes (Mażewska & Bąkowski, 2012, p. 11). This support includes the development of socio-economic environment friendly to entrepreneurial attitudes conducive to making decisions about starting and running your own business and providing specific services to support innovative processes in business entities. Measures in this regard include a range of different instruments – from stimulators integrated into the legal order and the economic system, through appropriate programs implemented by the central government and local business centers of entrepreneurship and innovation (Pawłowska, 2011, p. 11).

A business incubator, as defined by the European Commission, is an organization that accelerates and systematizes the process of creating successful businesses by providing a comprehensive and integrated range of support, including: incubation space, business services, creation of clusters and networking (*Benchmarking of Business…*, 2002, p. 9).

2. The activities of academic business incubators

Changes in the economy and science led to the extension of the tasks of the higher education by the so-called third mission, involving the formation of preparing students, graduates and employees of universities for entrepreneurship. For this purpose, academic business incubators are established

(ABIs). ABIs are a specific type of business incubators, an extension of the educational process on the possibility of preparing for the practical operation on the market and verification of knowledge and skills in an own company (*Innovation Centers in Poland*, 2005, p. 121). ABIs constitute an offer supporting students and researchers in the practical market activities. Units of this type, in addition to the functions performed in traditional incubators, take up a number of specific action focused on business education and commercialization of new products and technologies. An academic incubator provides special academic opportunities through access to university laboratories and research equipment, technology and patent consulting, the knowledge of scientists and students in the provision of consulting and training services and databases of researchers and inventors, ideas, patents and technologies. It seems, however, that the primary task of business incubators in the academic environment should be the creation of an entrepreneurial culture, understood as the formation of a positive attitude of the members of the academic community towards entrepreneurship.

In the sphere of regulations concerning academic incubators, the legislative basis is the *Law on Higher Education* (Act of 27 July 2005). Article 4 paragraph 4 states: "Universities cooperate with the economic environment, in particular through the sale or free transfer of the results of research and development to entrepreneurs and promoting the spirit of entrepreneurship in the academic environment, in the form of economic activity separated organizationally and financially from the activities referred to in Art. 13 and 14". And further in article 86: "In order to better exploit the intellectual and technical potential of universities and the transfer of research results to the economy, universities can run academic business incubators and technology transfer centers".

3. Aim and research method

The study which the students were subjected to was to determine the level of knowledge on institutions supporting innovation and entrepreneurship as well as to determine the degree of interest in projects organized by academic business incubators and preferences related to participation in various projects, by the university, year and mode of study, faculty of study and professional activity of students.

The study was performed using the Multiple Correspondence Analysis (MCA). It is a descriptive and exploratory analysis technique for multi-way tables that provides information about the nature of the relationship between columns and rows. Its primary objective is to restore the distance between the points representing rows and columns of the multi-way table in a smaller number of dimensions, while preserving as much as possible of the original information (Stanimir, 2005, pp. 42-45; Stanisz, 2007, pp. 342-346).

Calculations for the multiple correspondence analysis were carried out on the so-called Burt table. It is a symmetric block matrix the main diagonal of which includes diagonal matrices containing numbers of each category. Off-diagonal blocks are contingency arrays between pairs of variables. The total number of each submatrix is equal to the number of units analyzed. Burt matrix (B) is the internal product of matrix markers (Z), which can be written as:

$$B = Z\,T\,Z \tag{1}$$

Tag array is constructed in such a way that each line corresponds to subsequent observations and columns – variants of all variables. Numbers included in the Burt matrix are standardized by determining relative frequencies (masses) according to the formula:

$$p_{ij} = \frac{n_{ij}}{n} \tag{2}$$

where:

n – the number of the Burt matrix.

Relative frequencies show how the mass unit is spread over the individual cells of the matrix. The sums of the relative frequencies for individual rows and columns are called, respectively, the row mass (row boundary frequency) and the column mass (column boundary frequency). In the case of a symmetric Burt matrix, row and column masses are identical. All p_{ij} values form the so-called correspondence matrix, basing on which, profiles are calculated[1]. Profiles of columns are determined in the following manner:

$$\frac{n_{ij}}{n_{\bullet j}} = \frac{p_{ij}}{p_{\bullet j}} \tag{3}$$

Average column profiles represent row boundary frequencies at the same time. The point representing the average column profile is the point of intersection of the main axes of projection. It is often called the center column, the center of gravity or centroid. If the column profile is significantly different from the average profile, it is far from the beinning of the origin in the graph. In turn, the points lying close to the center of gravity represent profiles similar to the average profile.

The distances between the column profiles were determined using the weighted Euclidean chi-square, where the weights are the row boundary frequencies, according to the formula:

$$\chi^2 = d^2_{(i,j')} = \sum_{i=1}^{w} \frac{\left(\frac{n_{ij}}{n_{\bullet j}} - \frac{n_{ij'}}{n_{\bullet j'}} \right)^2}{\frac{n_{i\bullet}}{n}} = \sum_{i=1}^{w} \frac{\left(\frac{p_{ij}}{p_{\bullet j}} - \frac{p_{ij'}}{p_{\bullet j'}} \right)^2}{p_{i\bullet}} \tag{4}$$

where:

i and j represent two distinct categories of features in the columns.

The notion of total inertia is of key importance in the analysis of correspondence. It is a measure of dispersion of profiles around the average profile, defined by the following formula:

$$\lambda_k^2 = \sum_k m_k d_k^2 \tag{5}$$

where:

m_k – column mass,

d_k^2 – square of the distance between the column profile and the average profile.

The relationship between the chi-square distance and the total inertia is $\chi^2 = \lambda^2 n$. The geometric presentation of inertia includes scattered points (sections) in a multidimensional space. In order

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[1] As the multi-way analysis is based on the Burt symmetric matrix, it is appropriate to discuss only column profiles (in contrast to the classical analysis, based on the asymmetric contingency arrays for two variables, where both column and row profiles are analyzed).

to illustrate graphically the relationships between the profiles, the multidimensional space was reduced to a flat surface – by the method of the smallest weighted squares of distances between the profile and the plane of projection, meaning the smallest chi-square distance.

4. Sample characteristics

The study of students' opinions on the activities of academic incubators has been carried out on the basis of survey results. The study included 188 students from the Bronisław Czech Academy of Physical Education in Krakow (AWF) (60%) and the Higher School of Economics and Computer Science in Krakow (WSEI) (40%). The respondents studied at the first (59%) and second degree (41%) studies in the stationary (77%) and part-time (23%) mode. Among the respondents, there were students of natural sciences (58%), social faculties (28%) and engineering (14%). The students were characterized by varying degrees and types of activities: from inactivity (50%), through part-time work (37%) and full-time work (7%) to running one's own business (6%).

5. Empirical results

Knowledge of business incubators is differentiated by a number of factors, including, studies degree (V = 0.33), faculty (V = 0.21), mode of study (V = 0.19), university (V = 0.19) and the professional activity of students (V = 0.20) (cf. Tab. 1). A correspondence analysis was carried out in order to determine the relations between categories of variables characterizing the students who participated in the survey and the degree of knowledge of business incubators.

Table 1. Knowledge of academic business incubators and the university, degree of studies, mode of study, faculty of study and professional activity of students

Specification	Number	Lack of knowledge	Poor knowledge	Good knowledge	Chi^2
University					
AWF	Number	47	41	24	6.762820
	Percent	41.96%	36.61%	21.43%	df = 2
WSEI	Number	22	25	29	p = 0.03400
	Percent	28.95%	32.89%	38.16%	V = 0.1896640
Studies degree					
First degree	Number	44	25	41	20.11456
	Percent	40.00%	22.73%	37.27%	df = 2
Second degree	Number	25	41	12	p = 0.00004
	Percent	32.05%	52.56%	15.38%	V = 0.3270968
Mode of study					
Stationary	Number	46	54	45	6.920994
	Percent	31.72%	37.24%	31.03%	df = 2
Extramural	Number	23	12	8	p = 0.03141
	Percent	53.49%	27.91%	18.60%	V = 0.1918692

Faculty of study				
Natural sciences	Number	46	39	23	17.36129 df = 4 p = 0.00164 V = 0.2148805
	Percent	42.59%	36.11%	21.30%	
Engineering	Number	10	13	4	
	Percent	37.04%	48.15%	14.81%	
Social faculties	Number	13	14	26	
	Percent	24.53%	26.42%	49.06%	
Professional activity of students				
Inactivity	Number	46	26	21	15.77485 df = 6 p = 0.01501 V = 0.2048277
	Percent	49.46%	27.96%	22.58%	
Part-time work	Number	17	30	22	
	Percent	24.64%	43.48%	31.88%	
Full-time work	Number	5	5	4	
	Percent	35.71%	35.71%	28.57%	
Running one's own business	Number	1	5	6	
	Percent	8.33%	41.67%	50.00%	

Source: own study.

Figure 1 presents the results of the correspondence analysis of the variables analyzed: degree of studies, faculty of study, mode of study, professional activity and knowledge of business incubators. The total inertia of the system is 1.6667, and the first two dimensions explain more than 40% of the inertia.

Figure 1. Relationship between the category of university, faculty of study, mode of study, professional activity and knowledge of business incubators
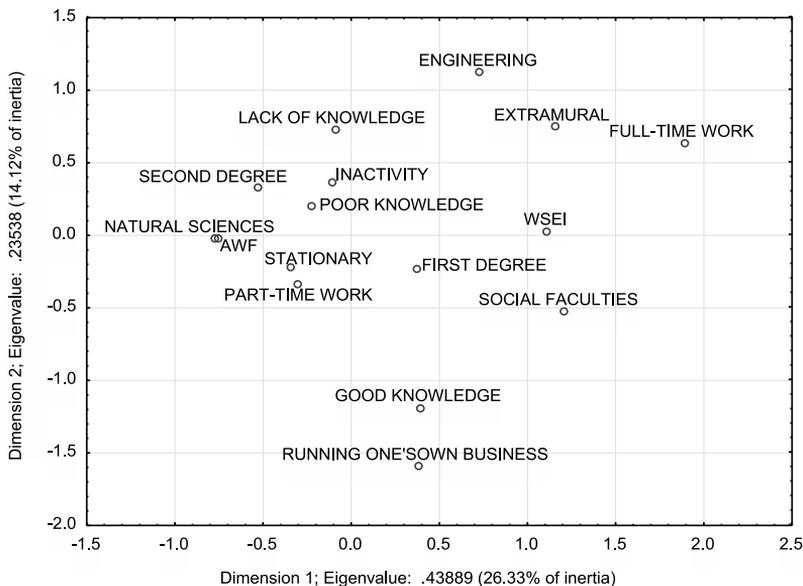
Source: own study.

From the position of the points on the two-dimensional graph, it can be concluded that a good knowledge of academic incubators is usually declared by persons running their own business. Relatively more often than in the case of other students, a good knowledge was declared by the students of social sciences. While the students not taking up any professional activity, extramural students on technical faculties often pointed out the lack of knowledge of institutions supporting innovation and entrepreneurship.

Table 2. Coordinates of columns and statistics of the quality of solutions

Specification	Co-rdinates		Mass	Quality	Relative inertia	Dimension 1		Dimension 2	
	D1	D2				Interia		D1	D2
Second degree	-0.53	0.33	0.07	0.28	0.06	0.0444	0.1997	0.0320	0.0773
First degree	0.38	-0.23	0.10	0.28	0.04	0.0315	0.1997	0.0227	0.0773
AWF	-0.75	-0.02	0.10	0.83	0.04	0.1273	0.8294	0.0001	0.0005
WSEI	1.11	0.03	0.07	0.83	0.06	0.1876	0.8294	0.0002	0.0005
Stationary	-0.34	-0.22	0.13	0.57	0.02	0.0345	0.3967	0.0275	0.1699
Extramural	1.16	0.76	0.04	0.57	0.08	0.1162	0.3967	0.0928	0.1699
Natural sciences	-0.77	-0.02	0.10	0.81	0.04	0.1302	0.8055	0.0002	0.0006
Engineering	0.73	1.12	0.02	0.30	0.09	0.0291	0.0895	0.1280	0.2110
Social faculties	1.20	-0.53	0.05	0.68	0.07	0.1547	0.5672	0.0554	0.1090
Part-time work	-0.30	-0.34	0.06	0.12	0.06	0.0126	0.0526	0.0303	0.0677
Running one's own business	0.39	-1.59	0.01	0.18	0.09	0.0036	0.0102	0.1148	0.1732
Inactivity	-0.11	0.36	0.08	0.14	0.05	0.0023	0.0121	0.0464	0.1296
Full-time work	1.89	0.63	0.01	0.32	0.09	0.1013	0.2883	0.0211	0.0322
Poor knowledge	-0.23	0.20	0.06	0.05	0.06	0.0069	0.0278	0.0095	0.0208
Lack of knowledge	-0.09	0.73	0.06	0.31	0.06	0.0011	0.0044	0.1368	0.3052
Good knowledge	0.40	-1.19	0.05	0.62	0.07	0.0168	0.0615	0.2820	0.5547

Source: own study.

As shown in Table 2, the largest contribution to the inertia of the first dimension belongs to universities, extramural studies, natural and social faculties and full-time workers. The largest contribution to the inertia of the second dimension belongs to a good knowledge of academic incubators and a lack of knowledge of ABIs and running one's own business as well as technical faculties. The graph presents the best the points representing universities, modes of studies, social and natural sciences and a good knowledge of ABIs (quality of points above 0.5), while the poorest representation is for the people who declare any knowledge of institutions supporting innovation and entrepreneurship (value below 0.1).

Interest in projects of academic incubators depends on the university ($V = 0.1739792$) and the knowledge of academic business incubators ($V = 0.1849497$) (cf. Tab. 3).

Table 3. Interest in projects of academic business incubators and the knowledge of academic business incubators and university

Specification	Number	Lack of interest	Selective interest	Strong interest	Chi kwadrat
University					
AWF	Number	86	12	14	5.690528 df = 2 p = .05812 V = 0.1739792
	Percent	76.79%	10.71%	12.50%	
WSEI	Number	47	10	19	
	Percent	61.84%	13.16%	25.00%	
Mode of study					
Stationary	Number	102	18	25	0.3238167 df = 2 p = .85052 V = 0.0415022
	Percent	70.34%	12.41%	17.24%	
Extramural	Number	31	4	8	
	Percent	72.09%	9.30%	18.60%	
Faculty of study					
Natural sciences	Number	82	12	14	5.985885 df = 4 p = 0.20020 V = 0.1261741
	Percent	75.93%	11.11%	12.96%	
Engineering	Number	17	5	5	
	Percent	62.96%	18.52%	18.52%	
Social faculties	Number	34	5	14	
	Percent	64.15%	9.43%	26.42%	
Professional activity of students					
Inactivity	Number	68	9	16	3.671241 df = 6 p = 0.72106 V = 0.0988126
	Percent	73.12%	9.68%	17.20%	
Part-time work	Number	48	11	10	
	Percent	69.57%	15.94%	14.49%	
Full-time work	Number	9	1	4	
	Percent	64.29%	7.14%	28.57%	
Running one's own business	Number	8	1	3	
	Percent	66.67%	8.33%	25.00%	
Knowledge of business incubators					
Lack of knowledge	Number	59	4	6	12.86161 df = 4 p = 0.01197 V = 0.1849497
	Percent	85.51%	5.80%	8.70%	
Poor knowledge	Number	39	12	15	
	Percent	59.09%	18.18%	22.73%	
Good knowledge	Number	35	6	12	
	Percent	66.04%	11.32%	22.64%	

Source: own study.

Figure 2 presents the results of the correspondence analysis of the following variables: interest in projects, university and knowledge of academic incubators. The total inertia of the system is 1.6667, and the first two dimensions explain more than half of the inertia.

Figure 2. Relationship between the categories: university, knowledge of business incubators, interest in projects of academic business incubators
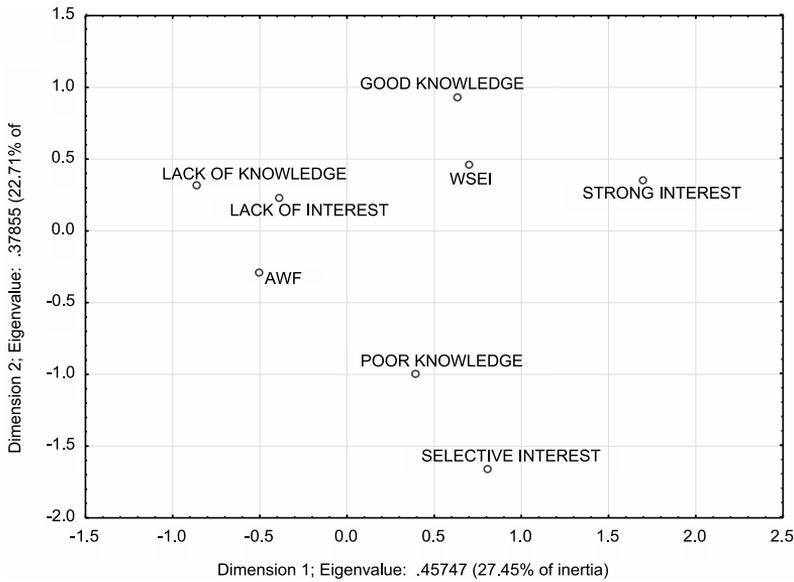
Source: own study.

As can be seen in the figure, the second horizontal axis, explaining 27% of the inertia, separates the group of the respondents declaring lack of interest in AEI projects from the respondents interested in the offer of incubators. The points in the graph can result in a conclusion that interest in the projects organized by academic incubators is shown by students declaring a poor or good knowledge of supporting institutions, more often students of WSEI than AWF. In contrast, the lack of interest is most often shown by students declaring no knowledge of incubators.

Table 4. Coordinates of columns and statistics of the quality of solutions

Specification	Co-ordinates		Mass	Quality	Relative inertia	Dimension 1		Dimension 2	
	D1	D2				Interia	Cos^2	Interia	Cos^2
Lack of interest	-0.45	0.21	0.24	0.60	0.06	0.1043	0.4891	0.0283	0.1097
Selective interest	0.79	-1.68	0.04	0.46	0.18	0.0536	0.0833	0.2923	0.3759
Strong interest	1.28	0.26	0.06	0.37	0.16	0.2109	0.3511	0.0108	0.0149
Poor knowledge	0.37	-1.03	0.12	0.65	0.13	0.0352	0.0745	0.3272	0.5726
Lack of knowledge	-0.90	0.32	0.12	0.53	0.13	0.2156	0.4675	0.0323	0.0579
Good knowledge	0.71	0.87	0.09	0.49	0.14	0.1027	0.1962	0.1878	0.2970
AWF	-0.51	-0.31	0.20	0.52	0.08	0.1123	0.3811	0.0491	0.1379
WSEI	0.75	0.45	0.13	0.52	0.12	0.1654	0.3811	0.0723	0.1379

Source: own study.

As shown in Table 4, the greatest contribution to the inertia of the first dimension belongs to great interest and lack of knowledge. The largest contribution to the inertia of the second dimension belongs to poor knowledge and selective interest. The graph presents the best the points representing lack of interest, poor knowledge, lack of knowledge, and universities (quality points above 0.5), while strong interest is presented the worst (value below 0.4).

6. Conclusion

The effectiveness of academic business incubators is conditioned by their recognition among potential beneficiaries. In Krakow, there operate 9 academic business incubators, of which the oldest, the Academic Business Incubator of the University of Science and Technology was founded in 2006. Despite this, almost 40% of respondents have never heard of the incubators operating in the academic environment, and more than half of those who declared knowledge defined it as "poor". Good knowledge was declared by only 28% of the respondents.

As studies have shown, better knowledge of incubators is declared by the second degree students, studying social faculties. The knowledge of academic incubators is related to interest in their offer – the analysis of correspondence clearly indicates that students declaring no knowledge of ABIs are not interested in the offer of these institutions. Persons managing academic incubators, hoping to help in the development of young startups, should first of all take care of sending their offers through to students.

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Chapter **22**

Tertiary Education of Potential Economists and Managers. Implications for Academic Education on the Basis of the Hofstede Model

Anna Jadwiga Piwowarczyk

1. Introduction

Changes in the socio-economic environment, globalization, multiculturalism and modern communication technologies generate changes in the competence of the future managers. They play an increasing role played by the skill of functioning in an international, multicultural environment, teamwork, social intelligence and communication skills. Leaders who want to effectively manage multicultural teams need to learn how to operate in an environment of various national cultures, ethnic, religious, organizational, professional, corporate disparities. "Companies need leaders who have the know-how to quickly adjust it in dozens of different cultures on a daily basis. This is capability that can be developed by any would be manager" (Livermore et al., 2012, p. 21). A manager of a modern economy of the twenty-first century should, therefore, know foreign languages to skillfully operate in a multicultural and international environment. They should have a well-shaped social competence that is skillfully and effectively incorporated to communicate and collaborate in a team environment both nationally and internationally.

According to the latest research on key competences required in the labor market by employers of graduates of business schools they are: communication skills, social intelligence, competence of communication in an international environment, intercultural competences (Piwowarczyk, 2015, pp. 115-120).

Therefore, the questions arise: how workers appear on the market after completing high school, have specific competencies, fit within the competence profiles of key competencies in the labor market as well as organization (Prahalad & Hamel, 1990). How does higher education in addition to the competence of hard (professional) skill school soft skills (social/general), which employers attribute equally important role as a solid expertise. What should be done to encourage academic staff to consciously develop soft skills of students, which guarantee effective and appropriate carrying out tasks entrusted to professionals. The purpose of this article is reflection on the preparation of academic staff for teaching in multicultural student groups in terms of internationalization

of higher education. The paper presents the impact of cultural dimensions of Hofstede's model on student-teacher relationship and the proposed goals of education in intercultural training of academic staff. This is to increase the usefulness and adaptability of college graduates in the labor market (the so-called employability) and close competency profiles of graduates to competency profiles and organization of work (Bielecki, 2011, p. 17).

2. Preparing academic education of future economists and managers

For generic competences of students they were consciously perfected by college professors, in addition to the transfer of expertise, to choose the forms and methods of teaching the subject to the process of learning to develop included in the KRK general competencies of students (Piwowarczyk, 2015b, pp. 12-21).

In addition to purposeful learning competence of students, an important factor in the education of future economists and managers of well-functioning in the international environment and intercultural, is the level of intercultural competence and cultural intelligence of teachers.

Higher Education is one of the specific objectives set out in the Programme of Internationalization of Higher Education (2015, p. 4) stresses the importance of raising the level of professionalism of academic staff. This has to be done through visits of foreign lecturers and exchanges of Polish teachers with foreign universities. In this way it provides the opportunity to check and improve their competence, establish new contacts and to start cooperation (*Internationalization Program …*, 2015, pp. 15-16).Yet are the same departures and arrivals of scientific and educational character enough for the development of intercultural competence of the academic staff? Are teachers really trained to teach in terms of multiculturalism? The literature emphasizes the inadequate preparation of teaching staff[1]. It is hardly surprising, since most of the current academic staff were educated in the years before the creation of the European Higher Education Area, when multiculturalism and internationalization of education was not so large. Teachers teach for the future and therefore important in the whole process of internationalization seems to be broadening intercultural competence of teachers by means of adequate training, thus equipping them with the tools to work in multicultural groups in the conditions of internationalization of universities.

In international groups of students there is a number of new challenges, in the face of a limited number of hours of teaching, there is no time to develop intercultural competence, and references to other cultures are often superficial and stereotypical, the reluctance of many students to explore the elements of culture, not to mention an in-depth analysis, in spite of system changes and numerous social networking sites posing an opportunity to international contacts and self, still limited autonomy and independence of students in learning, difficulties in the evaluation of intercultural competence.

The basis for a well-developed competencies of intercultural communication and cultural intelligence of both teachers and students is the knowledge of their own culture and foreign cultural differences as well as their impact on behavior and communication (Hofstede, 2007; Piwowarczyk, 2015c, 2016). Therefore, one of the tools of university teaching job, regardless of its

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[1]   See. e.g. (Kurtyka & Aleksandrowicz-Pędich, 2005, p. 348; Adamczak-Krysztofowicz, 2006, p. 31; Siek-Piskozub, 2012; Horn, 2013, p. 267; Mihulka, 2012, p . 351).

specialization and lined object should be knowledge of Hofstede model in the context of working in a multicultural group of students. Below is presented the model dimensions of G. Hofstede culture in the context of a teacher and student.

3. Dimensions of culture and their impact on the relationship student–teacher

School and then university significantly shape the mental programming of a young person. Educational institutions, environment of peers and teachers play an important role in the development of culturally conditioned values. This is called secondary socialization. In the reflection on academic teaching important are both culturally specific rules for constructing the educational process by individual teachers, university authorities, and government agencies, as well as culturally conditioned conscious and unconscious expectations, preferences and needs of students. Constructed years ago and then improved education systems of individual countries are also one of the elements of culture (Szczepanski, 1978, p. 78; Bartosik-Purgat, 2004, pp. 15-16) distinguishes, like a language, the countries from one another. Educational patterns of individual nations vary as much as family patterns, clothing and culinary habits. The impact of cultural dimensions on the process of academic training is seen most often in relation student-teacher, student-student relationships, different needs and expectations of the teaching process and the role of each of the parties to the learning process (teacher and student), preferred forms, methods and content of teaching.

The discussion should also bear remembrance about the accuracy of which is the case in all dimensions of culture, and concerns of the impact of environment and family relationships on the behavior of students in academic halls. There is a strong transmission pattern of behavior in family behavior in school that there instills. These patterns are then replicated, usually unconsciously, in an environment of higher education in the form of ready-shaped behavior, but also expectations about the particular behavior on the other hand, the teaching process, and often unconscious emotional needs. Behavior of the parent-child relationship are transferred to the teacher-student (Hofstede, 2007, p. 65).

Below, based on Hofstede's model (2007, pp. 53-248) will be described the most important factor affecting the relationship between a student and his cultural expectations, behavior and attitude in the group and their perception by the teacher.

3.1. Power distance

In societies with a high power distance, which is a high rate of Power Distance Index, students have a strong need depending on the teacher. The teacher is treated with respect and reverence, and plays the role of "guru", giving no universal truths, but his personal knowledge and wisdom (Mikułowski Pomorski, 2003, p. 112). Teacher is at the center of the learning process and the quality of teaching depends mainly on him and his experience. It was him who, often in an authoritarian manner, decides how the educational path initiates communication in the classroom. Students may speak only if they are invited to do so. They can not publicly express a different opinion from the teacher, much less oppose him and criticize him.

In societies with a low power distance students have a strong need for autonomy and the public to express their opinion. The teacher is rather a partner in discovering the other universal truths. It is used in a participatory teaching style. The quality of teaching depends on the teacher, but also to a large extent, on student's needs, interests and initiatives. In societies with low PDI teachers they expect from students on their own initiative and activity in the process of constructing the educational process, encourage them to speak, ask questions, and even publicly express dissent and critical reviews. Emphasis is on good communication with the student teacher and its impact on the quality of education.

3.2. Collectivism and individualism

This dimension can explain the behavior of students in the class and group of students outside formal educational process. In the eyes of the teacher culture individualistic students from collectivist cultures they are passive, do not take the voice, even when they are asked about it. Students from collectivist cultures perceive for themselves as part of a group and illogical it seems to them to speak, if one has not been selected by its members to give feedback within the group.

In collectivist cultures, there is a sharp division between internal and external groups. In the classes it can be observed that students from these cultures are eager to create their own subgroups, "stick together", they support each other and are reluctant to integrate with others and reluctant to let in foreigners to their groups. This is what the individualistic culture is called nepotism, there seems to be unethical treatment on an equal footing and their foreign issue.

In collectivist cultures, avoiding confrontation and conflict, and already, if they occur, they should proceed very gently, so as not to offend anyone and avoid "losing face". "Losing face" of one of the members of a group reflects the stigma on the whole group and is a "loss of face" of the entire group. In individualistic cultures 'to save face' defined as to preserve their dignity, it has a personal dimension, does not play so large a role in the consciousness of individuals and does not entail a loss for the entire group. Students from individualistic cultures willing to openly discuss the thinking that open discussion around conflict purifies the atmosphere and promotes understanding. Students from collectivist cultures are the classes not to admit that they do not understand, because admitting a mistake or ignorance combined with the loss of their own face and groups and may be unacceptable to the members of the group from which they come.

The role and aims of education are also different in both types of a culture. In collectivist cultures it is important to learn to function in a group. The process of education is limited in time. In individualistic cultures, the emphasis is on preparing the unit for an autonomous life in society. It stresses the importance of learning throughout life.

3.3. Masculinity and femininity

In cultures of women, they are not widespread praised as outstanding students. Praise is treated here as an incentive to work and praises the students who are weak and humble to motivate them. The norm here is an average student. In the cultures of male, it promotes the best and the norm is an outstanding student. Students are trying to be noticed and openly compete

with each other. They often brag and overestimate their abilities. It attaches great importance to the assessment and learning outcomes, while in the women's failure in science they are very important. Students from countries where women are encouraged to suppress their own ego, modesty, toned and balanced treatment of both their problems, competencies, skills and overall distance to these issues.

3.4. Uncertainty avoidance

Students from countries with strong uncertainty avoidance expect that the course of classes and the course of their study will be precisely planned in advance, and the teacher is an expert who knows the answer to every question. They accept hermetic scientific language, without demanding explanations of generally difficult issues. Intellectual disputes are perceived by teachers as a lack of loyalty. As pointed out by G. Hofstede, a doctoral student who does not agree with the views of the tutor has the choice to either change views or a tutor.

In turn, students from countries with weak uncertainty avoidance treat teachers as partners, do not expect from them that they will allow experts and that they can also be wrong. Very well seen are the intellectual discussions, which are seen as a stimulating intellectual exercise. There are even cases that professors expect their doctoral students that they will substantially undermine their opinions.

3.5. Long- and short-term orientation

Students from countries with a long-term orientation combine learning success with their own hard work and effort. Failure is associated by them with a lack of effort and too little effort invested in the task. In addition, G. Hofstede presents the results of studies, according to which students from Asian countries thus the long-term orientation show aptitude in science, applied sciences, mathematics and solve formal problems. Students from countries with short-term orientation show more talents in the field of theoretical and abstract. Successes and failures they attribute to a bad luck or happiness. And so in addition to the element of hard work one can observe fundamental differences in the structures of thought on the part of students from short and long term orientation. The process of perception of new content is therefore also in this regard strongly culturally motivated.

As apparent from the foregoing culture of students and teachers it has an impact on the educational process, the process of perception, knowledge, relationships within the group and the group with respect to the teacher. To teach in a multi-ethnic group of students should therefore not be approached in a purely technical passing previously planned knowledge and despite the fact that a very common cause confusion in dealing with foreign students is to ignore the differences in their thinking. Indeed, as the J. Mikułowski Pomorski (2003, p. 8) culture is the most serious source of our disagreement with the surroundings. Therefore, the first step that a teacher should do is to develop their intercultural competence and students is the realization of what culture is native and alien, and how it can affect the individual components of the education process.

4. Training intercultural competence of academic staff

The above dimensions of national cultures in the context of the relationship student–academic teacher show how difficult can be conducting classes and communication in multi-ethnic groups of students. Therefore, it seems necessary for the teachers to get new tools to work to help in solving emerging with globalization challenges.

Further training of academic staff and the development of more sophisticated pedagogical approaches appear to be key conditions for the implementation of the idea of internationalization of universities (*Program Development of Education …*, 2015, *The Internationalization of …*, 2015). Such training, whose principal element can be shown above Hofstede model should also include elements of knowledge on the challenges and problems that arise in the face of multiculturalism and develop personal and professional competence and attitudes, so as to lead to the development of intercultural competences of teaching staff (Öztürk, 2008, p. 9; Beier, 2006, pp. 4-21; Bolten, 2007, pp. 21-42). They are important also because, in order to better take advantage of the multi-ethnic student groups and allow adoption of intercultural competence by each student (Stier, 2006).

Intercultural competence of the teaching staff is defined as "specific competencies that teachers require in contact with heterogeneity in a multicultural school environment. These competencies include methodical competence, professional and social" (Over & Mienert, 2010, pp. 35-36).

Examples of educational goals of intercultural training for teachers have been formulated based on the results of the research project FACIL (Ger. Förder-Assessment-Center für interkulturelle Kompetenz von Lehrerinnen). This project focuses on the development of six competencies, which are presented in Table 2.

Table 2. Educational goals of intercultural training for teachers

• Focus on student
• Individual approach to student
• Cultural sensitivity
• Competence management
• Conflict management
• Teamwork

Source: (Over & Mienert, 2010, p. 46).

Presented above targets at training interculturally and Hofstede model provide a starting point both for further theoretical considerations as well as taking practical steps that would result in the creation of professional training for teachers, who are responsible for the education of future economists and managers or employees of various sectors of the economy, which is becoming an increasingly global economy.

5. Conclusion

Structured knowledge of cultural differences is the foundation for the development of intercultural communication competence and cultural intelligence. It allows one to better understand the behavior of students from other cultures, avoid many misunderstandings and reduce the frequency of the formation of stereotypes and prejudices thus improves the process of communication with

strangers, which is compared with the "circulatory system" of the organization (Murphy & Peck, 1980, p. 4). Therefore, a good knowledge of the Hofstede model in the context of the relationship student–lecturer seems to be not only the responsibility of a student or graduate of school of economics but also one of the basic tools of teachers at universities today amid growing multiculturalism and globalization.

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Chapter **23**

Generation Entering the Labour Market and their Expectations from Employers [1]

Urszula Bukowska

1. Introduction

A person as a worker strives to meet the diverse needs and expectations. One of the determinants of these needs and expectations is to belong to a particular generation that gather people with the same historical experience, growing up in similar social, economic, political conditions, responding to the same challenges. Students who are gradually making their debut in the labour market belong to generation Y and Z. Up to now their work-related expectations have not been fully understood. Therefore, the aim of the research was to identify their expectations.

This research was based on the analysis of literature to understand the essence of generations and its specifics on the labour market. Then survey was conducted with the use of questionnaire that was constructed in a way that allowed characterizing respondents and their work-related expectations. The questionnaire was prepared and distributed electronically using Google Forms in April and May 2016. An invitation to fill it in was passed by the academic staff to students in Krakow, Kielce and Przemysl. Students in other cities were also asked for assistance in distribution. There were 106 questionnaires properly completed and analysed. During the analysis pivot tables in Excel were used. Characterizing the group of respondents it should be noted that the majority of the respondents (42%) studied in Krakow (University of Economics, Jagiellonian University, Cracow University of Technology, Andrzej Frycz Modrzewski Krakow University), Kielce (37%, Jan Kochanowski University), Przemysl (10%, East European State Higher School), then in Katowice (Medical University of Silesia), Rzeszow (Rzeszow University of Technology, University of Rzeszow), Warsaw (University of Warsaw, Kozminsky University), Poznan (Poznan University of Economics and Business), Gdansk (Medical University of Gdansk). Different fields of study were represented. The respondents were born in 1991-1998. The largest community were people born in 1994 (27%) and 1995 (24%), 1993 (19%). The vast majority were women (78%) and those who derived from small towns, up to 15 thousand inhabitants (55%).

2. The essence of generation

The term "generation" is used very popular in everyday life, and there is an evidence that it was used already in ancient times. It was mentioned by Aristotle in the 19th point of the Book I of Politics; many times the term was used in the Bible. It would be risky to point out the period in the history, when the scientific interest in generations began, as well as a researcher who had the greatest impact on the development of study in this area. It might result from the fact that this topic is subject of interest of the representatives of different fields and disciplines of study. For instance, sociologists, literary critics, philosophers, and economists are dealing with it. They look from different perspectives on the nature of generation and they are not consistent with the merits of the term "generation". For the purpose of this article the generation is understood as the collectivity of people who, although separately and independently of one another, have experienced the same, important historical events and the same situations, reacted to the same challenges and their experience has been reflected in their beliefs, rules, and values, as well as created a sense of common destiny (Sztompka, 2012, p. 229).

Beliefs, preferred values and lifestyle characteristic for the generation are part of its identity. However, nowadays some researchers draw attention to the fact that not all generations have clearly developed identity (Kamińska, 2007). The identity of generation is affected by factors initiating its creation, including its experience. The more specific, the more distinct is identity of the generation and the greater is awareness of its separation from the generation of ancestors and successors. If the experience of the generation is not very clear, the identity of generation might remain vague. Some researchers say that sometimes it can be talked only about "the potentiality of a generation" based on the biological factors (Kamińska, 2007).

Karl Mannheim perceived location as an essential factor that creates a new generation. He believed that individuals living close to each other can participate in the same historical events, experiencing the community (Mannheim, 1952, pp. 288-289). He stressed that it is impossible to experience such community by the people living in different parts of the world (Mannheim, 1952, p. 303). Nowadays, however, it can be stated that location lost its importance thanks to the progress of globalization and the development of techniques and technologies that facilitate transportation and communication.

The variability of generations leads to particular consequences. It was noticed that the interaction of representatives of different generations may result in dispute, what is known as a conflict of generations. It was found that the conflict is the result of a clash of cultures when the change of living conditions is accompanied by "a breakthrough in the world of values, norms, symbols" (Sztompka, 2012, p. 295). Sociologists note that "In the society of today, in which changes in the conditions of social life are taking place very fast, the generation of children is born in the circle of completely different culture than the one that is represented by the generation of parents" (Sztompka, 2012, p. 295). The differences between generations manifest themselves in religious perceptions, knowledge, values, morals, customs, behaviour patterns and ideas (Karmolińska-Jagodzik, 2012, p. 195).

On the other hand, the existence of generational loop cannot be denied, whereby each successive generation does not have to create the world anew, but can use the achievements of ancestors. Therefore, the existence of a mechanism of intergenerational transmission of culture is pointed out (Sztompka, 2012, p. 461). Margaret Mead stated that the transmission of culture can proceed in three directions: from the generation of ancestors to the generations of successors (postfigurative culture), within generations, e.g. in a group of peers (cofigurative culture), upward as the older generation learns from the younger (postfigurative culture) (Mead, 2000, p. 23). The postfigurative

culture has the most original character, while prefigurative one can be regarded as distinguishing the first decades of the twenty-first century when the grandparents learn from grandchildren to use the latest advances in information technology.

3. Generations in the labour market

It was noticed that the historical experience and the conditions of life have an impact on the attitude of the individuals to their life and work. Therefore, generations present on the labour market have been identified. In this paper, their characteristics will start from the generation of Veterans (sometimes described as traditionalists, silent, mature). This generation includes people born before the end of World War II and was shaped mostly by the war experience, but "its members came of age just too late to be war heroes" (Howe & Strauss, 2007). Although the political, followed by the economic and social conditions of life in post-war Poland differed significantly from those that were experienced by generation in Western Europe and in the United States, it is possible to present its universal characteristics such as conservatism, discipline, and sense of duty. For this generation the traditional division of roles within a family was still common, i.e. men were responsible for providing for their families while women's role was to take care of the family member and the household. However, more and more women were undertaking professional job over time. Representatives of this generation as employees were characterized by their loyalty to an employer, risk avoidance, past orientation, collectivism, they appreciated the autocratic leadership (www.valueoptions.com). The vast majority of this generation has already completed professional activity.

The next generation consists of people born during post–war baby boom (1946-1964). Political, economic and social conditions that shaped this generation, so-called Baby Boomers, were the Vietnam War, the Cold War, and the sexual revolution. Representatives of this generation living in Poland experienced growing up in real socialism, which was accepted, or quite the contrary: aroused opposition. Also in this case, despite the differences in living conditions, it is possible to indicate the universal characteristics of the generation, namely social commitment, goal orientation and, like their predecessors, collectivism, and respect for authority (www.valueoptions.com). They were also the first to experience workaholism that is connected with their sense of duty, often they give priority to the job over the family life, they strive for professional success (Mirosław, 2014, pp. 134-136). Currently, this generation is gradually withdrawing from the labour market because of reaching the retirement age.

The next generation in the chronological order is generation X (Xers, Gen X) that means people born in 1961-1981 (or 1965-1979). Representatives of this generation grew up in a time of rapid technological development, which was reflected even in the decreasing size of the computer (www.valueoptions.com). In Poland, people of this generation experienced the empty shelves in stores, queues and rationing of goods, but also the election of Karol Wojtyla as Pope, martial law (which can be considered as the generational experience), and finally the collapse of communism and the transition to democracy. When it comes to the social conditions, they experienced a less stable family with both parents away at work, and therefore they were called latchkey kids (Howe & Strauss, 2007). As a result, representatives of this generation are independent (Thielfoldt & Scheef, 2004). Employees belonging to this generation are also characterized by their adaptability, focus on the quality of work and results, the pursuit of specialization, and greater mobility than their predecessors. They aim to achieve a work-life balance and appreciate flexible working hours.

They show different views about the authorities than the previous generations. An achievement, not owned titles, is the basis of being the authority.

The next generation is Generation Y (also described as Millennials, Why, Yoga). It is formed of people born in the years 1981-1995, or according to other sources: 1982-2005 (Howe & Strauss, 2007). The attacks of September 11, uniting of Europe, the development of information technology and the Internet belong to the events and circumstances that influence this generation. What distinguishes it, is impatience, adaptability, mobility, and flexibility. These features are also visible in the attitude to work. It was noted that for this generation the importance of having children is decreasing (Szukalski, 2012, p. 17). They expect a quick promotion, the work-life balance, but with an emphasis put on lifestyle, the opportunity to express themselves through work, make changes and influence. Representatives of this generation attach great importance to self-promotion. Priority is given to their professional development. They value foreign trips, including business trips. Relationships and opportunities for social interaction at work are important for the Generation Y. People of this generation believe that respect must be earned, it is not sufficient to reach an age or have titles to be considered as an authority by other (www.valueoptios.com).

The youngest generation, which is just starting to enter the labour market, is the generation Z, also known as iGen, Post-Millenials, Centennials, Plurals. Similarly as the previous generations, there is no full consensus on when the first representatives of generation Z were born. 1993, 1995 or even as late as 2005 (Howe & Strauss, 2007) is shown as the beginning of this generation. Factors affecting this generation does not have the explicit nature of the generational experience which leaves the trauma. The general social conditions (frequent family breakdowns, no siblings), political (terrorism and the fight against it), economic (crisis), but also the development of modern information technology are the factors that have an impact on forming this generation. However, it is worth mentioning that the universalization of the experience of generations still has its limits. Still some circumstances in which young people grow are important and affect the selected community or the strength of their impact is different. For example, Generation Z experiences the threat of terrorism, but it is a completely different experience for the young Syrian people forced to go into exile, different for the people of Western European cities, where the attacks have occurred, and different for the Poles, who experienced it through the media.

Close links between the functioning of its members and information technology are considered to be the distinguishing factors of this generation. As stated, the generation Z is a digital community that has not experienced life without the Internet (Turner, 2015, p. 104). This leads to certain consequences, such as frequent escape from trouble in the virtual world, lack of ability to cope with problems which might have a negative impact on the relationship with friends, at work, and in a family; in the Internet young people have access to content that is unsuitable for them (violence, pornography) which might result in pathological behaviour; restricting the face to face communication, often to a minimum, can lead to the loss of conversational skills, and inhibit the development of the ability to shape social bonds; the speed of the Internet causes impatience in real life, arouses the anticipation of quick results, but also reduces the need for reflection and thinking; anonymity in the network gives the impression of impunity, causes cyberbullying (Turner, 2015, pp. 108-109). New technologies allow favour multi-tasking, while the dedication of each of the activity is partial attention. It leads to "full engagement in nothing while trying to follow everything" and so-called "absent presence" (Turner, 2015, p. 111). Generation Z from an early age gets used to limited face-to-face contact. Its members not only do shopping and lead a social life via the Internet, but also participate in school activities. It can be assumed that their working lives will be also based on the capacity of the network.

The lack of spontaneity in organizing time "after school" is characteristic for the Generation Z. There are several reasons of that and one of them is the overload of school activities, which stems, among others, from the significant dedication of their parents (the Baby Boomers and Generation X) in their career. As a result, members of the Generation Z are less involved in belonging to informal peer groups. These groups are often replaced with virtual networks. These phenomena have applied for the representatives of Generation Y, but their intensity has been lower.

The indicated conditions of forming the generation contribute to higher than in the previous generations acceptance of new ideas (it may be presumed that the resistance to change will be also on the lower level), working in a global environment. However, concerns have been expressed that this is the generation of only children, individuals who may have a problem with teamwork (Koc). In one of the publications, it was found that people belonging to this generation create a network of individuals instead of a group (Turner, 2015, p. 109).

As the Generation Z is reaching the age when they start to work, it is impossible to reliably describe it in the context of behaviour in the workplace. However, work-related expectations of the people who make their debut in the role of workers or will do so in the near future can be identified. The results of this research will be presented in the next section.

4. Expectations of the future employees–results of own research

4.1. The identity of respondents

Respondents taking part in the research were born in the years 1990-1998, so according to the literature, representatives of generation Y and Z. However, it was avoided to assign specific people to either generation Y or Z due to the fact the changes are happening smoothly and evolutionary. It was noticed by Mannheim, who wrote: "Even more difficult is it to find the natural beginning of the Generation series, because birth and death in society as a whole follow a continuously one upon the other, and full intervals exist only in the individual family where there is a definite period before children attain marriageable age" (Mannheim, 1952, pp. 278-279).

Attention is drawn to the evolution of the formation of the authorities for the next generation. For generations of Veterans, authorities were either given as a result of seniority, which undoubtedly can be attributed to the existence of postfigurative culture, or resulted from legal authorities. Formation of successive generations was accompanied by changes in this regard. Increasingly, authorities were based on achievements. Therefore, respondents were asked in an open question to indicate a person who is an authority for them. It turned out that 43% of them do not have the authority. Indications of other respondents can be grouped into few categories. These are:

- ancestors (parents, grandparents, also these who died), which accounted for over 26% of responses,
- people belonging to a peer group (siblings, friends),
- experts, including the publicly-known people who have achieved success in business (e.g. Bill Gates, Warren Buffett),
- people who follow clear values, including religious (John Paul II, Pope Francis, St. Francis) and political leaders (Roman Dmowski, Donald Trump),
- people who are successful overcoming weaknesses (Nick Vujicic, Martyna Wojciechowska). The impact of postfigurative and cofigurative cultures can be observed.

It is assumed in the literature that the change of generations considers also the approach to life changes; not only acceptance of changes increases but also the need for them. This statement was verified in a few questions. The aim was to identify relation to the changes in a private and professional life of respondents. The desire to emigrate and move to another town was analysed. It turned out that 37% of respondents declare that they will not emigrate. Far fewer (less than 10%) assume that they will not move out of their hometown. The most important factors (few of them can be indicated) leaning towards to leave their hometown is the lack of work and the possibility to get the higher salary. Regarding the leaving the hometown, it would be 60% and 58% respectively. In the case of the emigration 45% and 42%. Another factor that could induce respondents to live outside the hometown is "moving out or living there close person" (45%), but it might incline towards emigration only 32% of respondents. The desire to change is the motivation to move for 45% respondents and to emigrate for 28% of them. The desire for adventure is a reason to emigrate for 30% of respondents, and to move for 33%. It leads to the conclusion that flexibility and the desire to change are the stereotypes of the youngest generation that do not fully correspond to reality.

It is assumed that the representatives of generation Y and Z to a greater extent than their predecessors attach importance to the lifestyle. The question was raised whether they can reasonably manage their time. Only 4% of respondents say that they do not waste time and every moment is used productively. This means that 96% admit to the presence in their lives, "thieves of time", usually pointing to several factors. The most important factors cover general Internet (almost 70% of respondents indicated this factor), social networking (66%), doing nothing (56%). Other factors were indicated less often: the game (almost 30%), cigarettes (over 20%), walking around the shops (16%), books (12%), listening to music (over 8%), meetings with friends (7%). The causes of wasted time are therefore characteristic of the twenty-first century.

4.2. Expectations towards employers

To determine the expectations of work respondents were asked to assess the importance of 18 factors related to work (Tab. 1).

Table 1. Importance of factors associated with the work of the respondents (in%)

Factors	Very important, determinant to take up a new job/stay with the same employer	Important but not determining taking up a new job	Unimportant
Attractive remuneration	63	36	1
Opportunity for professional development	73	26	1
Interesting and challenging tasks	40	52	8
Work according to course of study	23	57	20
Correct human relations	58	39	3
The possibility of telecommuting/ teleworking	11	38	51
Flexible working hours	30	60	10
Good reputation of the employer	37	56	7

Confidence in colleagues	55	42	3
Teamwork	23	45	32
Competent management	43	51	6
Contract of employment	70	23	7
No need to do overtime	15	53	32
Free weekends	44	45	12
Easy access to work	36	48	16
Health benefits	48	37	15
The possibility of foreign travels in connection with work	16	31	53
The possibility of co-decision on the functioning of the organization	17	47	36

Source: own work.

Contrary to expectations, there was no significant correlation between the answers of the re-spondents and their age, size of hometown or university where they study. In relation to some factors impact of the gender of the respondents was visible. The following aspects are more crucial for women than for men: the easy access to work (very important for 38% of women and 26% men) and free weekends (47% and 35% respectively). Such dependence is not noticeable in relation to the lack of overtime, flexitime and teleworking. Women more than men appreciate the health benefits (53% and 30%) and the employment contract (72% and 61%). These factors are likely to de-termine the sense of security, also in the context of the future of maternity of women participating in the study. Additionally, comparing salary expectations with the characteristic of respondents it was noticed that they depend on gender; women are more likely to agree to lower wages than men.

The question which of the factors indicated in Table 1 is the most important for respondents was also addressed. It turned out that equally 26% of indications relate to an attractive salary and the op-portunity for professional development. For the 14% contract of employment is the most crucial, and for 9% correct relationships. Other factors were considered as less important. The presented data (Tab. 2) depicts that the priority given to wages is not identical to high salary expectations. It is worth recalling that the indications of the respondents are declarative in nature. They can be ver-ified by the necessity of self-maintenance of the respondents and the setting up the families.

Table 2. Comparison of the importance of salary with a minimum monthly net remuneration conditioning to take up a job by the respondent (in%)

	Very important	Important	Unimportant	The share of total indications
Below 1300	1	3	100	3
1301-2000	25	49	0	33
2001- 2500	38	35	0	37
2501-3000	14	11	0	13
3001-4000	12	0	0	8
Above 4000	9	3	0	7
Sum	100	100	100	100

Source: own work.

An issue of work life balance, which according to the literature is important for the youngest generations, refers not only to the reconciliation of work and private life. A significant factor impacting that balance are travelling to work and the time spent on that. As shown in Table 1, for 15.5% of respondents this factor is irrelevant. However, if an opinion on its validity is compared with the maximum time that respondents are able to spend on commuting, it turns out that there is an inconsistency. This can be explained by the fact that respondents are inexperienced or have little experience in the labour market.

Table 3. Comparison of the importance of easy access to work with the maximum amount of time spent on commuting conditioning to take up a job (in%)

	Very important	Important	Unimportant	The share of total indications
Below 30 minuts	27	26	6	23
0,5-1 hour	60	50	50	53
1-2 hours	8	22	25	17
2-3 hours	0	0	19	3
Time does not matter	5	2	0	3
Sum	100	100	100	100

Source: own work.

Attention is drawn to the fact that the representatives of a generation that do not know life without the Internet, they may have a problem with teamwork. Meanwhile, the functioning of the teams is the basis of many organizations. As Table 1 shows, 32% of respondents feel that belonging to the team is irrelevant for them. Simultaneously, for 97% of the respondents confidence in colleagues is very important or important. Therefore, it seems suitable to recall an observation of one of the researchers that the generation Z will create a network of individuals rather than teams. These fears seem to be confirmed by the employers who are beginning to employ representatives of this generation, and who notice isolation from colleagues by using headphones on their ears.

Expectations concerning the possibility of participation in the functioning of the organization are irrelevant for 36% of respondents. It also confirms the views of employers that it is difficult to engage younger employees in co-decision in the functioning of the organization.

Again, it is worth stressing that the expectations and opinions of people entering the labour market may be modified by the conditions existing in the market.

5. Conclusion

The study shows that the generation is not a homogeneous collective. Although it is possible to indicate some general characteristics, it does not mean that they do apply to each individual. In other words, a significant proportion of respondents corresponds to the theoretical description of generation Y and Z, as presented in the literature. But equally significant group displays features that are considered characteristic of earlier generations. They are e.g. not willing to make changes in their lives, and their ancestors, parents, grandparents are the authorities for them.

Two the most important work-related factors for the respondents are salary and career prospects. However, the attractiveness of remuneration is subjective; for 65% of those who consider it to be a very important factor, it means the amount of less than 2500 PLN.

Contrary to expectations, it was not observed that the characteristics of the respondents such as age, hometown, university determine their expectations. However, it was noticed that feature affecting expectations in terms of ease of commuting, free weekends, health benefits and contract of employment is gender. For other factors, differences in work-related expectations were not found.

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Chapter **24**

Income of Well-Educated. Comparative Analysis[1]

Małgorzata Ćwiek, Agnieszka Wałęga

1. Introduction

The economic transformation to the knowledge-based economy entails interest in the significance of human knowledge, skills and qualifications for the growing competitive advantage of companies and entire economies. In the 1990s, P.F. Drucker claimed that the knowledge formation is the largest investment in every developed country (Drucker, 1994, pp. 183-188).

The education level is a notable determinant of an individual's position on the labour market. Education and qualifications held by household members enable them to achieve the appropriate professional position. This translates into the financial standing of the household. The connection between education and income is confirmed by numerous studies (e.g. Zgliczyński, 2013, pp. 109-110; Majchrowska & Roszkowska, 2013, pp. 245-246, Rodríguez-Pose & Tselios, 2009, pp. 411-437).

The theory of human capital is the economic substantiation for the income increase in relation to the education. The expenditure on the education, along with the outlay for the acquisition of professional experience, knowledge on the functioning of the economic system and health care, are components of investments in human capital affecting the actual future income (Becker, 1993, pp. 17-21).

Regardless of the education level, the incomes (earnings) are different for women and men (Cain, 2003, pp. 746-759, *The Global Gender Gap Report,* 2013, pp. 3-16). This is why the discussion contained in this article is divided also into genders.

2. Sample characteristics

For this study, individual non-identifiable data derived from the household budget survey carried out by the Central Statistical Office in 2013 was used. The studied subjects are the individuals

(household members) aged at least 15. The object of the study covers individual income and income from paid employment. The income from paid employment of particular individuals (household members) aged at least 15 was taken into consideration, irrespective of whether this is their main livelihood or not, and regardless of what forms and how many places of employment they obtained their total income from. This means that the level of income from employment in this case includes also the involvement of particular individuals in earning this income, expressed e.g. by the number of places of employment. It also depends on such factors as gender or disability. Finally, considered group of people made up of 67,332 observations, of which more than 51% of respondents received income from work.

Five education levels were distinguished: university with an academic degree, university, secondary, basic vocational and no more than lower secondary[2]. The analysis of the structure of the household members based on education and gender in 2013 shows that the group possessing at least secondary education consisted of 52.5% people – approximately 1/3 could boast about the secondary educational background and over 20% had university degree[3]. More than 57% of women had at least secondary education and over 23% a university one. A higher percentage of university graduates with an academic degree was recorded among men.

3. Income versus education level and gender

The education treated instrumentally that is as qualifications enabling to take a given position allows for connecting also income with the professional position. The higher the education level, the higher the income of an individual in general. It shapes the individual's total income and increases his/her consumption capacities (Wałęga, 2010, pp. 59-77). This is confirmed by the information in Table 1 for the monthly income from employment (corresponding with salary)[4] and the individual disposable income[5] (affecting the level and structure of expenditure) based on the level of education.

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[2]   In the household budget survey, the Central Statistical Office distinguishes eleven levels of completed education: no education, primary, lower-secondary, basic vocational, secondary general, secondary vocational, post-secondary, language teacher training college or a college for social service workers, bachelor's degree or engineer, master or equivalent, university with an academic degree.

[3]   Conclusions based on data derived from household budget survey from the year 2013.

[4]   Income from employment covers all the incomes gained from hired employment, including: remuneration for work; sick leave payments (received at the time of employment contract duration), compensatory and nursing benefits; non-cash incomes (granted by the employer), such as value of services resulting from a flat or car admitted by the employer for private use, subsidies to public transport cards; receipts from a company social benefit fund; compensation paid to retired or dismissed persons. Income from hired work comprises incomes from all the workplaces of a household member, irrespective of the employment duration and type of contract. (*Budżety*..., 2014, p. 19).

[5]   The disposable income comprises: income from employment, income from a private farm in agriculture, income from self-employment other than a private farm in agriculture, from free profession, income from property, income from rental of a property or land, social insurance benefits, other social benefits, other income (including gifts and alimonies). (*Budżety*..., 2014, p. 19).

In 2013, the highest income from employment and, all the same, the highest individual disposable income was earned by the household members with university education with academic degrees. Their income was over twice higher than the average income of the population of respondents (Tab. 1). The income from employment in the group of people with secondary education was slightly above the average. Regardless of the education level and income type, the median (*Me*) was lower than the average income, which corroborates the right-skewed distribution of income.

Analysing the values of decile diversification index, it is possible to notice significant disparities of the income height for 10% people with the highest income (D_9) and 10% people with the lowest income (D_1). For the income from employment, the disparities are lower than for the individual disposable income. The highest disparities can be seen for the income from employment of those with no more than lower-secondary education – the ninth decile value is 5.87 times higher than the first one. Generally speaking, the higher the education of a household member, the higher the diversification.

Table 1. The characteristics of income from employment and the individual disposable income of household members based on the education level in 2013

Level of education	Income from employment			Individual disposable income		
	average (PLN)	Me (PLN)	D9/D1	average (PLN)	Me (PLN)	D9/D1
At most lower secondary	1352.82	1300.00	5.87	1210.74	1050.00	3.69
Basic vocational	1784.49	1600.00	2.93	1834.13	1497.62	4.29
Secondary	1955.81	1700.00	3.10	2001.26	1623.00	4.06
Tertiary	2901.72	2500.00	3.81	2972.79	2430.00	4.15
University with an academic degree	4514.62	3727.50	4.44	4785.20	3790.30	4.70
Grand total	2156.10	1800.00	3.56	2015.08	1575.73	4.75

Source: own calculations based on unidentifiable individual data derived from a 2013 household budget survey.

A slightly different situation can be observed in a group of men and women depending on the education level (Tab. 2). Both the men and women with a university education and an academic degree obtained the income from employment over twice higher than the average one in the given sub-population. The individual disposable income of men with this education was 119% higher than the average one in this sub-population and of women − higher by over 151%.

Comparing the income of men and women (Tab. 2) it can be seen that, irrespective of the education level, men earned higher income from employment than women – by about 24% on average (the individual disposable income was close to 39% higher). If we analyse the levels of the average income from employment of household members with the highest education (that is with the university education and academic degree) and the income of those with the lowest education (no more than the primary one), the ratio of those values for women and men is similar (3.3:1 and 3.6:1 respectively, for the individual disposable income it was 3.7:1 and 4.0:1 respectively).

Table 2. The average income from employment (PLN) and the average individual disposable income (PLN) and the income gap (%) based on the education level in 2013

Level of education	Average income from employment (PLN)		Income gap (%)	Average individual disposable income (PLN)		Income gap (%)
	Males	females		males	females	
At most lower secondary	1501.00	1078.32	28.16	1406.10	1078.41	23.30
Basic vocational	1982.09	1332.54	32.77	2120.47	1365.05	35.63
Secondary	2251.47	1655.92	26.45	2381.77	1689.87	29.05
Tertiary	3490.09	2531.66	27.46	3598.50	2547.41	29.21
University with an academic degree	4927.27	3927.39	20.29	5150.74	4267.99	17.14
Grand total	2366.845	1911.754	19.23	2354.42	1698.11	27.88

Source: own calculations based on unidentifiable individual data derived from a 2013 household budget survey.

To analyse the income diversification based on education and gender of respondents, the idea of the income (remuneration) gap index was used. It is determined as the difference of income (remuneration) of men and women with respect to the men's income (remuneration). The percentage result shows how much the income (remuneration) of women is lower when compared to men, assuming it is a positive value.

A higher difference between the income of men and women was recorded for the individual disposable income (27.88%) than for the income from employment (19.23%) (Tab. 2). When studying the diversification of income from employment with respect to the educational background, it can be noted that the higher income differences appear for people with the basic vocational education (32.77%) and no more than the lower-secondary one (28.16%). Even higher income gap based on the gender can be observed for the individual disposable income.

Table 3. The structure of income based on education and gender in 2013

Specification	IE	IOBA	IF	IP	IRPL	ISI	IOSB	OB
total								
At most lower secondary	18.65	1.76	9.43	0.00	0.03	64.95	3.34	1.84
Basic vocational	47.59	6.16	17.88	0.01	0.13	25.26	2.14	0.83
Secondary	50.88	9.17	10.89	0.06	0.28	24.81	1.52	2.39
Tertiary	67.27	12.18	2.94	0.22	0.59	14.59	0.59	1.62
University with an academic degree	66.97	8.36	1.97	0.01	0.29	19.56	0.15	2.69
males								
At most lower secondary	28.66	3.01	14.17	0.00	0.03	50.18	2.54	1.40
Basic vocational	51.23	7.31	18.07	0.01	0.09	21.61	1.18	0.49

Secondary	55.07	12.57	10.91	0.07	0.22	18.80	0.71	1.65
Tertiary	63.77	16.73	3.46	0.27	0.55	13.81	0.34	1.08
University with an academic degree	68.07	6.28	0.70	0.01	0.19	22.50	0.15	2.11
females								
At most lower secondary	9.82	0.65	5.23	0.01	0.02	78.00	4.04	2.23
Basic vocational	38.32	3.21	17.41	0.00	0.21	34.54	4.60	1.71
Secondary	46.06	5.25	10.87	0.05	0.35	31.73	2.45	3.24
Tertiary	70.63	7.81	2.43	0.17	0.63	15.34	0.84	2.15
University with an academic degree	65.10	11.91	4.14	0.01	0.46	14.53	0.16	3.68
Grand total	51.46	8.43	10.13	0.09	0.30	26.30	1.60	1.70

IE – income from employment; IOBA – income from own business activity; IF – income from farming; IP – income from property; IRPL – income from real property lease; ISI – income from social insurance; IOSB – income from other social benefits; OB – other benefits.

Source: own calculations based on unidentifiable individual data derived from a 2013 household budget survey.

The educational background and gender determine also the income structure of household members (Tab. 3). The higher the education level, the higher the share of income from employment. Individuals with better educational background have a lower share of income from social insurance and other social benefits. The most similar income structures are those for the individuals with secondary and basic vocational education. When the income structure of women and men is compared, it should be noted that the higher education level, the more similar the structures[6].

4. Income inequalities

The wage gap causes the occurrence of income inequality. To analyse the diversification of income from employment and individual disposable income the Gini coefficient was used (Tab. 4). Generally speaking, higher inequalities are noted for the individual disposable income. Men are more diversified with respect to the income earned. For the income from employment, a general rule can be seen that the higher the education, the greater the income inequalities. Such a relationship cannot be declared for the individual disposable income. The highest inequalities refer to the income of those with university education and an academic degree. An exception is the inequalities in the individual disposable income of men.

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[6] The conclusion based on the calculation results using the structure similarity measure based on Canberra metrics (Malina, 2004, pp. 46-47).

Table 4. Gini coefficient for the income from employment and the individual disposable income by the education level and gender in 2013

Level of education	Total		Males		Females	
	Gini (IE)	Gini (IDI)	Gini (IE)	Gini (IDI)	Gini (IE)	Gini (IDI)
At most lower secondary	0.308	0.301	0.299	0.343	0.294	0.250
Basic vocational	0.258	0.361	0.252	0.354	0.197	0.317
Secondary	0.267	0.335	0.262	0.326	0.243	0.314
Tertiary	0.305	0.338	0.318	0.349	0.273	0.306
University with an academic degree	0.340	0.358	0.354	0.339	0.322	0.388
Grand total	0.308	0.374	0.308	0.376	0.295	0.349

IE – income from employment; IDR – individual disposable income.

Source: own calculations based on unidentifiable individual data derived from a 2013 household budget survey.

To answer the question of how much a given social sub-group is responsible for the general social inequalities, Theil index values were calculated. It is a specific example of a broader groups of measures with an important feature called an additive decomposition[7]. The Theil index can be presented as a weighted sum of inequalities in the household groups and between these groups (Shorrocks, 1980, pp. 613-625):

$$T = \sum_{j=1}^{k} w_j \cdot T_j + T_B, \tag{1}$$

where:

w_j – decomposition coefficient described by the following formula: $w_j = \frac{n_j \bar{x}_j}{n \bar{x}}$ (n_j – size of j-th group, $\bar{x}_j$ – mean for j-th subgroup; w_j in total is one),

k – number of subgroups,

T_j – Theil index calculated for j-th subgroup (intra-group),

T_B – Thei index calculated based on the average values for the particular subgroups (intergroup) which takes the form:

$$T_B = \frac{1}{n} \sum_{j=1}^{k} \frac{\bar{x}_j}{\bar{x}} n_j \ln \frac{\bar{x}_j}{\bar{x}}. \tag{2}$$

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[7]   Using the Theil index, one can decompose the overall inequalities by sub-groups. At the same time, the share of those sub-groups in creating overall inequalities can be determined (Ulman & Wałęga, 2007, p. 24). It is worth noting that the Theil index has some disadvantages, such as the absence of an economic interpretation and incomplete normalisation (Rohde, 2007, p. 5). The maximum index value changes depending on the number of individuals covered by the study. Accordingly, in the studies are compared as a percentage of the impact of inequality for each group on the general inequalities and not the specific index value for each group.

Based on the information included in Table 6, it can be stated that the contribution in the overall inequalities is the highest for the inequalities in income from employment of people with the basic vocational education (37.03%) and then with the secondary education (28.34%), and the lowest in income of the individuals with an academic degree (1.24%).

Table 5. Theil index for the income from employment based on gender in 2013

Specification	At most lower secondary	Basic vocational	Secondary	Tertiary	Tertiary with academic degree	Total
Total						
Theil index	0.3863	0.8365	0.4971	0.3625	0.4205	0.4523
Impact of the particular group on total Theil index (%)	2.80	37.03	28.34	25.13	1.24	5.46[a]
Males						
Theil index	0.5863	0.8913	0.4899	0.4179	0.3451	0.5851
Impact of the particular group on total Theil index (%)	4.52	45.08	23.93	19.90	0.96	5.61[a]
Females						
Theil index	1.2459	0.7147	0.5159	0.2565	0.5397	0.2607
Impact of the particular group on total Theil index (%)	7.18	20.46	35.19	27.12	1.63	8.43[a]

[a] – % impact of intergroup inequalities based on the total Theil index.

Source: own calculations based on unidentifiable individual data derived from a 2013 household budget survey.

When we analyse the analogous inequalities by gender, we can perceive a higher impact on the overall inequalities (in men) exerted by the individuals with a basic vocational education (45.08%) and then with the secondary education (23.93%). For women, the income inequalities among individuals with the secondary education generate 35.19% of the overall inequalities while for those with the higher education – 27.12% of inequalities. When analysing the impact of intergroup inequalities on the overall inequalities, one can notice a higher impact in the group of women (8.43%) than of men (5.61%).

5. Econometric modelling in the analysis of income from employment

The level of income from employment is determined, besides the number of years spent studying and age, by numerous factors related e.g. to the human capital (such as level of education, work experience, gender, marital status, occupation) and labour market conditions (among others sector of the economy, trade unions, the demand for the position, the size of the employer). Therefore the following exogenous variables were proposed for the model explaining the shape of income from employment:

- age in full years; the employee's age appears also in the square,
- the education level expressed by 0-1 variables; the basis for the comparison are the people with the secondary education as this is the most numerous group of respondents,
- the gender of a household member (0-1 variable, 1 for men and 0 for women),
- job – 10 groups of employees were differentiated (0-1 variables; 1 when the person does the job and 0 otherwise): (1) higher officers and managers, (2) specialists, (3) technicians and middle-level personnel, (4) office workers, (5) personal services staff and sellers, (6) farmers, foresters and fishermen, (7) construction workers, craftsmen, electricians and similar, (8) machine operators and drivers, (9) workers doing simple works, (10) soldiers. The basis for comparison is the most numerous group of "machine operators and drivers" (8),
- employee's marital status. This variable is 1 when the employee stays in matrimony and 0 for the other people,
- sector of the economy: 1 – private, 0 – public.

The variables were selected based on the stepwise regression and the parameters estimated by the least squares method[8]. The dependent variable is the logarithm of income from work. The estimation results are presented in Table 6. Model parameters are statistically significant. The determination coefficient is 36.52%, though it should be stressed that this is a typical result for the models describing income (earnings) variability.

Table 6. The results of the regression analysis for income from employment

Specification	Parameter	Standard error	t(32362)	p-value
Constant	5.5715	0.0344	162.18	0.0000
Age	0.0763	0.0017	45.24	0.0000
Age2	-0.0009	0.0000	-44.25	0.0000
Gender	0.2949	0.0061	48.03	0.0000
At most lower secondary	-0.2962	0.0122	-24.37	0.0000
Basic vocational	-0.0831	0.0075	-11.13	0.0000
Tertiary	0.1646	0.0086	19.19	0.0000
Tertiary with academic degree	0.4874	0.0316	15.42	0.0000
Sector of the economy	0.0384	0.0065	5.95	0.0000
Occupation 1	0.5662	0.0346	16.38	0.0000
Occupation 2	0.5676	0.0155	36.52	0.0000
Occupation 3	0.4038	0.0122	33.15	0.0000
Occupation 4	0.2823	0.0117	24.12	0.0000
Occupation 5	0.1414	0.0123	11.50	0.0000
Occupation 6	-0.0441	0.0100	-4.40	0.0000

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[8] The model presented in table 6 does not cover all the variables affecting the level of income from employment but it expands the simplified picture suggested by Mincer (Mincer, 1958, pp. 281-302).

Occupation 7	-0.4150	0.0288	-14.41	0.0000
Occupation 9	0.1538	0.0097	15.86	0.0000
Occupation 10	-0.1575	0.0103	-15.34	0.0000
Marital status	0.1007	0.0065	15.58	0.0000
$R^2 = 36.52$; $F(18.32) = 1034.3$; $p < 0.0001$				

Source: own calculations based on unidentifiable individual data derived from a 2013 household budget survey.

Based on Table 6, it can be seen that every additional year of age gives, on average, 7.6% increase in income from employment (*ceteris paribus*). The gender plays an even greater role as the income from employment for men is, on average, 34.3% higher than the income of women[9]. Married people get the income from employment 10.6% higher on average when compared to the singles, assuming the other variables remain constant. The higher the education level of the employee, the higher the income from employment. The employees of privately-owned companies earn the income 3.9% higher on average than those employed in the public sector. When compared to the machine operators and drivers, lower income from employment is obtained by farmers, foresters and fishermen, construction workers, craftsmen, electricians and related staff, as well as soldiers. The other professional groups can get a higher income from employment.

6. Conclusion

The studies confirmed the relationship between the education of household members and their income. The highest income from employment and individual disposable income in 2013 was obtained by the household members with university education and an academic degree. It was, on average, over twice higher than the average income from employment and individual disposable income for the population of respondents. Every additional year of age gives, on average, 7.6% increase in income from employment. The share of income from employment in the household income structure grows with the increase in the education level of household members.

Income inequalities also grow with the increase in the education level. The greatest inequalities refer to the income of those with university education and academic degrees. For every education level, men's income is characterised with a higher inequality level than women's income. The highest contribution in the overall inequalities is made by inequalities in income from employment among people with basic vocational education (35.2%) and university education (28.2%).

The presented research is a prelude to the further analysis of economic situation of well-educated people.

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9 The parameter $= 0.2949$, so $(e^{0.2949} - 1) \cdot 100\% = (1.343 - 1) \cdot 100\% = 34.30\%$.

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Chapter **25**

Prerequisites for Granting Financial Aid for Students of the Krakow University of Economics, and Effects Thereof, in the Academic Year 2014/2015

Magdalena Talaga

1. Introduction

According to the art. 173, par. 1 of the Act on Higher Education, students can apply for financial aid from the funds allocated for this purpose in the state budget in the form of maintenance grants, special grants for the disabled, a rector's scholarship for the best students, a Minister's scholarship for outstanding achievements, as well as special assistance grants.

The above correlates with the provision of art. 2 sec. 1 p. 18 k of the Act, which defines a student as a person enrolled in a higher education programme, i.e. an undergraduate, a postgraduate or a student of a long-term Master's degree programme offered by an authorized university or college, in accordance with art. 2 par. 1 p. 5 of the Act. These provisions unequivocally indicate that the participants of postgraduate programs, defined in the Act on Higher Education as students (art. 2, par. 1, p. 18m) (Pakuła, 2014), are not eligible for financial aid, which is also confirmed by the comments to the Act (Izdebski & Zielinski, 2015).

2. Enrolment for a higher education programme and the right to financial aid

Art. 169 par. 1 of the Act on Higher Education demonstrates that a person may be allowed to pursue their studies at the university if they meet the enrolment conditions established by the university and have obtained:

1. A certificate of secondary education, or a certificate of secondary education and the final examination results certificate for individual subjects, referred to in the Act on the Education System of 7 September 1991 – in the case of applying for admission to an undergraduate programme or a long-term Master's degree programme.
2. A Master's or bachelor degree, or equivalent, and meet the conditions laid out in par. 2 – in the case of applying for admission to the second degree programme.

According to par. 2 of this article, the university senate determines, by resolution, the conditions, the procedure as well as the dates of commencement and completion of the enrolment, including on-line, for individual majors. The resolution is made public not later than 31 May of the year preceding the academic year, to which the resolution applies and is sent to the minister responsible for higher education. In the case of launching a new major or of a newly created university, the senate passes a resolution and forwards it to the minister responsible for higher education and the minister supervising the university, and makes it public as soon as possible.

To complement the above, it should be added that both persons with Polish citizenship and foreigners may be admitted to take up a higher education programme at the university.

A foreigner is every person who doesn't have Polish citizenship. Foreigners may undertake studies in compliance with the rules applicable to Polish nationals and those for non-Polish nationals. For the purpose of this article, it is appropriate to describe the first group, because only they are eligible for applying for financial aid, just as Polish citizens.

The conditions which the foreigner must meet in order to undertake studies in compliance with the rules applicable to Polish nationals, are regulated by art. 43 par. 2 of the Act on Higher Education. The Act provides that foreigners can undertake studies according to these rules, if they meet one of the following conditions, which means that:

1. they have a permanent residence permit,
2. they have a refugee status granted by the Republic of Poland,
3. they are under temporary protection on the territory of the Republic of Poland,
4. they are migrant workers who are nationals of a EU Member State, the Swiss Confederation or the Member State of the European Free Trade Association (EFTA) – a party of the European Economic Area agreement, as well as their family members, if they live in the Republic of Poland,
5. they were granted a permit for a long-term resident of the European Union in the Republic of Poland,
6. they were granted a temporary residence permit in the Republic of Poland in connection with a circumstance referred to in art. 127 and 159, par. 1, or art. 186 par. 1 p. 3 or 4 of the Act on Foreigners of 12 December 2013,
7. they were granted subsidiary protection in the Republic of Poland,
8. they are nationals of a EU Member State, the Swiss Confederation or the Member State of the European Free Trade Association (EFTA) – a party of the European Economic Area agreement, as well as their family members, with a permanent residence permit.

These foreigners can take up and continue education, as well as participate in scientific research and development works based on the rules applicable to Polish citizens. They have every right to benefit from financial assistance, save art. 43 par. 2a of the Act on Higher Education, which indicates that foreigners who have a residence card with a work permit, or a Schengen visa or a national work visa issued for work in Poland, may take up and continue graduate studies, doctoral studies and other forms of education, as well as participate in scientific research and development works on a fee-paying basis. These persons are not entitled to maintenance grants, special grants for the disabled and special assistance grants. It should be noted that the student who was accepted on the basis of this provision is eligible to apply for a rector's scholarship for the best students, or the Minister's scholarship for outstanding achievements.

The group of students who are eligible for a maintenance grant also includes students with a valid Card of the Pole, in accordance with art. 43 par. 5a of the Act. It is worth noting that they

can take up higher education programmes, doctoral studies and other forms of education, and participate in scientific research and development works in compliance with the rules applicable to Polish nationals, but also in compliance with other rules. The provisions of art. 43 allow "a person who is a holder of a valid Card of the Pole to choose their eligibility for education under the Card of the Pole or under international agreements between Poland and the native country of the person" (Izdebski & Zielinski, 2015).

In conclusion, it should be added that, in accordance with art. 170 par. 1 of the Act on Higher Education, a person admitted to a university or college acquires the student's rights (including the right to apply for financial aid) upon matriculation and taking the oath, the content of which is defined in the university or college statute.

3. Detailed rules for granting maintenance aid

Since art. 179 par. 1 of the Act on Higher Education states that a student is entitled to receive a maintenance grant when in a difficult financial situation, the primary task of the authority to which the student applies for aid is to determine if their financial situation material is indeed difficult enough to require financial support from the university or college. The Act does not specify what the "difficult financial situation" is. The legislature assigns the right to specify in detail what the university understands as a difficult financial situation as per the rector's right to determine, together with the student government body, the income limit in the student's family, which entitles them to apply for a maintenance grant at a university or college. However, the rector and the student government body do not act totally arbitrary in such a case, as the legislature determines income brackets on the basis of which the rector may establish the income threshold for the university (Sanetra & Wierzbowski, 2013).

In addition, the provisions of the Act on Higher Education refer to other legal acts, which are also designed to regulate the rules regarding the application for maintenance grants (for the applicant) and granting thereof (for the granting body). These are: The Act of 28 November 2013 on Family Benefits, the Act of 14 June 1960 on the Administrative Procedure Code and the rules for appealing against the decision to the administrative court.

To determine whether the student is indeed in financial difficulty is in fact to determine the actual monthly income per capita in the student's family.

To accomplish this, the process begins with the decision who is de facto a member of the student's family and who can be taken into account when determining the composition of the student's family. This is especially significant, because in applying for a maintenance grant, the student presents incomes earned by these people. According to art. 179, par. 4 of the Act on Higher Education, in determining the maintenance grant generating income, taken into account are incomes earned by the following:

1. the student,
2. the student's spouse, and dependents of the student or his spouse, minors, children receiving education under 26 years of age, and if the 26th year of age falls in the last year of study, until its completion, as well as children with disabilities regardless of their age,
3. parents, the student's legal guardians and their dependents, minors, children receiving education under 26 years of age, and if the 26th year of age falls in the last year of study, until its completion, as well as children with disabilities regardless of their age.

In addition, when it comes to determining the composition of the student's family, the Act on Higher Education stipulates that the applying student may apply for a maintenance grant without revealing the incomes of the persons mentioned in the article under the letter c in two situations:

1. In the case when they do not run an joint household with any of the parents and have confirmed this fact in a statement, and meet one of the following criteria:
    *   they are over 26 years of age,
    *   they are married,
    *   have dependent minor children, children receiving education under 26 years of age, and if the 26th year of age falls in the last year of study, until its completion, as well as children with disabilities regardless of their age, or
2. If they meet the following conditions:
    *   they had a permanent source of income in the last fiscal year,
    *   they have a permanent source of income in the current year,
    *   their monthly income in the periods referred to in points a and b is higher than or equal to 1.15 of the sum of the amounts referred to in art. 5 par. 1 and the amount referred to in art. 6 par. 2 p. 3 of the Act of 28 November 2003 on Family Benefits,
    *   does not run a joint household with any of the parents and has confirmed this fact in a statement.

The above provisions raise interpretation doubts among people dealing with this subject, and their application is often associated with the sense of injustice among the students. The definition of the composition of a single family does not take into consideration who of the family members de facto resides with and runs the household. It lists only those whose incomes must be included in determining the maintenance grant generating income. This provision actually makes it difficult to determine the actual financial situation where for example the grandparents live (and run a joint household) together with the student and their parents. Another example is the situation in which the student and his/her partner run a household and raise their child together. The above-cited provisions do not provide for the possibility to take into account a partnership, in which case the law does not provide for the possibility of including the student's partner the composition of his/her family. Another problem with the above provisions is the lack of definition of "running a joint household". Establishing this definition seems crucial in many situations, and leaving so much scope of lenient interpretation may give rise to abuse, both by students and those determining their family composition. On the other hand, however, creating a definition based on an exhausting list can lead to a sense of victimization among people whose family situation differs from the created provisions.

Determining the family composition is preceded by proper calculation of the family's income. It involves summing up the monthly income of the individual family members and dividing them by the number of people included in the family composition. Art. 179 par. 5 of the Law on Higher Education requires determining the monthly per capita income in the student's family under the terms stipulated in the Act of 28 November 2003 on Family Benefits. According to the provisions of this act, income is, after the deduction of the amounts of maintenance paid to other persons:

1. the taxable income under the terms of art. 27, art. 30b art. 30c art. 30e and art. 30f of the Act of 26 July 1991 on Personal Income Tax (Journal of Laws (Dz. U.) of 2012, pos. 361, as amended), less of deductible expenses, the due personal income tax, social insurance contributions not included in deductible expenses, as well as health insurance contributions,

2. income from taxable activities, as declared in a statement, pursuant to the provisions on the flat-rate income tax on some incomes of natural persons, less due flat-rate income tax, and insurance and health contributions,
3. other non-taxable income under the provisions of the personal income tax law.

The Family Benefits Act specifies in detail the list of non-taxable types of income under the provisions of the personal income tax law. It is very broad, and for the purpose of this article only the most popular types of income are mentioned. These include: sickness benefits specified in the regulations on the social insurance for farmers, and in the regulations on the social insurance system, maintenance for children, doctoral and postdoctoral scholarships granted under the Law of 14 March 2003 on Academic Degrees and Academic Titles and Degrees and Title in Art (Journal of Laws (Dz. U.) of 2014, pos. 1852), doctoral scholarships referred to in art. 200 of the Act of 27 July 2005 on Higher Education (Journal of Laws (Dz. U.) of 2012, pos. 572, as amended), sport scholarships awarded under the Law of 25 June on Sports (Journal of Laws (Dz. U.) of 2014, pos. 715) and other grants in character of maintenance grants for to school or university/college students, the benefits specified in the regulations on the mandate of deputy or senator, and the income obtained from farming.

The list includes yet another kind of income, which should be mentioned for the purpose of this article. The indent of the 24th catalogue includes income earned outside of the Republic of Poland, less the income tax and contributions for mandatory social insurance and mandatory health insurance paid outside the Republic of Poland, respectively. This type of income applies to both Polish students and their family members who have taken up work outside the Republic of Poland, but also foreign students and their family members, who in most cases live permanently and obtain their income outside the Republic of Poland. It should be noted that, when it comes to legislation governing the award of maintenance grants or the method of calculating income for this grant for foreign students and members of their families, this is the only provision that deals with this issue.

Additionally, it should be noted that art. 179 par. 5 of the Act on Higher Education stipulates that the amount of monthly income entitling to applying for the grant is determined under the terms specified in the Act on Family Benefits. At the same time, the Act stipulates that the income does not include:

1. financial aid benefits for undergraduate and doctoral students, received under the provisions of the Act,
2. scholarships granted to students of schools, undergraduates, doctoral students in the framework of:
    • European Union structural funds,
    • non-reimbursable funds from the aid granted by the Member States of the European Free Trade Association (EFTA),
    • international agreements and executive programs drawn with those agreements, or international scholarship programs,
3. financial aid benefits for students obtained under the Act of 7 September 1991 on the Education System,
4. benefits referred to in art. 173a and art. 199a of the Law on Higher Education,
5. grants in character of maintenance grants from other entities referred to in art. 21 par. 1 p. 40b of the Act of 26 July 1991 on Personal Income Tax (Journal of Laws (Dz. U. of 2012, pos. 361, as amended).

The scope of the provisions of the Act on Family Benefits is subject to debate. However, the commentary on the Law on Higher Education concludes that "this means that it is necessary to apply all the provisions of the Act on Family Benefits, which refer to the method of determining the student's income, and therefore also the rules on the loss and acquisition of income. In this case, the rules mean all the legal rules leading to the final calculation of the student's income" (Sanetra & Wierzbowski, 2013).

Concluding, according to the Law on Family Benefits, family income is considered the sum of the incomes of the family members. The definition of income of a family member means the average monthly income of a family member earned in the calendar year preceding the grant period, subject to art. 5 par. 4-4b (these are the rules concerning the loss and acquisition of income). Income calculated this way is the basis for determining whether a student is in a difficult financial situation.

4. The opinion of the social welfare centre and its effects in the process of granting maintenance aid

A special situation is when the body deciding on the application for a maintenance grant is justified to demand from the student a letter from the social welfare centre having jurisdiction of the student's domicile, informing about the income and assets of the student and his family. The body is entitled to take into account the opinion of the institution when assessing the student's financial situation. In case the student fails to present the said letter, the body may request the student to provide explanations. A failure to do so results in the refusal to grant maintenance aid (Czuryk, Karpiuk & Kostrubiec, 2015). These provisions seem to be particularly appropriate in situations of concern or specific doubt of the body, i.e. for example, in situations of repeated and persistent denial of any income by the student and his/her family. Included in the provisions of the Act, the words "in appropriate cases" allows the body to act with some discretion, as there is no definition of what exactly does the term "in appropriate cases" mean.

5. Analysis of the process of granting maintenance aid to the students of the Krakow University of Economics in the academic year 2014/2015

The research part of the article includes a quantitative description of financial aid for students provided by the Krakow University of Economics. Individual descriptions take into account variables such as the course of studies, field of study, the income brackets for the student and their family.

The total number of students of the Krakow University of Economics in the academic year 2014/2015 was 20 294 people.

Of all the students, the number of people receiving the maintenance grant was in 2 598, which accounted for 12.8% of the total. It should be noted that within the 12.8% of students receiving the maintenance grant listed are both Polish citizens and foreigners studying on the rules applicable to Polish citizens.

The number of students not receiving maintenance grants amounted to 17,696, or 87.2% of the total.

The data are shown in detail in Figure 1.

Figure 1. The percentage structure of students in granting maintenance aid at the CUE in the academic year 2014/2015
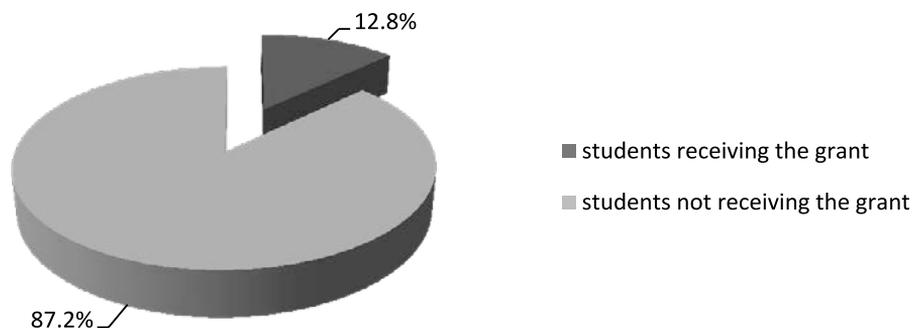
Source: own study based on data from the Department of Student and Postgraduate Affairs at the Krakow University of Economics.

In the past years there has been an increase in the number of foreign students admitted to the Krakow University of Economics.

Based on data published by the Central Statistical Office, prepared was the table below, which illustrates this trend. It shows that since 2010 the number of foreign students has increased more than fourfold. It should be noted that these figures include the total number of foreign students, with no indication of the mode of their admission. This means that in this group there are people who are entitled to applying for maintenance grants, and those who are not.

Table 1. The number of foreign students at the Krakow University of Economics in individual years

Year	Total no. of foreign students at the Krakow University of Economics
2010	231
2011	286
2012	507
2013	768
2014	976

Source: own study based on data of the CSO.

Along with significant increase of the number of foreign students studying in Krakow University of Economics in subsequent years, also increased the number of foreign students entitled to apply for the maintenance grant, and thus receiving it, has also increased. In the academic year 2014/2015, maintenance aid was granted to 230 foreigners studying in compliance with the rules

applicable to Polish nationals, who represented 8.85% of the total number of students receiving the maintenance grant. The data are shown in detail in Figure 2.

Figure 2. Percentage distribution of foreign grantees among all grantees
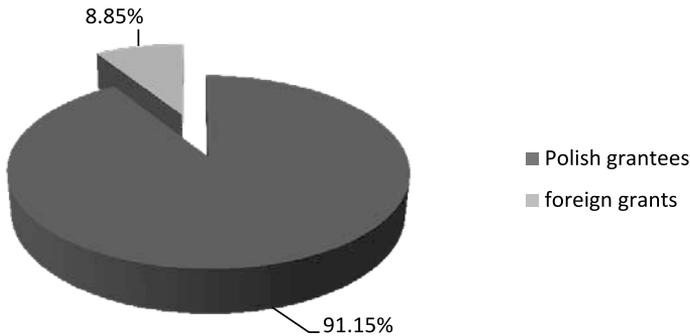
Source: own study based on data from the Department of Student and Post-Graduate Affairs at the Krakow University of Economics.

On analysing the structure of individual groups of students receiving the maintenance grant, one of the primary criteria is the course of studies: full-time and part-time students. This division is as follows: 62.61% of the total number of students are Polish nationals – full-time students. On the other hand, Polish nationals who were part-time students accounted for 28.58% of students entitled to financial aid. As for foreign students, 8.81% of full-time students received the maintenance grant, and of part-time, only 0.03%. The data is shown in detail in Figure 3.

Figure 3. Percentage structure of full- and part-time students in granting maintenance aid at the CUE in the academic year 2014/2015, including foreigners
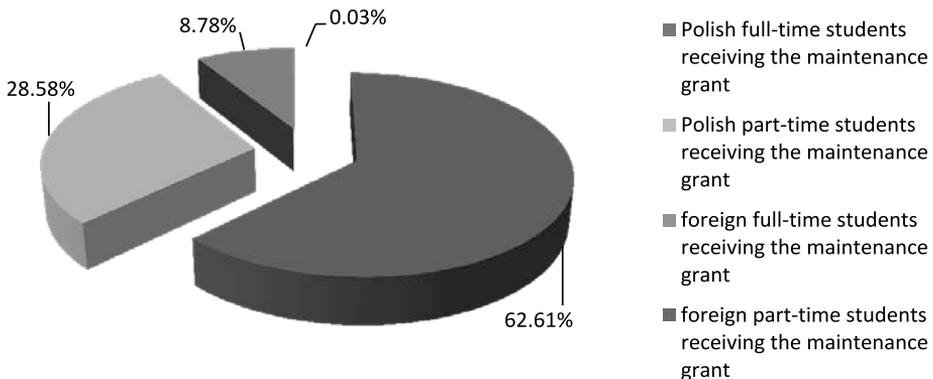
Source: own study based on data from the Department of Student and Post-Graduate Affairs at the Krakow University of Economics.

The number of students receiving financial aid in the form of the maintenance grant, taking into account both the course of studies and the mode of enrolment, as well as by gender, is presented in Table 2.

Table 2. The number of students who receive the maintenance grant by full- and part-time grantees, including the mode of admission

	The total number of students	**Students receiving the maintenance grant**		**Full-time students receiving the maintenance grant**		**Part-time students receiving the maintenance grant**	
The number of students in the academic year 2014/15	20294	2598		Poles	Foreigners	Poles	Foreigners
		including:					
		women	men	1623	229	745	1
		2017	581				

Source: own study based on data from the Department of Student and Post-Graduate Affairs at the Krakow University of Economics.

The number of students receiving financial aid in the form of the maintenance grant, taking into account both the field of study and the mode of enrolment is shown in Figure 4.

Figure 4. The number of Polish and foreign grantees with regard to particular fields of study

	AD	AG	EK	EP	FR	GAP	GP	GI	IE	IS	MR	MSG	RC	SM	SC	TO	TR	ZA	ZI
foreigners	2	1	19	0	14	1	1	0	0	13	8	40	1	45	3	3	52	24	2
Poles	70	65	227	26	679	99	45	60	7	99	39	116	337	55	26	135	80	164	43
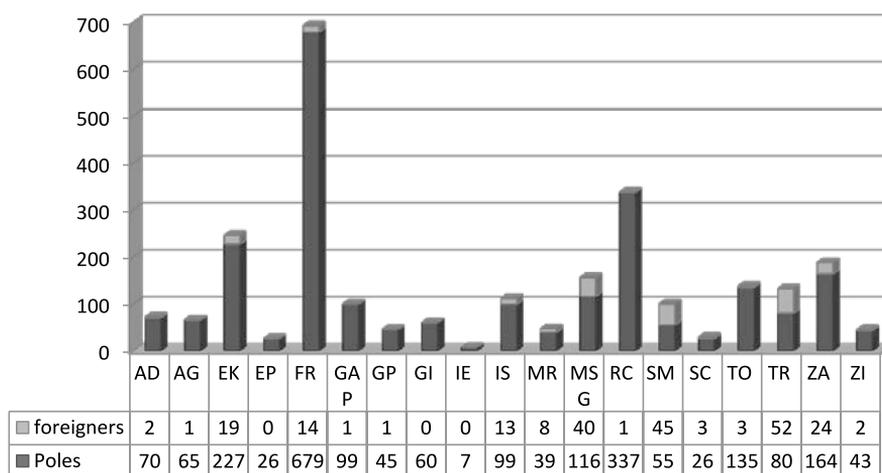
where: AD – Administration, AG – Economic Analytics, EK – Economics, EP – European Studies, FR – Finance and Accounting, GAP – Public Economy and Administration, GP – Land Management, GI – Land Management Engineering, IE – Computer Science and Econometrics, IS – Applied Computer Science, MR – Marketing and Market Communication, MSG – International Economic Relations, RC – Accounting and Controlling, SM – International Relations, SC – Sociology, TO – Science of Commodities, TR – Tourism and Recreation, ZA – Management, ZI – Management and Production Engineering.
Source: own study based on data from the Department of Student and Post-Graduate Affairs at the Krakow University of Economics.

The table below contains data included in the Order of the Rector of the Krakow University of Economics of 6 November, no. R-0201-44/2014 regarding the monthly amount of the maintenance grant for students and doctoral students, paid from the financial aid for students and doctoral students' fund in the academic year 2014/2015. The data pertains to the distribution of rates of the maintenance grant and the increased maintenance grant, depending on the monthly income per capita in the student's family.

Table 3. Distribution of the maintenance grant rates depending on the monthly income of the student

Monthly income per one person in the family	The grant amount in zł	The increased grant amount in zł
max. 140.00	600.00	750.00
140.01-270.00	520.00	670.00
270.01- 390.00	430.00	580.00
390.01- 500.00	350.00	500.00
500.01-850.00	280.00	430.00

Source: own study based on the Order Rector of the Krakow University of Economics of 6 November 2014, no. R-0201-44/2014, on the monthly amount of the maintenance grants and special assistance grants in the academic year 2014/2015, paid from the financial aid for students and doctoral students' fund.

Depending on the monthly income per person in the student's family, and also on whether the student is applying for a regular or increased maintenance grant, the student receives a fixed rate of the maintenance grant. The following Figure 5 presents the curve of the number of grantees in different income groups. The largest group among Polish students are those in the lowest income bracket, i.e. 500.01 – 850 zł, 1,049 people.

Figure 5. The curve presenting the number of grantees in different income groups
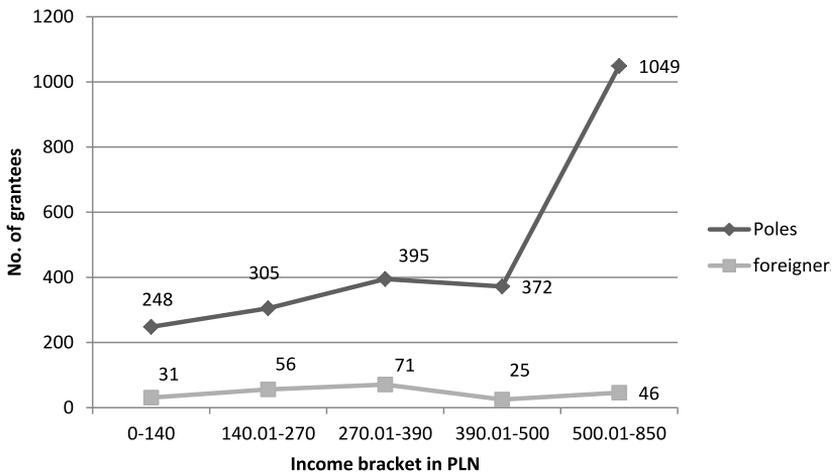
Source: own study based on data from the Department of Student and Post-Graduate Affairs at the Krakow University of Economics.

Next, there is a group of students in the income bracket of 270.01 – 390 zł, which is the middle bracket, i.e. 395 people. The smallest group of students, i.e. 248 people, was the group with the lowest income range 0 – 140 zł. As for the foreign students, the trends are different. The largest group of grantees, i.e. 71 people, are students in the middle income bracket: 270.01 – 390 zł. Next is a group of 56 people, and these are students in the income bracket of 140.01 – 270 zł. The least numerous group of students is that in the income bracket of 390.01 – 500 zł, amounting to 25 people.

6. Conclusion

1. As one of the financial aid benefits, maintenance grant is an essential element of support for students in a difficult financial situation.
2. Both Polish nationals and foreign students, studying in compliance with the rules applicable to Polish nationals, are eligible for financial aid in the form of the maintenance grant.
3. With the increase of the number of foreign students in recent years, and thus foreign students eligible for financial aid in the form of the maintenance grant, it should be noted that this group is becoming an increasingly important group of beneficiaries. The specificity of this group of students should force the higher education institution to develop its own, transparent procedures, which will honestly verify the eligibility for financial aid in the form of the maintenance grant.
4. The institution's policy should aim to extend financial aid to each student who is prevented from studying by their difficult financial situation.

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Multi-Criteria Methods in the Choice of the Optimal Localisation of Settlement

Joanna Sobula

1. Introduction

At present, decision-making is one of the most important human activities. Each decision brings sometimes very far-reaching effects, and its consequences are often very complex. The decision is often accidental choice or purely intuitive, not supported by any analysis or planned strategy.

The decisions that person makes, determine not only the shape of his personal and family life, but to some extent affect the history of the environments and communities. Some people are able to make such important and fateful decision that can change the course of history and influence – positively or negatively – on the fate of whole nations and generations. However, the mature decision-making is the art of making the right decisions. No man can avoid making a decision, because daily life is constantly confronts us with facts and events that need to take any attitude or make specific choices. However, decision-making in the strict sense we have to deal only if such person makes decisions in a conscious, purposeful and voluntary. This means that before deciding he sees alternative options for action at any given time, and in decision-making is guided by a clearly defined goal.

The decision making process is a complex sequence of actions which, in the general case include:
- identification of the decision problem,
- the wording of the act, which is to decide the optimum,
- the term of at stake decision variants.

2. Multi-criteria methods in solving decision problems

Identification of decision criteria (the consequences of the choice of the different options in terms of a positive or negative impact on the issue in question and its surroundings). The emergence of the optimal variant of the product taking into account Sensitivity analysis of the decision to change the conditions or assumptions underlying its adoption.

Multi-criteria decision support methods (MCDM, Multi-Criteria Decision Making) are intended to make the choice of optimal solutions from a variety of alternative solutions. This choice is made on the basis of various criteria affecting the implementation and operation of the solution. As a result of conflicting interests of various social groups, each of those criteria can be assigned different preferences, which is important for the final result of the analysis. Multi-criteria analysis methods are used in many areas of science, including in economics, management, etc.

Methods of multi-criteria allow:

- a formal description of the problem in question the decision-making and its components,
- choice of the best variant of the decision or reduce the number of pre-options under consideration,
- classifications variants decisions leading to their concentration in certain groups,
- the creation of ranking of alternatives leading to a decision ordering options under consideration by the degree of preference (Łukasik-Goszczyńska, 1997).

Methods of multi-criteria decision support are used in many areas of science, including in computer science, medicine, economics, management, electric power, manufacturing, business management, and risk assessment, or study the efficiency of investment. Decision-making process takes into account various, heterogeneous and often conflicting criteria. Methods of multi-criteria also facilitate decision-making in case of problems, accompanied by the conditions of incomplete or difficult measurable information.

In terms of solving the problems of multi-criteria can be found in the literature many different methods. Analysis of multi-criteria decision-making process are carried out in several stages of selection criteria for determining the choice of solutions to establish the weights assigned to each criterion (these are called. weight normalized, the sum of which is equal to 1 – the process of normalization of weights is to rescale the value of the specified range) to specify a numerical measure of individual decision variants including adopted a set of factors and corresponding weights, to calculate the synthetic benchmark, characterizing the options under consideration, to create a ranking of the options under consideration.

Methods of multi-criteria can be classified in many ways. The literature mentioned method, priority, Ladder, distance and combined. Methods of multi-criteria may also be classified in terms of the number of decision-makers, as a group and individual decision-making.

Among the methods of multi-criteria are distinguished:

- methods based on aggregation of ratings,
- methods based on outranking relations,
- other methods, such as Ranking methods, indicative, verbal, etc.,
- other: indexing methods, additive methods, methods of scoring, methods of mathematical programming, artificial neural networks (ANN).

The first group of methods derived from the American school. These methods are based on the division of the model analyzed the decision problem into simpler parts, and then on a separate consideration of alternatives in terms of individual attributes and aggregation thus obtained information into a synthetic index.

The second group of methods is derived from the European School. This approach is based on creating relationships outranking based on a set of partial relationships, defined on the basis of the distinguished features of the options under consideration decision. These methods are characterized by mutual recognition thresholds of differentiation and domination of the different

options in relation to the various options and the use of the compatibility and incompatibility between evaluations partial.

The group of methods based on outranking relations are distinguished:

- The methods ELECTRE (Elimination and Pine Traduisant la réalité – the elimination and selection of expressing reality). ELECTRE methods aim is to model the system of preferences by outranking relationship created separately for each criterion. These relationships may include strong preference equivalence variants, as well as incomparabilities variants. ELECTRE methods can solve all kinds of choices on the sorting, filing, or select individual decision variants. Methods of solving issues include the selection method of ELECTRE I, ELECTRE 1v, ELECTRE IS. Organize decision variants can be made using methods ELECTRE I, ELECTRE II, III and ELECTRE ELECTRE IV. Sort decision variants allows the method ELECTRE TRI. ELECTRE methods are implemented in two stages:
  - the creation of the outranking relationship between the outranking relationship,
  - development of recommendations on the options under consideration decision.

Tools to establish relationships outranking thresholds equivalence and preferences and the threshold of the veto. Threshold equivalence expressing the maximum difference in the evaluation of the two options, which assumes that the variations with respect to the criterion are equivalent. Threshold preferences expresses the minimum difference in the assessment of the two options, for which it is recognized that one variant is more strongly preferred than the other. Veto threshold defines the conditions, which are a consequence of the existence of clear indications enabling recognition postulated relationship outranking one option over the other.

- The methods PROMETHEE (Preference Ranking Organization Method for Enrichment Evaluations). The aim of the PROMETHEE method is to determine the preference function as a factor of compatibility. This method is based on a real or pseudo criteria. They allow you to determine the ranking of decision variants, partial rankings, rankings and overall rankings spacing variants. Using the method PROMETHEE IV, it is possible to analyze the sensitivity of the data. The method PROMETHEE V addresses the methods of linear programming with the restrictions imposed on the decision variables, the method PROMETHEE VI, the own point of view, the decision maker on multi-criteria decision problem. Decision support group allows the method PROMETHEE GDDS.

The third group are the methods in which determines the rankings of potential alternatives to the different criteria. These methods are based on the aggregation of ratings to the form of the utility function. Methods based on aggregation of ratings into a utility function include:

- The Theory of Multi-Attribute Utilities (MAUT),
- The analysis of hierarchical process (AHP Analytic Hierarchy Process),
- The method of Analytic Hierarchy Process (AHP) was developed by Thomas L. Saaty of the University of Pittsburgh in the 70s aim of AHP method is to determine the vector Global Preferences (mutual validity of the criteria, or local (decision variants to the different criteria) by comparing pairs of criteria and to compare pairs variants of decision-making in the light of the adopted criteria for their evaluation. the comparisons is used relative pair of ratings (defined by Saaty). in this method, there is no need to immediately assign weights to the identified criteria and alternative decision-making, and operates in the relative assessments determined by comparing pairs, which in turn allows to determine the weight. the calculation procedure using AHP involves the creation of hierarchical model with respect

to the consideration of the decision problem, the construction of matrix comparisons to determine the preferences of global and local, and the appointment of the assessment synthetic for each variant of the decision-making and, consequently, to create a ranking of the options under consideration (Adamus, Gręda, 2005),

- The DEMATEL Method (Decision Making Trial land Evaluation Laboratory),
- The method of similarity to ideal solution (TOPSIS – Technique Order of Preference by Similarity to Ideal Solutions); TOPSIS method involves sorting options in terms of their similarity to the most desirable embodiment. It allows you to take into account the different types of data, so it can take three forms: classic (input data are real numbers), the interval (input are numbers and fuzzy (figures are linguistic variables, which correspond to triangular fuzzy numbers) (Kobryń, 2014),
- The method of proximity to the ideal solution (VIKOR – Visekriterjumsko Kompromisno Rangiranje) VIKOR method allows to determine the ranking compromise the options under consideration, the optimal compromise solution and assess the stability of a compromise solution determined on the basis of the original preset scales. It is based on the ratio multicriteria ranked understood as expressed by using the appropriate metrics proximity of a particular solution to the ideal solution (Roy, 1990).

For other methods of multi-criteria decision support include:

- The indexing methods,
- Methods of additive – additive methods include the method of weighted sum of SAW (Simple Additive Weighting Method),
- methods of scoring,
- The methods of mathematical programming,
- The artificial neural networks (ANN),
- The method of multiple regression,
- The SMARTER method,
- The UTA method,
- the verbal methods and other (Trzaskalik, 2014).

In the literature, the problems concerning the choice of the optimal location of the investment is the subject of many scientific and research work.

The aim of the research Gomes and Rangel (2009), is concentration to assess the quantitative and qualitative criteria influencing the choice of location of real estate investment by using the multi-criteria decision method TODIM (Żak, 2005).

Research V. Malenie, A. Kaklauskas, E. K. Zavadskas (2002) include an analysis of the major quantitative and qualitative criteria influencing the choice of the optimal location of the construction project.

Research T. Kauko (2002) include an analysis of the major quantitative and qualitative criteria influencing the choice of the optimal investment location with the use of mathematical methods of mathematical programming.

In a study conducted by C. Dominiak (2013) using multi-decision methodology (*Analytical Hierarchy Process* – AHP) determines the validity of the factors influencing the choice of location of residential property. The aim of the study was to present proposals for multi-criteria valuation method using Analytic Hierarchy Process (AHP). This technique makes it possible to take into account in the valuation process both traits measurable and immeasurable aspects of the property.

The aim of the surveys conducted by K. Tomaszewska (2010) in the district of Konin, was to choose the most attractive location to live. The object of the study were undeveloped land properties intended for housing development. Using the method of AHP was made the analysis of the main criteria of the factors taken into account for the purchase of land for residential single family.

Research by R. Bucoń (2014) show that the preferences of people looking for housing are very diverse, so the key is to know the factors that are taken into consideration when buying an apartment. Since the extent to which the apartments will be offered to meet customer requirements will depend on the level of their sales, which translates into the amount of income earned from their sale. Knowing the preferences of buyers of apartments requires detailed research among potential buyers, which aims to identify the factors taken into consideration when choosing an apartment and to determine their impact on the decision you make. The article presents a method that is supposed to assist the developer in making decisions on how to develop the concept of the building relating to the criteria of localization of design and materials, its location and attractive property for sale. The most important criteria for location-residential building are: infrastructure, distance from the center, existing buildings, image area and traffic noise.

Research conducted by M. Siejka (2015) aimed at supporting decision-making process for the optimal location of land for public investments using the method of AHP. They concerned determine the optimal location of investment in urban areas. The most important factors (criteria) that affect the optimal choice of land for development are legal and economic factors, and environmental and social.

Research conducted by A. Dziadosz (2015) have to apply the method of AHP to make rational decisions on the construction market, selection of construction projects, which will allow for a multi-faceted analysis specified by the investor alternatives, leading to the selection of the best solution because of the accepted criteria. The main criteria taken into account for the location of residential investment to economic and environmental criteria.

Research on the use of multi-criteria methodology to evaluate the specific decision variants were carried out by prof. I. Rynkowska. Prof. Rynkowska, to evaluate the options under consideration decision-making, distinguishes three criteria that have the greatest influence on the decision on the optimal location of housing development (technical, formal legal and functional) (Michnik, 2013).

Table 1. Criteria for evaluation of the options under consideration location of settlements

Type of criterium	Identification of criterium	Name of criterium	Evaluation Unit	Character of criterium
Technical	K1	Size of land	Ha	stimulant
	K2	Slope	%	destimulant
	K3	The maximum building area	%	stimulant
	K4	Existing utilities Pieces.	Number of media	stimulant
Formal- law	K5	Detail of the local plan	Pst. (1- 10)	destimulant
	K6	Fragmentation division into plots Pieces	Number of plots	destimulant
Utilities	K7	Accessibility Pieces	Number of lines of communication	stimulant

	K8	The average travel time to the center	Min.	destimulant
	K9	Distance from recreational areas	m	destimulant
	K10	Distance education facilities	m	destimulant
	K11	Distance from healthcare facilities	m	destimulant
	K12	Distance from objects harmful to humans	m	stymulanta

Source: (Rynkowska, 2002).

Table 2. Evaluation of the options under consideration location of settlements

Criterium	Evaluation Unit	Wariants			
		W1	W2	W3	W4
K1	ha	4.51	4.33	6.33	6.65
K2	%	3	1	0.5	2
K3	%	35	20	30	65
K4	No.	5	7	4	3
K5	Pst.	8	4	7	3
K6	No.	9	1	25	18
K7	No.	4	5	2	1
K8	Min.	22	15	32	38
K9	m	35	0	390	0
K10	m	424	674	974	1931
K11	m	258	161	552	1345
K12	m	475	314	58	1152

Source: (Rynkowska, 2002).

Multi-criteria analysis, which aimed to select the optimal location of the housing estate were carried out by methods MAUT, AH P, PROMETHEE, ELECTRE and TOPSIS. The starting point to determine the weights accounted for the following matrix of pair wise comparisons:

Table 3. Determination of weights of decision variants

Criterium	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	K11	K12
K1	1	1/2	1/3	1/7	1/5	1/6	1/9	1/8	1/4	1/4	1/4	1/4
K2	2	1	1/2	1/6	1/4	1/5	1/8	1/7	1/3	1/3	1/3	1/3
K3	3	2	1	1/5	1/3	1/4	1/7	1/6	1/2	1/2	1/2	1/2
K4	7	6	5	1	3	2	1/3	1/2	4	4	4	4
K5	7	4	3	1/3	1	1/2	1/5	1/4	2	2	2	2
K6	6	5	4	1/2	2	1	1/4	1/3	3	3	3	3
K7	9	8	7	3	5	4	1	2	6	6	6	6

K8	8	7	6	2	4	3	1/2	1	5	5	5	5
K9	4	3	2	1/4	1/2	1/3	1/6	1/5	1	1	1	1
K10	4	3	2	1/4	1/2	1/3	1/6	1/5	1	1	1	1
K11	4	3	2	1/4	1/2	1/3	1/6	1/5	1	1	1	1
K12	4	3	2	1/4	1/2	1/3	1/6	1/5	1	1	1	1

Source: (Rynkowska, 2002).

Table 4. Weighting of the criteria defined by AHP

Criterium	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	K11	K12
Weights	0.014	0.019	0.027	0.141	0.069	0.099	0.265	0.196	0.042	0.042	0.042	0.042

Source: (Rynkowska, 2002).

Table 5. Key assumptions used in the analysis method PROMETHEE

Criterium	Evaluation Unit	Character of criterium	Type of generalized criterion (PROMETHEE)	Threshold equivalence	Threshold preferences	Threshold veto (ELECTRE)
K1	ha	stimulant	pseudocriterium	0.15	2	4
K2	%	destimulant	pseudocriterium	0.5	2	10
K3	%	stimulant	pseudocriterium	5	15	40
K4	No.	stimulant	Preference criterion linear	–	2	5
K5	Pst.	destimulant	pseudocriterium	1	4	8
K6	No.	destimulant	pseudocriterium	4	8	20
K7	No.	stimulant	Preference criterion linear	–	2	5
K8	Min.	destimulant	pseudocriterium	5	10	25
K9	m	destimulant	pseudocriterium	25	200	360
K10	m	destimulant	pseudocriterium	250	350	1000
K11	m	destimulant	pseudocriterium	250	350	1000
K12	m	stymulanta	pseudocriterium	200	350	700

Source: (Rynkowska, 2002).

Table 6. Synthetic indicators of options location of settlements

Wariant	Methods			
	MAUT	AHP	PROMETHEE	TOPSIS
W1	0.6173	0.2541	0.2840	0.6802
W2	0.9015	0.4623	0.6821	0.8660
W3	0.2611	0.1021	-0.4940	0.2507
W4	0.2318	0.1527	-0.4722	0.2566

Source: (Rynkowska, 2002).

Table 7. Final ranking site selection settlements

Method	Final Ranking
MAUT	$W_2 > W_1 > W_3 > W_4$
AHP	$W_2 > W_1 > W_4 > W_3$
PROMETHEE	$W_2 > W_1 > W_4 > W_3$
TOPSIS	$W_2 > W_1 > W_4 > W_3$

Source: (Rynkowska, 2002).

3. Conclusion

The theory of multi-criteria decision-making (MCDA) is a field that aims to provide decision-maker to resolve the complex problem of decision-making, where several points of view should be taken into account. MCDA is focused on the identification of „compromise solutions", taking into account the criteria and preferences of the decision maker. This group of methods has a huge impact on the decision-making process – on expressing preferences of consumer, by taking into account the different solutions, they can approve of the final ranking of variants.ranking.

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Chapter **27**

Commercialising Academic Research through Spin-Offs [1]

Dominik Kowal

1. Introduction

Saying that a competitive economy cannot be built without innovation sounds like a cliché. Also, the so often repeated statement that innovations are of key importance for economic growth, social well-being and survival of companies seems trite. However, in analyzing changes in the structures of numerous dynamically developing world economies, an increased proportion of innovative companies can be noticed. Unfortunately, Polish companies look very mediocre in this respect. Obviously, it is a complex phenomenon and the present situation is affected by many factors, such as the lack of systemic solutions, virtually no tax incentives, in many cases poor collaboration between businesses and scientific research units or even the Polish mentality.

One of the ways of implementing the latest scientific discoveries into industrial practice, and thus building an innovative economy, is to establish efficiently managed, continually developing small firms. These communities attract an increasing number of young people trying to find their place on the market. In Poland, similarly, the liveliness of start-up communities can be observed: these are people interested in broadly understood business undertakings. Start-ups are today in fashion: it is a way of living, a component of lifestyle ensuring freedom, self-management and self-control – in opposition to working conditions and personal development offered by corporations.

If we restrict ourselves to such an understanding of a start-up, we will fail to achieve the goals we are so eagerly striving for: better innovativeness of our enterprises and the social and economic growth of our country. Steve Blank, a consulting associate professor at Stanford University (2012) and a lecturer on entrepreneurship at numerous American universities, defines a start-up as an experiment, a temporary organisation established in the search for repeatable and scalable business models. Blank clearly associates the notion of a start-up with innovative undertakings based on results of research and developmental work, on knowledge and on advanced technologies

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which, in most cases, are produced by research and development centres. Today, no one can imagine building a competitive economy without focussing on academic community, achievements of researchers and PhD students as a basic potential source of new knowledge. Consequently, the public R&D sector, which is the main provider of scientific results in Poland, faces a challenge associated with the commercialization of its research results and strengthening collaboration with industry. Effective use of the enormous potential of Polish scientists, modern laboratories and infrastructure poses a key challenge to universities and scientific research institutes.

The objective of this publication is not to analyse and assess the factors determining Polish transfer of technology and commercialization of knowledge but rather to present and describe one of the pathways to build innovative economy. The factors determining the creation of technologically innovative start-ups (spin-offs) originating from Polish research units: in particular, from universities, are presented in this paper.

2. Academic Entrepreneurship – basic terms

Although the term *academic entrepreneurship* is not quite new to representatives of the broadly understood research and development sector, including students and scientists, it still raises much controversy. There are many problems with this term, both in the relevant literature and in practical use, which relate to its interpretation and scope. W. M. Grudzewski and I. K. Hejduk (2000) understand academic entrepreneurship as undertaking business activity by people who are involved in science and have an established position in scientific communities. The emergence of the notion of academic entrepreneurship was accompanied by the creation of the notion of spin-off firms. Interpretation of this term – used earlier to describe entities formed as satellite of large corporations, designed mainly to undertake new and often risky technological undertakings – did not then raise any controversies. Some confusion did appear when the entity undertaking new business initiatives was a university or some other scientific institution (Chyba & Grudzewski, 2011). The emergence of spin-off and spin-out firms at universities – firms often established and run by research workers – is the hallmark of academic entrepreneurship. A distinctive feature of a spin-off or spin-out is its founder (a research worker, PhD or MSc student, or a university graduate) who makes use of the university's intellectual property. The principle difference is the relationship of these firms with their mother organisations, e.g., universities.

In the world of business there are large numbers of terms which are not known to the general public: they are interpreted in various ways and sometimes overused. Many inconsistencies can be found in the literature on academic entrepreneurship and innovation management. In an effort to systematize this field of knowledge, the author of this publication suggests that the name spin-off, to which the remainder of this article is in particular devoted, should denote a new firm established by at least one research worker and a special-purpose vehicle – optionally a partner from the relevant industrial sector or a financial partner – in order to commercialize intellectual property created by the university. A spin-off firm usually has personal or capital links with the university, which consequently means close collaboration between both parties; they also have other ties, e.g., organisational, formal and legal, or financial.

Such an interpretation of academic entrepreneurship leads to the perception that it is a new attractive mechanism for commercialization of technologies, innovative solutions and know-how developed at universities or scientific research institutions. Commercialization is popularly

understood as establishing something on the basis of market and commercial principles, developing commerce or being commercially- or profit-oriented (Latusek & Puchalska, 2002). According to D. M. Trzmielak (2013), commercialization means creating added value to ideas, research results, technology or a new product. It also means developing a business model for current of future business organisations whose development is based on new technologies or new products. Commercialization is causing something that has potential value and profit generating ability to be sold, manufactured, made available or used in order to generate profit or create capital (Markiewicz, 2009). In the context of issues of academic entrepreneurship discussed here, an interesting definition is proposed by the authors of the guide-book "R&D Commercialization for Practitioners" (2013): they define commercialization as making available the rights to specific results of R&D work to other entities – mainly entrepreneurs – in order to make profit. At the same time, M. Salomonowicz (2016) remarks that gaining maximum profit should not be the main or sole objective of the involvement of public universities in collaboration with the business environment. Consequently, this collaboration should be regarded a mission, rather than profit-oriented activity.

In practice, R&D results can be commercialized in two ways:
- making intellectual property rights available to third parties by transferring rights to them or granting a licence to use these rights (this is known as direct commercialization),
- creating a new business entity which implements the intellectual property (known as indirect commercialization).

To make indirect commercialization possible, the legislators proposed new solutions for commercialization of knowledge in the amended Law on Higher Education (of 2011 and of 2014). As a result of these changes, each university can establish a one-person company known as a special purpose vehicle, SPV, to transfer results of its research and development work directly to the economy.

A particular task of a commercializing company is to acquire shares in companies or to establish spin-off companies to implement or to prepare the implementation of results of scientific research, development work, or the know-how associated with these results. Commercial activity of spin-off companies produces revenues associated with marketing the innovations manufactured on the basis of intellectual property created by the university.

3. Indirect commercialization

Significant achievement-related experience in indirect commercialization, and consequently in the development of knowledge-based business, was gathered in the United States, United Kingdom or Israel. The economic success of Israel is based in intense innovation and entrepreneurship: this has made Israel a major global incubator of technical innovations. This nation has become a leader in research and development: an example for the leading technological companies in the world. In his article in The New Corporate Garage in the Harvard Business Review, Scott Anthony (2013) points out that corporations are too large and too slow to create and implement innovations which change the rules of the game. Most large companies are afraid that innovations might upset their status quo. In the field of innovation, large companies give ground to start-ups. Innovations are created by properly motivated people focused on market success. Fast, resourceful, creative, well-educated and fully committed enthusiasts become

leaders in innovative business undertakings: these are undertakings requiring high flexibility and acceptance of high risk. It is technological start-ups – often supported by business angels, seed funds or venture capital – that introduce to the market innovative solutions and products or business models. Thus created innovative firms contribute to fundamental changes throughout the industrial sectors. It is no secret that many such companies are created in the academic community, to give such examples as Stanford University, Massachusetts Institute of Technology or Oxford University.

4. University-based Entrepreneurship Ecosystem

Technological development is becoming a key element in building company competence and competitive skills. Polish entrepreneurs are becoming increasingly aware of the fact that competing through low labour costs and low prices does not guarantee increase in their company value, whereas a real competitive advantage depends on investing in research, development and innovation. In this field, their allies may be academic centres, which are considered natural sources of state-of-the-art technologies and knowledge. On the other hand, there is an increasing number of scientists, PhD and MSc students who are aware of their own potential (knowledge, competence, skills) and that is represented in their innovative research. Thus defined determining factors will clearly favour establishing technological firms, including university spin-offs. These firms may be an interesting vehicle for implementing technological innovations in the market, developing added value on the basis of research and development work or scientific know-how.

This process should be favoured by the very dynamically changing entrepreneurial and innovative environment in Poland. One cannot overlook the development of institutions that surround business: innovation centres such as technological parks, technology incubators or technology transfer centres. Also important are the changes that have already been made and those planned by legislators in support of entrepreneurship, including academic entrepreneurship (Law on Higher Education, Law on Financing of Science, and the Law on Innovation). Nor can one overlook the increasing number of investors: both individual ones, as well as capital investors, venture capitalists and private equity providers, whose offers are becoming increasingly intriguing to Polish technological start-ups.

The special-purpose vehicles (companies) mentioned above deserve particular attention in the context of establishing and developing spin-off firms. In 2011, through the relevant provisions in the Law on Higher Education, legislators made a very significant change in the field of transfer and commercialization of scientific research results obtained at universities and research centres. The amended Law allows for a new solution, whereby the domain of the university's activity associated with technology transfer and commercialisation, until then performed by an internal department, can be supported by or even transferred to special-purpose vehicles (companies) established in accordance with the Polish Commercial Code rather than, in the case of public universities, in accordance with the law governing public finance.

The main task of a special-purpose vehicle – a one-person company – is to carry out indirect commercialization. As required by Art. 86a.1, in order to cover the initial capital of the special-purpose vehicle, a university can make a contribution in kind in the form of results of scientific research or development work. Also, the university can entrust the special-purpose company (on the basis of an agreement for paid or free of charge service) with the management of rights

to the results or know-how within indirect commercialisation procedure. A special-purpose company is, on principle, 100 percent owned by the university and is required to transfer the profit it generates for the university's statutory goals.

These changes give much autonomy to universities, which can since that point individually design their transfer systems, as well as knowledge and technology commercialization. The emergence of special-purpose funds in universities was very well received by industrial companies. Collaboration with partners whose activity is based on the same legal foundation gives chances for flexibility and effective operation.

In several Polish universities, the issue of organising technology transfer has been the subject of discussions and activity for several years, often even before the relevant legislation was passed. The Technology Transfer Centre of the Technical University of Łodź, organised in the form of a company, was Poland's first university spin-off special-purpose vehicle, established as early as 2009. The goal of this particular company has been, and still is, to commercialise technologies developed within the Technical University of Łodź and to build collaboration between the worlds of science and business. In the spring of 2010 the Krakow Centre for Innovative Technologies INNOAGH, Sp. z o.o. (limited liability company) was established at the AGH University of Science and Technology. The origins of these and subsequent companies were different and the scopes of their activities depended on the specific character of the entity they originated from and the strategies and models of technology transfer adopted by individual universities.

In many Polish universities efforts were undertaken to introduce a new system of organization and management in line with the concept of a "third generation university". University authorities develop their own models for transfer and commercialization of technology trying to follow the authors of technological successes in the Silicon Valley or Israel. A good example of managing the technology transfer is the model developed by the University of Oxford, where the innovation commercialization process is managed by Isis Innovation Ltd. established as early as 1988: the company is 100 percent owned by the University of Oxford. Isis Innovation Ltd. manages the entire process of commercialization: from gathering information on potential innovations and assessing their commercial potential (procedures known as proof of concept and proof of principle) to capital investments and managing the portfolio of intellectual property rights. The special-purpose vehicle at Oxford University is currently a global company providing consultancy services to clients around the world. Their mission is to be the leading international technology transfer organisation, to transfer technology and expertise from the University of Oxford, to deliver value to all its clients, and to maximise social and economic benefits in a commercial manner. Polish universities also seek inspiration in the activity of other British universities, such as the University of Cambridge or Imperial College London. Great experience in technology transfer also characterises technical universities such as the Swiss ETH Zurich or the Dutch TU Delft.

As mentioned earlier, models of technology transfer at Polish universities are subject to constant evolution. Special-purpose companies, currently numbering almost 40, are seeking their business models in order to strengthen their technology transfer and science-business collaboration. The special-purpose company established at the AGH University of Science and Technology focuses its operations on entrepreneurship promotion. INNOAGH provides support and consultancy to its scientific workers interested in establishing innovation spin-offs: start-ups based on intellectual property created within the university. INNOAGH invests in such firms, mainly by contributing rights to patents and know-how, but also by contributing money. The goal

of these companies is to develop and improve technologies and/or products and conduct further research. When the technology under development is successfully verified by the market, it will be sold on to large global companies. In the Krakow-based AGH University of Science and Technology, it is assumed that full synergy will occur between the two entities carrying commercialisation along two different ways: these are the special-purpose vehicle INNOAGH and the Technology Transfer Centre have organised as one of the university's units. A similar model of company operation is functioning at the Technical University of Gdańsk. The special-purpose vehicle (Excento sp. z o.o.) and the Technology Transfer Centre jointly create a comprehensive offer for scientists and industry and jointly develop ideas of academic entrepreneurship. Many special-purpose companies, especially those whose universities do not create much intellectual property in the form of inventions, patents, or computer software, an example of which can be the University of Economics in Poznań, focus on scientific and consultancy projects. The University's Special Purpose Vehicle Sp. z o. o. is functioning as a centre of consulting services for entrepreneurs. Under this model, the company gains projects from business (in response to questions asked by entrepreneurs and also as the party initiating the contact), creates teams and then co-ordinates and deals with financial assessment of the offered services, such as consultancy, research and the implementation of projects. The key role in their implementation is played by the know-how of the university's scientific workers and its students. The business model of the Innovation Centre at the Szczecin Marine Academy is also founded on selling research services to other companies operating on the market, while using the infrastructure (laboratories, research centres) of its parent university. Being in close relationship with their universities-owners, they have good knowledge of the potential of the scientific and research community, the packages of services offered and laboratories. This model of collaboration which employs a special-purpose vehicle suits entrepreneurs very well. They value collaboration with a partner who similarly to them operates on the basis of a commercial model, has considerable flexibility and are ready to undertake risks.

In search of new models and the improvement of existing models of special-purpose company operation, one must not forget that universities are not factories producing innovations: universities pursue research and development work that have commercial potential. One should be aware that most technologies developed by universities reach the readiness levels of 1 to 3 according to the TRL method (Technology Readiness Level). This is too low a level to attract interest or gain investment from business. Consequently, one cannot overestimate the role of the university's ecosystem for technology transfer, such as academic technology transfer centres or special-purpose companies. This ecosystem needs brokers and experts who, on the one hand, will search through the intellectual property owned by the university and offer it to business and, on the other hand, will maintain a permanent liaison with industry and recognize market demand for services or technologies that can be developed within universities.

One should be aware that commercialization of scientific results is a lengthy process, often spread over several years, and should be managed by specialists. Hence the key element of university ecosystems for technology transfer and commercialization are people: a team of duly motivated professionals, ready to undertake challenges; people who can learn from and patiently pursue milestones of earlier developed commercialization strategies.

5. Conclusion

The presented discussion on transfer and commercialization of research work conducted in Polish universities is clearly not complete and does not explain all the issues related to this field. This was not the author's intention. The purpose was only to point out that not only business circles, but also academic communities are looking for ways to generate and transfer state-of the art knowledge and technology to practical use in the economy. Implementation of results obtained in the process of research and development work conducted at universities poses considerable challenges not only to legislators, institutions managing outside funds, non-governmental organisations (e.g., the Ministry of Science and Higher Education, National Centre of Research and Development, Foundation for Polish Science, Industrial Development Agency), but also to the managerial staff of Polish universities and research centres. A key role will be played by entities that constitute university ecosystem for technology transfer: entities which are continually developing and professionalizing their service. When bringing home technology transfer models verified in the US or UK, we are willing to expect immediate results. But we should not forget that the models operating at Stanford University, MIT or the University of Oxford were developed over many years and did not produce results immediately. Clearly, our technology transfer ecosystems are at an early stage of development and some patience is required. Also, their development requires systemic solutions, clear legal regulations and well defined sources of financing.

Special-purpose companies, only recently present in the university environment, will undoubtedly play a key role in the process of implementing scientific ideas and research results to industry. As can be seen around the world, it is technological start-ups –dynamic undertakings based on knowledge, advanced technologies and modern organisational systems – that bring innovative solutions to the market, especially those that can produce a breakthrough. These firms contribute to fundamental changes in all industrial sectors, and also to the formation of entirely new sectors of economy. One should hope that the number of new spin-offs established at Polish universities will increase: spin-offs meant as companies that develop and improve the intellectual property created by universities, continue research work and, in the future, possibly sold on to large global companies.

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PART IV

REORIENTATION OF THE CONCEPTS AND MODELS OF ENTERPRISE MANAGEMENT

Chapter 28

Models of Social Enterprise with Embedded Economic Activities

Jan Duraj

1. Introduction

The article relates to the problems of integrating economic activity with social activities of social enterprises. These companies are formed and work for the implementation of many social missions, creating and using the results of the business. Thus, social enterprise is an entity which pursues economic and social activity in an integrated way. The realization of the social mission requires high discipline economization of economic activities and high efficiency of the implementation of social programs. What is more, the social enterprise has to coordinate and integrate the both sides of this activities for realizing social mission. So combining both social activity and business tends to achieve the positive effect of synergy to beneficiaries. This effect depends also on the nature and the strength of the link between economic and social results of activities of the whole enterprise.

The economic activity of social enterprises is carried out in various legal and organizational forms. It is performed in different ways and with varying intensity because it fits into the development process of these units and an expectation of the environment. Their activity depends mainly on the reduction of internal and external barriers of implementation of the financial results and the ability to develop successful relations between social and economic objectives of their actions.

The main goal of the article is to present problems of embedding economic activities in social enterprises. This question refers directly to minimize the risk of social mission too. This purpose of the article belongs to a broad problem of risk management of social enterprises. These companies have to achieve not only the economic and social objectives but also they do it by minimization of the risk of social mission. This means that social company should pursue two variety goals simultaneously. One of these objectives is an achievement of financial profit from the economic activities. The second goal is to meet the aims of the social mission.

The paper is divided into three parts. In the first one, there are shown some views on the notion and form of social enterprises. The second part refers to the problems of hybridity social enterprises and thereby to embedding an economic activity in realizations of social mission of these entities.

The third part of the paper contains a recommendation of reflection on upon the possibility of using the portfolio theory to risk management of mission of the social enterprise. Presented model does not aspire to become the new concept and the tool of management of social enterprise. It is the result of the transfer of the concept of creating a portfolio investments of H. Markowitz into a social enterprise management. The mere fact of transmission investment portfolio theory for social enterprises soil management does not seem to be shocking. Social enterprises, as well as a business enterprise, also take and make the investment to increase their production capacity, service and charity. These investments require proper internal and external finance sources and using their resources in an efficient and effective way.

2. Definitions and forms of social enterprise

The concept of social enterprise has changed over time along with economic and social development, the emergence of new concepts and experiences management of organizations. One of unchanging feature of social enterprise is social nature of its mission and private character of the ownership. One can say the social enterprise is a private company engaged in the achievement of the social goals by connection of the traditional non-profit organizations with the business activities. Traditional resources of social enterprises are non-profit donations and volunteer work. By definition, non-profit enterprise is an organization that does not divide net profits among the people who control them or invest but business organization may do it in contrary. For-profit social enterprises have to had a contractual relationship with another non-profit company. In this situation social enterprise is one entity and it is called non-profit social enterprise.

Each company, and thus a social enterprise, is a special purpose entity conducting a specific business in a sustainable way on their own account, risk and responsibility. The main purpose of the company's business activities is diversification and not limitation results to one goal only. Companies generally pursue many different objectives, which form the appropriate bundle of long-term objectives for the fulfillment of their mission. The mission of the business enterprise is the realization of economic benefits. In the case of a social enterprise creating the social benefits with utilization the economic results is the essence and the legitimacy of its action. However, an indispensable condition for the achievements of these benefits by a social enterprise is:

a) obtaining external funds for social activities, and
b) the creation and destiny of their own financial sources from the business for social purposes.

Social enterprises can be classified according to the directions of the orientation of their mission, the level of integration between social programs, non-profit and for-profit businesses and their intended target markets (Alter, 2006). There are three stages in the process of integrating the businesses profit oriented and not profit oriented units. They correspond to the philanthropic, transactional and integrative collaboration. At the outer level cooperation has one direction – between the sponsor, donor and receiving a grant.

These differences indicate the location of a certain selected different criteria of analysis the nature of social enterprises. These criteria include: ultimate goals (for-profit vs. non-profit), societal sector (market vs. civil society vs. State), type of activities integration (external vs. integrated vs. embedded), the type of created goods (private vs. public), agents of value creation (producers vs. consumers) and ownership (private vs. cooperative vs. public) (Grassl, 2012, p. 40). M. Pirson

(2010, p. 3) indicates that (…) *social enterprises are seeking to solve societal problems in order to deliver sustainable social value*.

The development of social enterprises expresses the growth of participation in the creation of social values with the use of their increasingly diverse legal and organizational forms connecting economic activities with the implemented social mission.

Legal form of the company is the tool of management that not only legitimizes setting but also shapes the internal and external conditions for its operation and development. Generally speaking, social enterprises are divided into two types, namely: social enterprise called non-profit organizations and businesses for-profit units. This kind of dichotomy between social enterprises can not only clearly reflect the role and relative importance of these business units. Running a business takes place in both of these types of social enterprises. Therefore they have in common not only an organized grouping of business entrepreneurship and social entrepreneurship. The second important feature of it is the need to conduct business in an efficient and cost-effective way. Feature which connects non-profit social enterprises and for-profit companies is using of established financial surpluses by non-profit company.

This recognition of social enterprises and non-profit organizations for-profit does not exhaust the need for attention that these units are part of the third sector, which consists of a generally non-governmental organizations not linked institutionally with the public and acting *pro bono* by the using of the effects of economic activity. The revenue generated from the business are allocated for the implementation of social objectives for which they were created.

Social objectives have a priority character and at the same legitimize economic activities of social enterprises[1]. Thus, economic activity is not only a process that supports social objectives of social enterprises, but can also be regarded as the complementary nature. Therefore produced economic value and social value social enterprises make up the portfolio value of the company.

3. Embeddedness of economic activity in the mission of social enterprises

Accepting a view about focusing the social enterprise's activity on achievement of social and economic values, and, underlying in this a dual character of its operation and development goals it is reasonable to indicate a leading nature of its social goals and subordination of economic goals to them. It is an expression of the specific nature of the roots of economic activity in the social activities of these units. This kind of embedding has no place in companies seeking to maximize profits, even if they implemented the principles of CSR.

There are many structural and functional attributes that make hybrid organizations effective in addressing social problems. Despite the numerous terms of hybrid organizations most of them are concentrating on linking for-profit and altruistic missions (see: Dees, 1998; Alter, 2006). This combining of activities for profit with altruistic and social mission takes place in a variety

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[1] For H. Engelke the social enterprise is: (…) businesses with social objectivism whereby profits are reinvested in the business or other initiatives to further support social purposes. These authors underline also that: *Social enterprises focus primarily on generating social value instead of maximizing profit for shareholders and other stakeholder* (Engelke et al., 2014, p. 1).

of organizational forms, it is too often equated with the implementation of CSR principles. However, the identification of social enterprise CSR is not warranted in view of the fact that each enterprise business and each organization can implement CSR programs.

The problem embedded economic activity in the activity of the social enterprise refers to a hybrid of social organizations that have two forms, namely: non-profit company and for-profit company.

Generally speaking, there are two following types of social enterprises, and thereby hybrid company, which aims at achieving social goals (Mair & Noboa, 2003):

a) independent social enterprises which run a special social goals and
b) subsidiaries of non-profit organizations which tend to achieve of financial self-sustainability.

Integration business of social activity within business company is associated with the strengthening of the internal conditions of the social mission by conducting business. This combination of business with a social mission not exclude traditional forms of external empower meant of company's activities by subsidizing it. The subsidy may be delivered by donors, government or any other class of patrons to the company.

An essential element of hybridity analysis of social enterprises is understanding the concept of social mission as the dominant approach of cognitive and practical activities of these entities. A broad understanding of the term hybridity indicates on the combination of elements, attributes belonging to different genetically and structurally distinct and opposing objects, entities or processes. So hybridization means the process and results of merging the different subjects, objects and processes while maintaining the specific properties of these elements. Acceptance of such an understanding of the essence of hybridity reveals the role and importance of the mutual diffusion and the complementarity of business and social activities of a social enterprise[2]. These organizations take a complementary character of the dominant and leading a social mission (Duraj, 2011). This leading role of the social mission also includes all activities related to hybrid social enterprise with charitable activities and use of many different forms of the assistance from the State.

It seems that the main feature of the social enterprise is its involvment in transactions described by O. Eldar (2014) as *patron–beneficiaries*[3]. Theirs beneficiaries are either purchasers of the company's products or suppliers of input to the enterprise (including volunteers, labor etc.). Their coexistence and collaboration creates the conditions to improve the quality of social life and economic development.

In Eldar's opinion: *Though hybrid organizations are commonly defined as organizations that combine profit and altruistic or social mission, this definition is misleading* (Eldar, 2014, p. 7). Properly defined a hybrid organization is – according to his view – a commercial enterprise that channels a subsidy to quite pure-defined group of beneficiaries. The subsidy to the firm may be provided by donors, government or any other class of patrons including also employees who agree to reduce their wages in this case. Subsidy can also takes form premium over market prices paid by consumers or discounts to market returns on investment.

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[2]   One can indicates that hybrid forms can be seen as (...) structural forms which successfully mix for-profit and not-for-profit approaches and adapt to existing legal forms, as the most suitable form of social enterprise in the future (Nicholls, 2006; Borzaga & Fazzi, 2010, pp. 1-19; Sud, VanSandt & Baugous, 2009, pp. 201-216).

[3]   It is necessity tell the term "patron" O. Eldar refers to these units that have a transactional relationship with the social enterprise (investors, workers, suppliers, etc.) (Eldar, 2014).

All the social enterprises are engaged in development of such missions as: increasing access to capital, improving productivity and employment opportunities, and enhancing consumer welfare. From this point of view one can distinguish the following non-profits units, that can take the form of hybridity:

a) microfinance institutions which provide loans to poor customers who have limited access to capital,
b) credit development financial institutions which provide financial product to low-income customers,
c) social investment firms which make relative small investments with near- competitive return or below – market returns,
d) low – cost sellers that sell cheap product and services,
e) fair trade social enterprises that buy product from small producers usually in developing country,
f) work integration social enterprises that employ disadvantages of employees.

Concentrating the considerations on two selected criteria analysis hybridity of social enterprises, namely: the ultimate purposes and type of integration of business and social activities, one can indicate that this type of connection allows to demonstrate the essence of hybridity of social enterprises (Grassl, 2012; Alter, 2006).

Grassl has identified three forms of integration business activities and social activities of social enterprises. These include: external, integrated and embedded (see Fig. 1). These types of business connections with social activity more accurately represents the mission of the organizational forms of social enterprises. In all these organizational solutions combining business with social activity we are dealing with the creation of conditions conducive to achieving positive effects of synergies. This possibility is relatively the greatest in the companies that represent the kind of integrating business with social activities, which are defined as embedded.

Figure 1. Forms of integration business activities and social programs
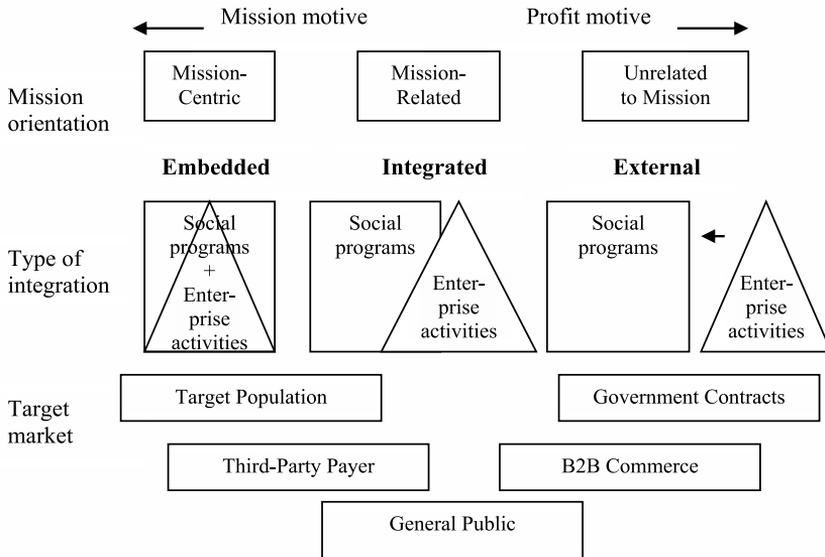
Source: (Grasll, 2012, p. 46).

In both cases the achievement of the social mission is possible by simultaneously reaching economic results capable of being financially sustainable. When economic and social activity are intermixed in the mission of the social enterprises it creates the costs and conditions of accomplishment economic tasks. This kind of combination of economic and social activities may be seen as social embeddedness of the economy in social programs of social enterprises. Ipso facto, *social embeddedness of economic activity* means the extent and power to which economic actions are connected and depends on actions or institutions that are non-economic in content, goals or processes (Granovetter, 2005, p. 35).

The objectives of these organizations concern social exclusion, social and community care services and catalytic alliances concerning of the long -term goals. To these aims belong also an increase in the level of public awareness about a particular social problems by running publicity campaigns.

4. Portfolio approach to the risk of mission of social enterprises

Presented the portfolio concept of integrating economic activity with the activities of social enterprises may be treated as one way of explanation and prediction of activity of this type of organizational units.

There are not the views and empirical research relating to risk management social mission in known to me literature devoted to the management of the activities of social enterprises. It seems that the risk of social mission can be considered as a key issue of strategic management social enterprise. This assumption is not only due to the fact that risk as such is present in all areas of human and social action. Significant weight risk management mission of the company is also due to the necessity of such constructions economic and social activities in a social enterprise that would shape and get positive synergies economic and social processes by these units.

The risk of mission social enterprise is a complex issue and strongly rooted in the realities of these units. This risk management social mission of social enterprise refers to decision-making and implementation of measures aimed at achieving an acceptable level of risk. The risk of social mission is seen as a quantifiable uncertainty of its realization. The uncertainty of realization of social mission results, among others the scarcity of external and internal sources of financing social activities, insufficient effectiveness and efficiency of economic and social activities and the existence of non-financial barriers to its implementation.

Portfolio approach to the risk of social enterprise seems to be a good prospect of description and analysis of the complementary and also the asymmetric nature of the relationship between economic and social goals. Recognition of the relationship between economic activity and social activity for asymmetric social enterprise determined by the need to expose the diversity of the analyzed situations and areas of the enterprise. The presence of asymmetry in the activity of the social enterprise can lead to disruption of processes supporting social activities and to unreliability and ineffectiveness of fulfilling their social mission. Such a situation can mean the emergence of the dangers of carrying events have negative effects on company's social mission. A certain degree of probability of a particular kind of negative events and their size can be considered as essential variables defining the risk of social mission social enterprise. Reducing the degree of implementation of the social mission of the social enterprise can be understood as a reduction in the combined risk of business and social activities of the company. Thus, in the approach

to portfolio management social enterprise, we are able to optimally integrate both types of actions the company due to the minimization of the risk of social mission.

Portfolio approach allows to distinguish three main variables influencing the risk of the portfolio of activities. These three variables include:

a) the value and structure undertaken and implemented economic and social activities,
b) the effectiveness of the economic and social activities and
c) the nature and strength of the interdependence of economic effects and social effects.

In generalized terms, the risk of social mission of the company (∂^2_{sm}) can be expressed by the following formula (Copeland & Weston, 1983, p. 154):

$$\delta^2{}_{sm} = W_b^2 \delta_b^2 + W_s^2 \delta_s^2 + 2W_b \cdot W_s \cdot \delta_b \cdot \delta_s \cdot p_{bs} \tag{1}$$

where:
$\delta^2{}_{sm}$ – variance of the returns on a portfolio composed of two activities (business and social),
W_b – proportion of the value of the portfolio *bs* invested in business activity,
W_s – proportion of the value of the portfolio *bs* invested in social activity,
δ_b – standard deviation of the returns on the business activity,
δ_s – standard deviation of the returns on the social activity,
p_{bs} – correlation coefficient for the comovement between the returns on business and social activity.

This is very well known the modified formula to optimize the portfolio risk and return. It has a broad applicable in the assessment of financial risk of company. This formula allows to see the most important problems of effective implementation of the company's mission. At this point one can cite and refer to the essential discussion of embeddedness of business in social activities important statement. This statement may sound as follows: *portfolio of less perfectly correlated business and social activities always offer better risk – return opportunities than the individual component activities on their own*. So, the less correlation between results business and social activities, means the greater gain in efficiency of the social enterprise.

The value and structure undertaken and implemented economic and social activities in a significant way are determined by the size and nature of the market and its actions which were involved in enterprises beneficiaries, costs incurred on the business and social activities and achieved benefits from both of these spheres of activity. The second factor, called standard deviation of the returns on the business and social activity, concerns the problems of choosing the criterions and measures most congruent to manage the mission of social enterprise. This is no ordinary problem due to different nature and quantity of social goals and business objectives, difficulties to carry out multi-criteria assessment and selection and portfolio diversification complex. Enough to say that as the number of assets (in this case kind of activity of social enterprise), in portfolio increases the portfolio variances decreases and approaches the average covariance. Two-assets portfolio has two variance and two covariance terms, but a three-asset portfolio has three variance and six covariance terms.

Another reflection should be formulated at the correlation coefficient between two random variables. The correlation, p_{bs} may be zero and then we have two independent returns. This situation means that turns on business and social activity are not correlated and *ipso facto* it means that economic activity is not embedded in realization of social goals or enterprise. Opposite situation occurs when the returns are perfectly correlated. In this case one can tell about hybridity social enterprise and embedding economic activity in the realization social mission of enterprise.

It seems that a portfolio approach in a clearer state the nature of activities of social enterprises and unequivocally emphasizes that these organizations are a hybrid of the two-component structure of the main objectives of the action, with the dominant social mission. This approach, however, does not indicate the priority of social activities with respect to business activity but also not exclusion of the occurrence of priority business activities in the social enterprise. Business activities are always inclusion in the running of social enterprise. These companies combine business activity because of social activity, endeavor to strengthen social institutions, which are understood in the category of common social expectations.

This generalized risk optimization model of social enterprise's mission is certain methodological proposal is aimed at underlining the role and meaning of the for-profit social enterprises. Social enterprises have to run business activities and cooperate with its beneficiaries and also allocates a subsidy to them.

There are mainly three following mechanism by which the non-profit units monitor and affect usually on the for-profit entity: certification, contractual and control mechanisms (broader see: Eldar, 2014, p. 14 and next).

Certification mechanisms are associated with formal statement relating to products and or the entire company, that they have met certain standards of social enterprise. Contractual mechanisms reflect the transactions social enterprises with disadvantaged individuals and destination and allocation subsidy to them also. Control mechanisms refer to the controlling of the for-profit entity by a non-profit that ensures that the for-profit unit make the transactions with the target beneficiaries and they have received favorable terms and results from it.

5. Conclusion

Presented considerations demonstrated the complex and multidimensional nature of social enterprises. They are merging the economic and social activity in various forms of integration. Hybridity of social enterprises has many dimensions and is manifested inter alia in the complementary nature of the relationship between the structure of the activities, effectiveness and kind of relations between the effects of business and social activities. The proposed portfolio approach can be considered as instrument and the method of better explanation and understanding of the ability to manage business processes embedded in social enterprises from the perspective of minimizing the risk of social enterprise's mission.

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Norms in Management as Social Constructs: Success, Efficiency and Effectiveness[1]

Czesław Mesjasz

1. Introduction

One of the fundamental problems of management theory is to identify the formation of norms. In a neopositivistic approach, the creation of norms in management is predominantly associated with quantitative concepts such as optimality and economic rationality. Praxeology, in turn, embodies universal qualitative normative norms applicable in management. It must be also added that moderate constructivism can be treated as most relevant foundation of contemporary management theory. Application of constructivism in developing descriptive approaches is a difficult research problem. The use of constructivism in creation and interpretation of norms in management is as even more challenging.

The aim of the paper is to provide a preliminary analysis of the creation of norms in management. Success, efficiency and effectiveness have been selected as examples. A literature survey shows initial results of analysis of conditions and ways of creation of these normative terms.

2. Normative character of management science

2.1. Normative approach in social sciences

Every scientific theory can fulfill the following functions: description, identification of causal relationships, prediction, normative (prescriptive) approach and regulation of action (change). A specific problem occurs in management science, where the possibility of prediction is limited, but the science by definition is treated as normative.

Attempts to provide in-depth analysis of the divide into descriptive and normative science were already made in the early twentieth century (Sabine, 1912). The term normative can be put

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in doubt, because it raises the question of the definition of norms and the source of these norms – religious, social, ethical, aesthetic, natural (in accordance with the laws of nature), or pragmatic. In general, an area of applied science can be treated as normative if it formulates goals (preferred, desirable) and indicates the ways and means to achieve them. The concept of norm is very broad and could apply to social phenomena – social norm, philosophy – moral norm, close in their meaning to the value, technology – standards, control – expected (required) value of a parameter. The following groups of norms of individual and collective behavior are distinguished as a basis for normative approach in management: economic, praxeological, social, legal, financial, moral (ethical) and technical. From the point of view of normative approach, two interpretations of economic sciences can be distinguished. First, positive economics, which includes description, identification of causal relationships and prediction, and second, normative economics, in which attempts are made to determine what should be done (Friedman, 1966).

Social norms, constituting also the basis of management theory, can be divided into three categories: fixed behaviors, desired behaviors and patterns of behavior. Social norms stem from knowledge of the world and from the expectations of other members of society. In general sense they embody: formal norms, informal norms, habits and customs.

Lapinski and Rimal (2005) distinguish the following types of norms:
- collective and perceived,
- injunctive and descriptive,
- prescriptive and proscriptive.

Collective norms operate at the level of the social system, which could be a social network or the entire society. They represent a collective social entity's code of conduct. Collective norms emerge through interaction among members of a social group or community (Bettenhausen & Murnighan, 1985), and the manner in which norms emerge is dependent on, among other things, how they are transmitted and socially construed. Perceived norms exist at the individual, psychological level. They represent each individual's interpretation of the prevailing collective norm (Lapinski & Rimal, 2005, p. 129). It must be added that transition from the level of perceived norms to the level of collective norms may not be treated as a simple additive process. Collective norms emerge in the process of interaction and communication therefore this emergence constitutes one of most challenging issues of studies of complexity of social systems.

The distinction between injunctive and descriptive norms results from a simple observation that the norms can be valid solely in the situation when their violation is followed by social sanctions. Descriptive norms provide information about what is done, and injunctive norms indicate what ought to be done (Kallgren, Reno & Cialdini, 2000). Thus, the primary difference between the two is that descriptive norms typically do not involve social sanctions for noncompliance with the norm. It is obvious that that both descriptive and injunctive norms can be considered at the collective or individual level. The last typology of collective norms proposed by Lapinski and Rimal includes prescriptive and proscriptive norms (2005). The prescriptive norms are not formal and determine what should be done while the proscriptive norms determine which behaviors are prohibited.

The evolution of normative approach in management science shows that concepts such as economic rationality, rational actor, optimal decisions, etc. are only approximations of the ideal types. Therefore, in the context of constructivist trend in the social sciences, including economics and management, the main methods of studies have become narrative and discourse, which are based not only upon metaphors and analogies but they include mathematical models. It seems quite

obvious, but metaphorical nature of the concept of organization underlined by Morgan (1997, 2007) significantly contributed to its better understanding.

2.2. Norms in management

Normative nature of management science derives from intentional character of organization. Initially it was determined economically for enterprises and at present, with the extension of the research area of management science, the importance of purposeful action and changes, concerns different types of organizations – public administration, universities, health care institutions, etc. In management theory prescriptive approach is twofold. On the one hand, its aim is to establish a set of features described verbally and allowing for a qualitative assessment or operationalization. On the other, quantitative characteristics are formulated, for example, optimality or economic rationality, and subsequently, efforts are made to identify them as the characteristics of the organization and of its elements.

Praxeology constitutes most advanced attempt to elaborate a comprehensive normative approach to management. The ideas of praxeology were presented in Polish literature in the fundamental work by Kotarbinski, "*Traktat o dobrej robocie*" (1955, 1965), in the works of other Polish authors (Pszczołowski, 1978; Zieleniewski, 1981) and in the works of other founders of praxeology (von Mises, 1999, 2007). From the perspective of constructivist approaches normative sense praxeology can be summarized as follows:
- narratives using verbal language are the basic method of constructing research objects and norms in the action theory,
- operationalization and measurement apply only to specific verbal norms,
- the aim is to ensure that the scope of meaning of verbal norms were separable, e.g. efficiency and effectiveness (in Polish – efektywność i skuteczność),
- formal logic is treated as a basis for the analysis of qualitative norms.

Norms used in management theory and practice can be divided into qualitative (verbal) and quantitative – financial and non-financial. The first divide was partially discussed in the description of praxeological norms. In the second typology, the first group includes norms that either directly or indirectly cannot be expressed in financial entities, for example a praxeological norm "adroitness". The second group includes those standards which can be directly expressed in monetary units and those which by the way operationalization can be reduced to monetary values.

3. Social constructs

3.3. Constructivism and social constructs

Constructivist concepts can be traced to the philosophical foundations of mathematics, the theory of law, theory of art and literary theory, the theory of pedagogy and learning, in the social sciences, including economics and management. The common element in all interpretations of constructivism is that both the natural and social reality exist independently of the human mind, and the knowledge about them is a kind of product (construct) a thought of individuals and society. Constructivism is regarded as the opposite of the essentialism, which recognizes

that the phenomena occur in transhistoric realm, independent from the of observer (participant). The main topic of interest for all currents of constructivism is to identify the ways of constructing the perceived reality by individuals and society.

Distinction between the two terms – constructivism and constructionism has been made. In the literature two basic approaches can be distinguished. In the first attempt to distinguish constructivism from constructionism, in a simplified way, the differences between supporters of different schools of knowledge are depicted as follows. Modernist, a supporter of traditional epistemology, says: "I'm talking about what is" constructivist: "I'm talking about what I see," constructionist: "There is no outside world, until I do not name it" (Miś, 2008, p. 28). In the second approach, constructivism is identified with constructionism. Czarniawska (2013, p. 12) treats those two terms almost as synonyms. In this paper, the term constructivism is applied since investigation into the subtleties of the above terminological divide has no significant impact on the presented concepts.

A special kind of research approach is represented by radical constructivism of von Glasersfeld (1995, p. 1): "It is an unconventional approach to the problems of knowledge and knowing. It starts from the assumption that knowledge, no matter how it be defined, is in the heads of persons, and that the thinking subject has no alternative but to construct what he or she knows on the basis of his or her own experience. What we make of experience constitutes the only world we consciously live in. It can be sorted into many kinds, such as things, self, others, and so on. But all kinds of experience are essentially subjective, and though I may find reasons to believe that my experience may not be unlike yours, I have no way of knowing that it is the same. The experience and interpretation of language are no exception".

The above considerations are only an introduction but can be sufficient for the study of the importance of norms in management treated as social constructs. The introduction of this concept is based on several assumptions. Without going into the differences between the degree of radicalism of constructivist approaches, it can be stated that the basis for such an epistemological attitude is that reality is constructed through intersubjective discourse between entities endowed with consciousness. By communicating the meaning the actors establish a consensus on the importance of their statements and create social constructs, which may relate to nature and to social systems.

Social constructs are the result of decisions taken by different social actors (Czarniawska, 2013, pp. 13-14). In universal sense, things, attributes and facts can be considered as social constructs. In a narrower sense, the typical social constructs are, for example, money, countries, nations, ethnic groups, businesses or companies. We should also pay attention to the hierarchical, reflective, self-reflective and even self-referential character of social constructs, because in addition to the above-mentioned examples, opinions and beliefs about them are also social constructs and in such a manner a hierarchy of constructs is created – the construct, then opinion about it, then opinion about opinion... etc. This is a typical process of a hierarchical or recursive reflection.

Hacking (1996, p. 6) has observed that that the constructionists referring to "social construct X" often assign to it a normative, negative meaning:
- X need not have existed, or need not be at all as it is. X, or X as it is at present, is not determined by the nature of things; it is not inevitable,
- sometimes that kind of reasoning is going even further,
- X is as bad as it is,
- we would be much better off if X were done away with, or at least radically transformed.

This line of reasoning leads to the conclusion that social constructs are often used as an object of critical social thinking. This is a separate issue and requires further considerations.

3.4. Norms as social constructs

Elements of the process of creating social construct are described in Table 1.

Table 1. The process of social construction

Element of the process	Features (action)
Creator	The creator of the original meaning (theorist, practitioner)
Booster	The subject that accepts the original meaning and transmits it to others. May consider the changes of original meaning
Object (social construct) to which the meaning is assigned	Tangible or intangible. Defining the object can be self-reflexive, self-referential, hierarchical and recursive (construct consisting of construct...of construct.. *ad infinitum)*
Recipient	The individual belonging to a broadly defined population (practitioners, theorists)
Process	Intersubjective construction process of negotiating the meaning of the object between the creator (booster) and recipients
Methods of creating social construct	Negotiating the meaning, persuasion, use of available sources of dominance to impose meanings (political determinants)

Source: own elaboration.

Table 1 contains several necessary simplifications. Basic simplification lies in the fact that the entities involved in the process of formation of the structure are treated as a coherent whole, while, in that connection it may be in the process of construction. However, this is only a reflection of recursive, holographic or "fractal" nature of the formation of social constructs. The process of creating meaning is of a similar character.

Social norms are related to the behavior (action) leading to the desired objective. That is why the object of social construction are their following attributes: desired situation (goal), behavior (action or the method of its achievement), broadly defined resources, partial criteria of assessment. They are determined in the decision-making process by the subjects involved in their design in two or multiple-actors intersubjective process of negotiating the meanings. An additional element of the creation of norms as social constructs is to determine the sources and patterns of their domination over other similar concepts implemented perhaps through formal and/or empirical evidence, persuasion or enforceability with the use of attributes of dominance (power). In such case political aspects of construction (imposition) of the norms must be taken into account.

4. Normative features of management – success, efficiency and effectiveness

4.1. Succes

"Success" is one of most commonly used normative terms in management practice. Although the term is generic and in the literature on management, both Polish and international, no in-depth research on the meaning of the term has been yet conducted. The analysis presented herein is of a very preliminary character. In the Online Etymology Dictionary success is defined as "result, outcome",

from Latin *successus* "an advance, a coming up; a good result, happy outcome", noun use of past participle of *succedere* "come after". Meaning "accomplishment of desired end" (good success) was first recorded 1580s. Meaning "a thing or person which succeeds", especially in public, is from 1882. Success can be also associated with such terms as the successful outcome of a project, events, achievement, triumph: decisive, easy, no small, serious, gorgeous, determined to succeed, the artistic, political, stage success, success in the international arena, the success of: science expedition, success in: success in sport, to have success, to relate success, dream of success, be successful (*Edupedia.pl*, 2016).

There are three strands of considerations in management theory relating to the term success. In the first description of success is made by other qualitative terms, without seeking any more precise specification. This term is found in all kinds of publications known as "airport literature" in which the reader can find the more or less successful "recipes for success" (Griessman, 2007). The word success is one of the key elements of the so-called motivational speakers – politicians, managers, and employees of many different organizations who explain to the public how to achieve success. Often it is a sharing of experiences from their own experience, but also a skillful use of his/her own oratorical ability as can be seen in the information of the firms offering such services (*PROMOTIVATE. Speakers Agency Europe*, 2016). As a deliberately chosen example the work of student is referred to, which outlines a number of general concepts of "success" without in-depth analysis of its meaning (Miska & Musolf-Parol, 2012).

The second trend involves the studies in which attempts are made to translate the general meaning of the term success in management into normative and descriptive features, which, in turn, can be an object of more precise qualitative analysis and eventual operationalization. Such ideas are presented in strategic management (Obłój, 1998).

The third stream includes the works which depart from the classic standards of praxeological assessment of the organization. Under the influence of transfer of Anglo-Saxon terminology attempts are made to create a more precise definition of success. This approach is reflected in the definition of the project success proposed by (Trocki, 2012, p. 17): "As an overarching concept of evaluation the project success can be applied. We abandon praxeological terminology ratings which as an overriding concept of performance evaluation recognizes the concept of efficiency ....We do this to avoid conflict between the praxeological interpretation and foreign language terminology of the concept. If you define success as the project finished on time, within the assumed costs and maintaining the required quality, it will be internal definition of success. The definition of success must also take into account the needs of customers. Currently, the definition of success is determined by primary and secondary criteria. For example, completion on time, without exceeding the cost, required quality are the primary criteria, and customer acceptance, customer testimonials, etc. are the secondary criteria".

4.2. Efficiency, effectiveness and associated terms

Defining and measuring effectiveness, efficiency, efficacy and performance of any economic entity is one of the most important theoretical and practical problems of economics, finance and management. At the same time, it must be noted that the term has many interpretations with different degrees of precision. Additional problems are arising in translation of the normative terms. The paper contains a preliminary study the transfer of normative characteristics of management from English terminology to Polish terminology. The problem were already studied in earlier works (Mesjasz, 2009).

Defining normative economic parameters embody two major challenges. First, the lack of clarity in the English terminology deriving from multitude of terms, and second, transfer of meanings from the Anglo-Saxon culture to other cultures.

According to the English-language sources, physical, economic and financial aspects of human action can be depicted with the following normative characteristics – Table 2. Definitions in Table 2 show that discrepancies and overlaps of meaning of normative characteristics of human action in English language create problems for more detailed and precise definitions. It especially concerns the qualitative interpretations of degree of achieving the goals – effectiveness, efficiency, efficacy and performance. Deeper studies of causes and consequences of this lack of clarity should provide a better explanation of possible errors and lack of clarity. It would help in simplifying, or even perhaps, in standardization of terminology. Subsequently it would be useful in practical applications in such areas as standardization of terminology in accounting, in finance and in management.

Table 2. English language definitions of normative financial and managerial characteristics of human actions

Normative characteristic	Etymology	Other interpretations
Effective/effectiveness	Serving to effect the intended purpose, from Old French effectif ,from Latin effectivus "productive, effective", from effect-, stem of efficere	Adequate to accomplish a purpose; producing the intended or expected result
Efficient	Making, producing immediate effect, active, effective, from Old French efficient and directly from Latin efficientem (nominative efficiens) "effective, efficient, producing, active"	Measure – output/input
Efficiency	"Power to accomplish something," from Latin efficientia, "efficient power; efficiency; influence" (from efficientem). In mechanics, "ratio of useful work done to energy expended"	Pareto efficiency, allocative efficiency, productive efficiency; financial market efficiency Business efficiency – revenues relative to expenses
Efficacy	From Latin efficacia "efficacy, efficiency" from efficax, "powerful, effectual, efficient", from stem of efficere "work out, accomplish" from Latin efficacia	Capacity for producing a desired result or effect
Performance	"Accomplishment" (of something). That of "action of performing a play, etc."	The manner in which or the efficiency with which something reacts or fulfills its intended purpose
Productive	From French productif and directly from Medieval Latin productivus "fit for production"	Fulfilling demands of high level of productivity
Productivity	Quality of being productive, from productive + -ity. An earlier word for this was productiveness. Economic sense of "rate of output per unit"	Productivity is an average measure of the efficiency of production. It can be expressed as the ratio of output to inputs used in the production process, i.e. output per unit of input

Source: (*Wielki Słownik Angielsko-Polski. English-Polish Dictionary PWN/Oxford*, 2007; *Edupedia.pl. Encyklopedia Internetowa*, 2016; *Online Etymology Dictionary*, 2016).

Analysis of Polish term effectiveness as a social construct is much more difficult due to the fact that it is often transferred from English-language text, which does not have an unambiguous interpretation. In such case, the diversity of translations is causing additional confusion. In the Polish terminology, the following terms are used: efektywność, produktywność, skuteczność, spełnienie, sprawność, wydajność, wykonanie. Referring to the earlier analyses (Mesjasz, 2009) an attempt can be made to put in order the translations of English normative terms. It may be stated that the following translations are applied most frequently – Table 3.

Table 3. Translation of English normative terms into Polish

Polish term	English term
Efektywność	Effectiveness, efficiency
Produktywność	Productivity
Skuteczność	Effectiveness
Spełnienie	Performance
Sprawność	Efficacy, efficiency
Wydajność	Efficiency
Wykonanie	Performance

Source: (*Wielki Słownik Angielsko-Polski. English-Polish Dictionary PWN/Oxford*, 2007; *Edupedia.pl. Encyklopedia Internetowa*, 2016; *Online Etymology Dictionary*, 2016).

Summarizing the above considerations, it can be stated that in the Polish terminology effectiveness and efficiency treated as normative concepts in theory and practice of management have three meanings:
- teleological – the degree of achieving the objective or the degree of approximation to the specified value of the variable treated as a target,
- performance – utilization (processing) resources in the final results; a technique referred to this category as efficiency (efficiency),
- potential – quantitatively expressed potential opportunities to achieve the goal.

Problems concerning the definitions of effectiveness and efficiency in English and in Polish, suggest one important issue. In applying constructivist approaches a deepened attention must be paid to the meaning of a term in different languages.

5. Conclusion

The aim of this study was a preliminary analysis of the creation of norms in management with the examples of success, effectiveness and efficiency. The study allows for drawing the following conclusions:
- constructivist approach is the most useful method to study the creation of the concept of normative management. It requires, however, taking into account not only the verbal narrative but also mathematical models,
- norms in management are created in the intersubjective discourse, in which an important role is played by such factors as the power relationships between the participants, the ability of persuasion and the ability to affect the interpretations,

- success as a normative determinant is too broad, and only to a limited extent can be used for operationalization,
- the use of the concept of efficiency and effectiveness as normative categories requires a deeper semantic analysis covering the use of those terms in the English and in the Polish terminologies.

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Chapter **30**

Business Model and Organic Approach in Strategic Management

Piotr Markiewicz

1. Introduction

Analysing the achievements in strategic management, it can be noticed that in the initial period, interest in the strategy was usually focused on the formulation process of development direction as well as principles of functioning of the organization in the long run, which was reflected in an increasingly richer set of strategic planning methods and techniques. Along with further development of the environment and the organizations themselves, growing attention started to be paid to the problem of strategy implementation. At present, strategy planning and implementation are treated as elements of the strategic management process. This means that accents in this process may be put differently, depending on the adopted approach or model. The growing dynamics of changes in the environment and new political and legal, technological, social and cultural as well as economic conditions, have resulted in search for new concepts and methods capable of facing new challenges. One of such proposals, ensuring integration of the above mentioned strategic management process stages, is the so-called business model covering external and internal areas of activity of a business, showing a network of relationships inside the organization (the so-called internal architecture) and around the organization (external architecture). The purpose of the study is to present the process of shaping the business model in the context of organic approach assumptions.

2. Assumptions of organic approach in strategic management

Strategic management is regarded as one of younger concepts in the management science in spite of the fact that it is over forty years old. This concept is still evolving, what is reflected in different ways of presentation of the process, models and approaches. It is both a field of knowledge and a practical activity. The complexity of an organization's potential as well as of the environment in which it functions results in very diverse approaches and methods of research being used in strategic management (Stabryła, 2000, p. 12).

Concepts of strategic management were created as economic orientations, research approaches and strategic behaviours[1]. As part of these concepts, different definitions of strategic management have been adopted. R. Krupski, conducting a detailed analysis of issues related to the notion of strategic management, presents them as follows: "Strategic management is a process of defining and redefining strategy as a reaction to changes in the environment or anticipating these changes, and even causing them, as well as the coupled implementation process in which resources and skills of the organization are so administered as to pursue the adopted long-term goals, and to protect existence of the organization in potential situations of discontinuities" (Krupski, 1998, p. 96). Understood in this way, strategic management is a philosophy of shaping organizational development consisting in dynamics as well as openness in relations organization-environment, this philosophy assumes proactive attitude of the management staff (undertaking anticipating actions), rather than following changes in the environment. It is thus a way of management of the organization, which ensures that system conditions can be created for functioning of the organization.

M. Farjoun (2002, p. 56) proposes an interesting criterion of division with regard to the definition and models of strategic management. The proposal consists in using two analogies (metaphors) well-known in management for a few dozen years: organization as "machine" and organization as "organism" and examination of strategic management paradigms from the point of view of two approaches: mechanistic[2] and organic.

Organic approach based on analogy of the organization with an organism treats an organization as a whole continuously being created and changed. The processes occurring in the organisation are of dynamic and multidimensional nature. As compared to the mechanistic approach, it differs with regard to the viewpoint on the strategy and the manner of its implementation. It emphasizes the need for continuous organization adaptability as well as time-related and spatial coordination of its activities (Jeżak, 2004, pp. 14-15).

On the ground of the organic approach, **OESP** Organization–Environment–Strategy–Performance paradigm has been developed (Farjoun, 2002, pp. 575-594). Strategic management is treated here as a process of continuous improvement or maintenance of organization's performance by formulation and conduct of respective strategies. Therefore, strategy implementation can be treated as a process of maintaining harmony with the changing environment through introducing organizational changes connected with the prepared strategy.

Figure 1 below presents the perspective of the strategic management process under the organic approach.

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[1]   One of the proposed attempts to put strategic management concepts in order is the classification of strategic thinking schools by J. C. Mathe. It is based on two paradigms: of strategic rationality and strategic behaviours. This classification is widely discussed in the book of: Gierszewska, G., Romanowska, M. (1994). *Analiza strategiczna przedsiębiorstw*. Warszawa: PWE.
A synthetic review of the classification criteria and the formed, on this basis, directions (schools) of strategic management is also presented by the authors of the study: Krupski, R., Niemczyk, J., & Stańczyk-Hugiet, E. (2009). *Koncepcje strategii organizacji*. Warszawa: PWE, pp. 11-23.

[2]   Within mechanistic approach the strategy is treated as a certain pattern of organization's development whose components are: types of conducted operations, organizational structure, criteria and the decision-making process as well as the principles of cooperation with the environment. The strategy within this approach is conscious and reasonable action plan, which is implemented by, among others, organizational structure.

Figure 1. Strategic management model in organic approach
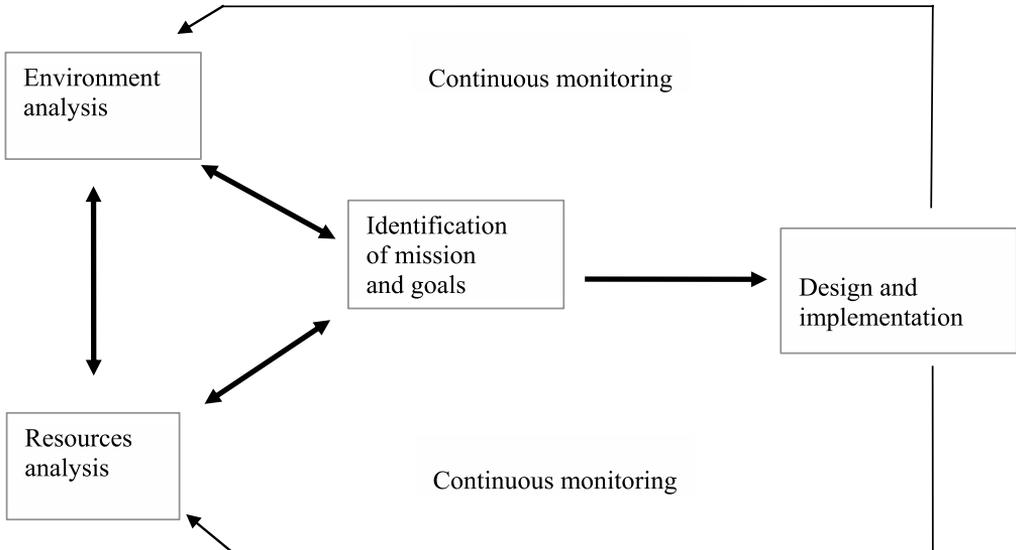
Source: own study based on (Lynch, 2000, p. 27).

According to the assumptions of organic approach strategic management is not a sequence process, in which separated stages are implemented in a specified strict sequence. These stages overlap, it is difficult to separate them. Organic approach, as compared to mechanistic approach, treats strategy as a less linear and static category, emphasizing the need for continuous organization adaptability as well as coordination of its activities (Ghemawat, 1991).

3. Business model – essence and elements

In scientific research, models are a specific form of cognition and meet both theoretical and practical functions:
• theoretical functions – because they deliver a particular image of reality,
• practical functions – since they serve as tools in conducting empirical studies (experiments) (Machaczka, 1984, p. 9).

On the grounds of management sciences, the term model is defined unclearly and in many ways. The term is used e.g. in such meanings as: description, structure, method, analog, scheme, abstraction, theory (Sztoff, 1971, p. 37). Table 1 presents selected definitions of the notion of model.

Table 1. Selected definitions of the notion model

Author	Proposed model definition
R. L. Ackoff	Models are presentations of states, objects or events. The simplicity of models compared to reality results from the fact that they take account of only those properties of reality that are important in a given case.
P. Eykhoff	Model is a description of basic features of the existing (or designed) system, supplying knowledge about it in a useful form.
E. V. Krick	Model – is something which describes the nature or the behaviour of a certain original entity. This description (projection) is made by words, numbers, symbols, diagrams, charts or by means of objects looking or behaving like the original.
W. Sztoff	Model is defined as a thinkable or materially implementable system that, reflecting or restoring the object of research, is capable of replacing it so that its examination delivers new information about the object.

Source: own study based on (Machaczka, 1984, pp. 11-12; Trzcieniecki, 1979, pp. 93-94; Sztoff, 1971, p. 37).

Similarly, in the case of the term business model we are dealing with many different approaches and definitions. One way of ordering this diversity is to look at the business model from a wide perspective (in the wider sense) and a narrow perspective (in the strict sense). From a wide perspective it refers to an organization as a whole, its goals, infrastructure, offered value for stakeholders, implemented processes and relations with the environment, "is a connection of the strategic concept of a business and technology of its practical execution, understood as construction of the value chain allowing effective operation and regeneration of resources and skills" (Obłój, 2002, p. 98). In the narrow sense, business model is treated in two ways: as a way of doing business or as model perspective indicating elements and relations comprising this model (Osterwalder, Pigneur & Tucci, 2005, p. 5).

The essence of business model is combining external conditions and internal possibilities of an organization so as to effectively respond to customer expectations. Osterwalder and Pigneur (2010, p. 15) treat business model as a rational structure thanks to which it is possible to create, capture and deliver value (the so-called *value-customer* orientation). In their definition, business model is a kind of methodological concept consisting of elements with which each organization may be characterized. They mention nine areas (blocks) describing business model: served market segment, offered value for customers, distribution channels, relations with customers, income streams, key (distinctive) resources, key processes, key partnership and costs structure.

Johnson, Christensen and Kagermann (2010, p. 3) present the structure of business model in a slightly different way. Instead of nine elements, they mention four:
- block I – proposed value for customer (prepared offer for customer from the point of view of problems which it is supposed to solve),
- block II – profit formula (income model, costs structure, speed of resources turnover),
- block III – key resources necessary for delivery of value (human capital, technology, information capital, reputation, internal and external architecture),
- block IV – key processes thanks to which the organization may create value and provide it to customers (basic processes, auxiliary processes, management processes).

Usability of the so understood model lies in complicated relations that occur between the listed elements (blocks). Any change in one of those areas affects the others and the whole consisting of them (see Fig. 2).

Figure 2. Business model elements
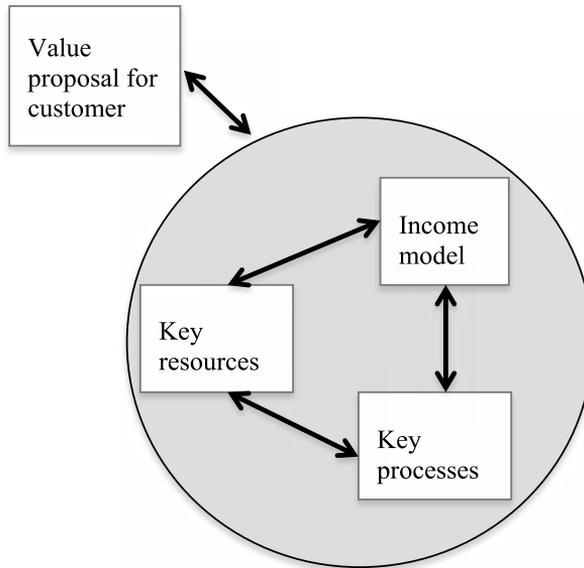
Source: own study based on (Johnson et al., 2010, p. 5).

Hence, particular authors present different components comprising the business model, however, their common feature is creating and delivering value thanks to search for a unique configuration (multi-surface relations and interdependencies) among the elements forming the model. As a whole, business model is treated as the key to achieving competitive advantage and the more innovative it is, the higher the value may be captured by the organization.

4. Shaping the business model in the context of organic approach assumptions

The OESP model (Organization–Environment–Strategy–Performance) presented in the second part of the study, consisting of four elements, requires coordination in time and in space. This coordination (defined by Jeżak (2004, p. 16) as adaptive coordination) applies to interactions inside and outside the organization (organization-environment).

Lisiński (2008, p. 16) conducted an interesting analysis of the organic approach and its impact on strategic management. The author particularizes elements of the OESP paradigm proposed by M. Farjoun.

Organization is treated as a bundle of resources of tangible and intangible nature. also relations that take place between them and also methods of operation, operations and ways of their performance are included. Therefore, organization of a company is shown in a dynamic perspective, which means that the resources are considered elements of an open system and cooperate with elements of environment by exchanging information and communication.

Environment of the organisation is perceived in a complex and dynamic way. It considers current (real) and potential participants (stakeholders), which are institutions and particular persons or groups. Characteristics of these entities refers to the past and the present state and changes in this condition in the future. Environment understood and interpreted in this way affects the scope and way of research conduct concerning formulation and strategy implementation.

Strategy as it has already been mentioned, consists in coordination of major goals and activities of the company in time and space. Therefore it is an instrument integrating the remaining components of the model and at the same time balances the impact of various factors, providing sustainable development of the company.

Business performance is perceived as capability of continuous adjusting of the company to the environment. It is therefore expressed by means of standard (e.g. growth, profitability, survival) as well as non-standard indicators. Performance refers to dynamic and long term effectiveness and indicators relate to the quality of using available resources as well as generating new ones.

Connections between particular components of the model are of feedback nature and are supplemented with relations taking place inside each component.

A characteristic feature in the evolution of strategic management at the end of the 20th century and the beginning of the 21st century is introduction of the term business model to the conceptual apparatus and practice of this management. It is associated with the character and dynamics of changes occurring in the environment of organizations (progressive globalization, knowledge-based development, protection of intellectual property, diffusion of innovations, network connections among different entities). Previous approaches, procedures, instruments developed in strategic management are becoming insufficient. The use of the business model concept is a new formula of strategic management, in which a very important role is played by strategic thinking. It is a perspective view on operations of an organization in the context of future environmental conditions and the realization of the changes which should be introduced in the organization[3]. Therefore, we have a clear proactive attitude of managers (the organization's management staff). This means perception of the future not through past experience but by seeing the conditions in which the organization currently operates from a distance. It is an image of the organization in the future through the prism of many development scenarios of the environment and the organization itself.

If we analyse strategic management in the following three aspects: functional, institutional and instrumental, it applies to functions, processes, structures, subsystems, methods and techniques. A business model is a management structure, which connects these elements in a coherent whole from the point of view of creating and delivering value.

Considering strategy as thinking and action used for preparing and implementing the concept of effective and efficient functioning and development of the organization in a dynamically and sometimes unpredictably changing environment in the assumed time horizon, business model is the structure for its implementation.

Failures of many organizations in execution of strategies have resulted from attempts made to implement the prepared strategy by "forcing it through" into the existing organizational structure and processes under conditions of a top – down system of control. Business model is a proposal,

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[3]   Muna (2010), using a certain metaphor, calls this "a view from a helicopter", which allows one to notice "not only the forest but also particular trees".

which, through its complex depiction, is supposed to serve effective implementation of the organization's mission and goals.

In the organic approach, strategy is treated as a kind of platform which serves coordination of the process of developing objectives and tasks and shaping human capital management, resource management in the organization (for both tangible and intangible resources) and change management (Jeżak, 2004, p. 13). Taking account of these assumptions, we can state that the previously presented quite clear concepts concerning business model elements are reference proposals, intended to create construction and methodical frames for modelling the complex reality of an organization (Stabryła, 2010, p. 32). They can be used as a tool of strategy implementation, if these elements are altered (adjusted) subject to long-term goals of the organization agreed on the basis of a continuous process of maintaining harmony with the environment.

5. Conclusion

Strategic management as a management concept is constantly developing. A symptom of this development was the emergence of the organic approach, using the metaphor of an organization as a "living organism". Here the organization and the strategy are treated as a whole that is not something permanent but still evolving. A very important role in the so understood strategy is played by coordination, which may be executed by means of business model. The presented business model definitions as a nine-element rational structure (Osterwalder and Pigneur) or the concept of four units (Johnson, Christensen and Kagermann) may be the instruments for coordination of an organization's activities in time and space and enable effective strategy implementation. The above mentioned business model elements should be flexible, enabling introduction of new technologies, structural solutions, communication methods. The elements forming the business model structure should be shaped pursuant to the goals of the organization and external conditions.

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Flexibility of Organizational Structures as a Result of Strategic Fitting

Halina Smutek

1. Introduction

The increase in the complexity and dynamics of the environment, which translates into the intensity of interaction generates a necessity of working out adaptation mechanisms to provide a prospect for survival and development. Management of organization requires an integrated approach, targeting a long-term operation of the company in various areas of its activity and the organizational architecture which will allow to reduce the uncertainty arising from operating in a turbulent environment. The basic questions that arise are those concerning the company aspirations and a resulting vision and strategy as well as the shape of organizational architecture and, above all, structural configuration. The skills of the proper planning of the company's activities in diverse functional areas and choosing suitable structural solutions determine a future success. The concept of the of company included in the strategy, taking into account both its own ideas about the future, and the situational determinants are key factors for survival and development. However, possessing a strategy is not in itself a guarantee of success, equally important are fitted solutions in the area of organizational structures, which provide, together with the organizational culture, a framework for the implementation of strategies and determine their success. The structure and culture of the organization allow for the efficient allocation of resources in a way that enhances the value of the company and provides a mechanism to ensure an equilibrium level organization. Mutual adaptation strategies and organizational structures create a potential for survival and development, ultimately deciding about the long-term adaptability of the company.

2. Strategy model

The strategy from the 70s of the twentieth century, when the concept of strategic management first appeared, is the basic conceptual category associated with the concept of strategic management. It is the basis for the company's success, allowing it to create its uniqueness and stands out

from the competition. Effective strategy gives distinguishes a particular organization in two ways. Firstly, the company is perceived by the environment in a different way than other companies in the branch. The sense of otherness must also apply to the working force. The strategy must be present in every action of the organization in its daily operation, must be consciously implemented by each employee (Obłój, 2008, p. 26). In management theory there are many definitions of the concept of strategy. However, they differ from one another slightly, and are not dissimilar from the classical definition by A.D. Chandler: "The strategy to define the main objectives of the company and the adoption of such courses of action and the allocation of resources that enable the objectives". The key notion here is that the strategy of the organization is a result of its relationship with the environment. Changes in the environment force a change in organization, and hence a change of strategy. The term strategy according to A. D. Chandler means a pattern of development of the organization (1962).

L. J. Krajeński and L. P. Ritzman define the strategy of the corporation as "the process of determining the organization's mission, warning and adapting it to changes in the environment, as well as identifying its distinctive competencies". In turn, D. R. Hampton (1986, p. 179) assumes that "the strategy is to define long-term goals and tasks of the organization, the choice of directions, ensures that the basic objectives will be achieved".

The strategy is a unified, prospective and integrated plan through which the company is envisages strategic benefits and challenges of the environment and which ensures that its fundamental objectives will be achieved through the proper structuring of the organization (Ansoff, 1985, p. 94). According to H. I. Ansoff and R. U. Ayres, strategy is a set of criteria and decision-making rules affecting the functioning and development of the organization in a changing environment. In addition, H. I. Ansoff introduced the concept setting out a set of constitutive characteristics that are common in the strategic activities of organizations in time, a common keynote or structure of strategy. According to H. I. Ansoff, a selection model of strategic behavior is determined by: 1) the behavior of the budget, i.e. Those bounds within which there are strategic changes, 2) strategic adaptation, which is consistent with the previous changes in the strategic organizations; 3) strategic discontinuity rejecting the previous experience.

K. R. Andrews instead treats strategy as a model, whose components are the main goals, objectives and plans to accomplish, formulated as an answer to the question of what is the action of the organization or what it should be (1981, pp. 174-180).

For H. Mitzberga strategy is a way of shaping relations between the organization and the environment, pointing to the so-called "5 P" strategy (Mintzberg, 1973a; Mintzberg, 1973b; Mintzberg, 1978):
- P as a kind of plan or consciously intended action,
- P as a pattern (model) or type of formalized and structured action,
- P as a ploy (control) or action to implement a particular purpose,
- P as a position or seeking a favorable position in the environment that is in a sustainable manner capable of meeting the competition,
- P as a perspective or perception of a position in the future.

The above-mentioned five "Ps" form the structure of the company's strategy, they are interconnected and express themselves in the form of various strategic actions in accordance with the intentions of those who implement them.

According to J. Machaczka effective strategies associated with each of the three classes of variables (E – V R congruence) (1998):

1. occasions, threats and restrictions imposed by the environment (E – environment); the environment imposes constraints on the one hand and creates opportunities to optimize strategic choices on the other.
2. resources and skills (R – resource) – shape both strengths and weaknesses of the organization. Analysis of the resources and skills of the company is carried out in the system of its major functional areas, namely: finance, marketing, research and development, production, distribution, management and employment. When choosing factors, analyses and functional areas, we should be aware of the so-called rule "20-80", which says that it often happens that only 20% of the resources determine 80% of effects.
3. recognized values and beliefs (V – values) – define norms of behavior and organization practices, acting as a primary element of its culture. These standards may have not only a positive but also negative impact on the efficiency of the strategy. The lack of an appropriate organizational culture can render the company unable to utilize its strengths and grasp the opportunities that come its way.

According to K. Obłój, the strategy of the company consists of four basic components: the domain of action, strategic advantage (strong side), objectives to be achieved and the functional action programs.

Figure 1. Strategy model
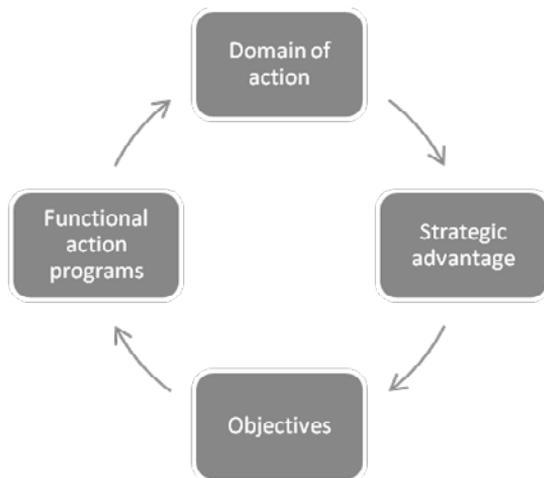
Source: (Obłój, 2007).

1. Domain action. It determines where and to whom the company intends to sell their products (services) The basic task is to define the market and the customer by answering the following questions: a) in which domain of action (market) the company wants to work – resolve the dilemma of the existing or new markets, b) who are our present and potential customers? The answer to these questions becomes crucial, because the company without its own market and its set of customers is a company with no identity. It can function efficiently, but up to a time.

2. The strategic advantage determines the strength of the company's competitive edge relevant to the consumers. The simplest example of such a strategic advantage is the unique patent, technology, product. It does not matter what exactly gives the company a strategic advantage: access to cheaper sources of supply, improved product quality, unique technology, efficient service, optimal location, the database of the recipients etc. It is important to have it and know how to use it consistently.

3. Strategic goals. They are an important complement to choose a domain of action and strategic advantage over its competitors. Define specifically what the company wants to achieve in future periods in order to allow you to control whether the company achieves success.

4. Functional action programs are an integral part of an overall strategy that is often overlooked by managers. Functional action programs are the reflection of the concept of strategy translated into concrete actions at every workplace, the daily behavior of every employee. Effective action programs have three aspects. First, determine what, by whom and when, will be done and how it is connected with the overall strategy of the company. They combine the current management with the strategic future. Second, they assume a constant need to improve. There is only one condition – There are no perfect solution. The minor but systematic improvements are very important to the success of the strategy. Thirdly, the programs to cover in a systematic way the whole of the company, from finance, manufacturing technology through a purchasing policy and inventory, marketing, to people management (methods of recruitment, evaluation, remuneration promotion). For each of these areas action programs must be prepared with a strictly defined period of evaluation, evaluation criteria and budget implementation. Their implementation determines whether the strategy is consistently implemented. Without them, even the best strategy is doomed to failure for the lack of understanding and support from the staff (Obłój, 2008, pp. 27-32).

3. Strategic fit

The strategy constitutes the core of the organization's management. Its implementation requires a high level of integration between the various elements of processes and organizational units. It can be described as a detailed list of objectives and initiatives, which makes it necessary to ensure the internal coherence of actions to implement its individual components (Porter, 1996). One of the canons of strategic management is that an organization must be able to structurally and procedurally create and implement the strategy, which Porter called strategic fit. The elements of strategic fit are: strategy and organizational infrastructure and processes, Strategic adjustment, or interlinking the strategy of the company and its structure, refers to how the various components of the organization synchronize their efforts to achieve integration and synergy.

A. Chandler (1962) in his work "Strategy and Structure", based on the evolution of US companies, pointed to the fact that a radical change in strategy also requires a radical modification of the organizational structure. He pointed out that the development of the company has its origins in the interaction changes taking place in three areas: strategy, structure and culture of the organization, which was reflected in the famous thesis that "structure follows strategy". He paved the way to the research on mutual adjustment strategy and organizational configurations. He argued that the effectiveness of the strategy of diversification depends on the implementation of decentralized management structures. He suggested hierarchical linking of strategy and structure, which determines the structure of the strategy. The idea that for many years dominated the direction

of research on mutual adjustment of strategy and structure indicated the role of the relationship: strategy – the structure and the situation – the structure, calling attention to the need of diversifying the organizational configuration of the company, depending on the strategy that responds to the challenges of the environment (Chandler, 1963).

The dynamics of change and the complexity of the environment, according to P. Lawrence and J. Lorsch (1969) have a decisive influence on the choice of an organizational model. The situational approach tries to point out the relationship between environmental variables and the organization, noting the system variables shaping the organizational model. It is assumed that an increase in the level of environmental turbulence raises the need for a horizontal structure, reaching towards flattening the hierarchy, the flexibility of the position and tasks, reducing the role of formalization, which is reflected in the matrix and task structures as well as network structures. At the same time some constance elements of the structures a retained, which can be seen in the divisional and matrix structures.

A links strategy organizational structure was also demonstrated by H. Mintzberg. His model of the organizational structure indicates the components (core operative, top strategic level, intermediate level), whose meaning changes with the passage of the organization to the next phase of the life cycle, which translates into a level of complexity and variety of structural solutions, (Mintzberg, 1979) starting with a simple structure of a mechanistic bureaucracy turning into a professional bureaucracy with the dominant role of specialists and analysts. Another stage of development in his model are divisional structures. Mintzberg's research indicated that many companies enter the phase of development, defined as *adhocracy,* characterized by the disappearance of fixed elements and organizational tasks being performed ad hoc in an attempt to adept to the changes in the environment. The basic principle is flexibility, co-operation between specialists.

B. R. Scott, developing A. Chandler's ideas, claims that the company is developing from a little formalised model of *one man show* through the bureaucratic model in order to reach the diversified and decentralised model (Scott, 1973; Mchaczka, 2001). J. R. Galbraith and R. Kazanjian showed that organizations could reach also the fourth stage of the development and of introducing matrix structures, suggesting that the development of international corporations should be based on connections of the network type. In this model the control of the organization is supposed to be replaced by communication system. Organizations have a form of an elastic nets adapting to the execution of tasks being a consequence of strategy.

4. Flexibility of Organizational Structures

The organizational structure specifies the manner of the division of tasks, the principles of coordination and integration, as well as the processes of information flow and decision-making in the organization to ensure its efficient functioning. It provides the context for organizational behavior, setting the boundaries of the freedom of the participants in the organization. The shape of organization is subject to constant change, the source of which is the increase in the complexity and turbulence of the environment, moving from the mechanistic to the organic organization. Features of the environment significantly affect the behavior of the company, determine its strategy and internal structure.

Vertical organizations adopting organizational hierarchy as the basic principle of building, were focused on the certainty and reliability of the hierarchy because this approach gives a sense

of confidence by consolidating the current shape of the relationship which is about uniformity components of the organization, their internal relationships.

Flexibility of the organization has become a necessity with the increasing turbulence of the environment. R. Krupski (2005, p. 11) indicates that a kind of response to the chaos does not necessarily mean entropy but rather a hidden order. In a situation where the growing turbulence of the environment reveals the dissonance between ambient conditions pointed out by the author: variable growth, new changes, growth dynamics and complexity of the environment (Ansoff, 1985) and the accepted model of the organization. The flexibility of the organization should be considered in view of its multidimensionality, and so in the area of strategy, structures, systems, human resources, leadership and culture.

The appearance of horizontal structures with characteristic dominance of horizontal relations organization drew attention to the benefits of flexibility. In conditions of low formalization and centralization, becoming less dependent on business ties, and more and more on cooperation links. Chain hierarchy is significantly reduced, which increases flexibility and decision-making based on more reliable information. Information continues to flow between various departments through the managerial staff, but with a simplified structure; this process is done much more efficiently compared to the vertical models. A characteristic feature of the vertical model is the existence of a long chain of decision-making, which in turn creates a fossilized structure.

T. Peters and Ch. Handy introduced the concept of a federated organization corresponding to the organization of knowledge reaching much further in its assumptions than the decentralized organizations (Kożusznik, 2007, p. 249). Handy says that decentralization means delegating the top management a range of tasks, powers and competences to lower levels but still the authority exercises control. The center delegates tasks, take the initiative, provides for the implementation and keeps an eye on the whole process. Recognizing the need for changes resulting from the development of the concept of a learning organization, knowledge management, talent management, draws attention to the need for a radical decentralization, which task can be met by a specific federal organization. Power to the federal center is brought by individuals as a kind of delegation. The center is not direct but rather consults, influences, suggests that the initiative comes from the outside and in a sort of nature way reaches the ranks of the center. The characteristics of organizational federalism are (Handy, 1994):

1. Small center. In this case we have to deal with the reversal of the principles of classical structural solutions. The center, which does not impose ready-made solutions but is not necessarily a single body having to convince, represent, explore and analyze development scenarios to determine options for actions to address the wide horizon. It is to be a place of training future managers .

2. Subsidiarity, justifying the operation of a small center. It is based on the assumption that power within the organization belongs to individuals, which may delegate it to the center and not vice versa. The task of the center is to help individuals and groups in the recourse liability.

3. Dual nationality. The organization can be simultaneously big and small. P. Drucker indicates the strength inherent in small units that are more flexible, have the ability to respond quickly to signals from the environment, which is expressed in the flexibility of objectives and actions. At the same time they have a less complex and bureaucratic structure. An attempt should be made to balance small and large.

4. The position of business. In traditional organizations, the place and role of the average worker are described by the dimensions of: standardization, configuration, hierarchy, specialization

and formalization which consequently downgrades him to the role of a block in a puzzle organization. According to the assumption made by T. Peters, each employee can do anything and be anywhere in the organization, it is important to get the job done.

T. Peters and Ch. Handy indicate the directions of the evolution of organization into a federal network of specialist. Federal organization of a chain of separate small, self-sufficient atomized individuals (Kożusznik, 2007, p. 251) with distinctive personalities and a clearly marked structure of the superior, so everyone has to make their own jobs, be a businessman. Handy points out that the way to combine these small items is an organization in the shape of clover leaf. Structural solution, whose assumptions are part of the organizations based on knowledge.

Handy predicted the development of a permanent, costly, extensive knowledge of the workforce, which will to a great Entent determine the success of the organization (Lambert, 1999). The employees, who have information and knowledge are essential to the company, which is the first Lear of the clover. The second leaf is external service providers, whose task is efficient and the cheapest possible execution of basic, repetitive functions of the organization ascribed to them.

The third leaf is a flexible labor force, ubiquitous "outside workers": not bound to any organization, but who can be used, if necessary, to the timely and economical implementation of the unique necessary task, people working on a number of full-time jobs often for little money. Handy notes that most flexible workforce probably never demonstrates the dedication and ambition held by the core but much in this matter depends on their treatment. T. Lambert complements Handy's model with the fourth leaf, indicating that routine activities, e.g. connected with administrative work or maintenance will always be seriously weigh on the fixed costs of the company, if they are carried out by its own forces. It is not difficult to transfer them, to an extent, to the sphere of variable costs. Today's workers will increasingly become service providers and contractors.

The most radical solution for the horizontal structure is a network structure in which an attempt is made at the total departure from the principle of hierarchy, which is based on most famous organizational structures.

Network structures are different from the traditional way of understanding of specialization. It Led to the atrophy of functional specialization, which in traditional structures was reflected in the creation of divisions and cells such as: planning, marketing, production. This effectively isolated each group of specialists from one another. The structure of network specialization is focused on the realization of a specific project. What the task requires is not therefore a clear distinction between operational and functional activities. The aim of the team is to perform a specific task using a set of actions that are necessary for this. This is achieved by a diverse nature of the knowledge and skills of employees and their exchange between the teams. Moreover, the links between the elements of the network structure is nothing more than a channel of direct communication between people, focused on the task and not power. The network is created in order to be able to quickly acquire and transform knowledge. Multilateralism and reciprocity of communication is a basic condition for cooperation, and thus – the existence of the network (Błaszczyk, 2006). The features of network structures are: greater flexibility for workers, orientation on the task and the accompanying integration rather than specialization, decentralization of decision-making, openness to partnership with other organizations, open informal culture, the use of IT infrastructure, orientation to innovations.

The network structure is a form of co-operation of various organizational systems that make up a complex web of relationships. The main reason for the formation of a variety of networks, in addition to facilitating communication, is diversity and dispersion of competence in technology,

production, marketing and management, the possession of which is a source of competitive advantage. An increasing number of companies is going through a significant evolution from concentrating all functions under one management to the far reaching deconcentration and the existence of task forces in network structures involving partners from different parts of the world. The result of the evolution of views on the organizational structures has become a challenge to the classical principle of single management and distribution of employees at the conceptual level and in the administration. In the network structures this principle is eliminated in favor of control and coordination carried out through complex relationships between organizational units. Centers of power are parallel and at the same time variable. Hierarchy, formal management and subordination are replaced by information and cooperation ties.

5. Conclusion

Effective implementation of a strategy requires a transformation of a vision into reality through initiatives in the area of change management, which in turn should be matched in the area of structure and culture. The company's strategy has to be a response to its environment. Its successful implementation is determined by the ability to adjust the internal organizational architecture to strategic objectives (Thompson & Strickland, 2009). In his context it is necessary to be aware of the benefits flowing from external connections, which draws attention to the school leverage strategy (Hagel & Brown, 2006, p. 38). The company in accordance with its objectives should recognize the possibility of shaping the strategy through the use of external resources, located outside the company. In order to obtain a strategic advantage, companies should be able to see and use all available resources outside the company. This way of looking at strategy is a move away from traditional structures in the direction of the organization which is flexible, allowing a configuration capable of meeting the organizational needs of the changing strategy. In addition to the benefits of the use of flexible forms of organization, it should not be forgotten that their use also involves some negative phenomena, such as. the problem of employee loyalty and the need to meet the challenges arising from the dispersion of power between the parallel decision-making centers. The main problem which is communication: using complex systems of information and information technology.

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Chapter **32**

Managing Value in Enterprise Groups from the Perspective of Operating Processes of Business Models in the Polish Management Information Systems Sector

Jolanta Wartini-Twardowska

1. Introduction

The long-term functioning of a (complex) organization depends on the relationships between the organization and the entities related to it. Data from the Polish Central Statistical Office show that groups of enterprises from the MIS sector operating in Poland, which belong to the NACE section: "information and communication", in 2012-2014 ranked sixth among all eighteen NACE sections in terms of their number, and fourth in terms of generated operating profit. In terms of total assets, the analyzed enterprise groups held fifth place. Unfortunately, they ranked lower (eighth) in terms of return on sales, return on assets and return on equity (GUS 2015, pp. 26-58).

Value in groups of enterprises is co-created by intra-group relationships and/or through interdependencies with other entities (actors) that do not belong to this group but come from the same sector or operate in a different sector (cf. Bititci, Martinez, Albores & Parung, 2004, pp. 260-261; Wirtz, 2011, pp. 92-103; Wartini-Twardowska, 2014, pp. 300-307). The actors participate in value creation in the same way or in a way that changes depending on the offer. They may swap roles in the process of designing value propositions in a group. In one contract, a company may act as the main supplier and in the next, play the role of a subcontractor or customer (cf. Rogoziński, 2012, p. 376). Cooperating companies allocate their resources and competencies in order to carry out specific processes resulting in proposing value, delivering it, and then capturing the greatest possible amount (cf. Normann & Ramirez, 2000, pp. 76-77; Bieger & Reinhold, 2011, pp. 31-34).

In this work, the author has tried to discover answers to the following questions:
- What does the template of a value-oriented strategic objectives map look like?
- What are the key value growth factors at the strategic, operational and economic levels for selected business models of the MIS sector?
- What are the differences between the key value growth factors in the case of companies from the MIS sector, and what are the reasons for such differences?

- Are the processes of a given business model in harmony with the processes of other business models, thus providing an opportunity to achieve synergy effects?

  The work is based on two hypotheses:
- H1: Each typical business model of the MIS sector has a characteristic map of key success factors determining added value.
- H2: The designing of a group's structure based on a strategic objectives map helps to define the potential for synergies from business combinations and to estimate them.

The author's research makes a new contribution to value management in groups. In addition, it presents ways of applying the business model concept to communicate the degree to which the strategic objectives of (complex) organizations are being achieved. This research is useful to a wide range of stakeholders. It uses the typology of business models in the MIS sector published in 2014 (Wartini-Twardowska, 2014, pp. 132-231). It appears that the strategic objectives maps proposed by the author with their key success factors for business models in the MIS sector can: (1) become the foundation for a new approach to identifying a typical business model of this sector; (2) indicate the possibilities and limitations related to the process of combining heterogeneous business models in groups of enterprises; (3) reduce the complexity of a group of undertakings owing to the ability to recognize the potential for synergies and for capturing them. Such maps enable increased use to be made of capital in (complex) organizations. The findings of the research:

- comply with the guidelines of the International Integrated Reporting Council pertaining to information for stakeholders about business models and their effects;
- are helpful for auditors in the course of: (1) reviews of the effects of activities (processes) presented in financial and non-financial reports, owing to the separation of business models within a (complex) organization; (2) verifications of the correctness of accounting policies adopted in a group of enterprises.

2. Literature review

Value-oriented management of (complex) organizations is a permanent element of worldwide research and research programs. 93% of members of boards of directors of multinational corporations deem shareholder value growth to be the highest priority (Jeżak 2010, p. 99). In order to maximize this objective a variety of tools can be used, particularly the business model and the strategic objectives map.

2.1. Strategic Objectives Map

The map is able to reflect the logic of strategic thinking about value. In this paper, to develop the strategic objectives map, the author employed several tools such as the map model and the conceptual business model framework.

One form of expressing a theory or framework is a diagram with the concepts and relationships displayed graphically (Grove, Gray & Burns, 2015, p. 198). The map model is able to depict various perspectives of an organization (Norton & Kaplan, 2002, pp. 41-47; Kaplan, 2010, p. 22). The strategic objectives map of (complex) organizations takes into account cooperation and/or collaboration with other entities (within and outside an enterprise group). Describing and

communicating strategic objectives using the map makes it possible to visualize the strategy that is being implemented and then to identify the business model of a (complex) organization. If a strategic objective is achieved by several activities and/or processes, there will be many paths on the map. As a (complex) organization has many objectives, multiple paths and threads must be taken into consideration (cf. Viscusi, Batini & Mecella, 2010, pp. 64-65).

The map layout proposed by the author can help enterprises create value by (1) identifying the business model; and (2) recognizing the impact and the degree of changes in the activities and/or processes of a business model(s). The strategic objectives map in a static approach makes it possible to assess the type of activities and/or processes of a business model(s) responsible for achieving the main objectives of a group and its companies. In addition, the map reflects the dynamic value creation system within an enterprise group, as it shows changes in the importance of interdependencies between specific activities and/or processes that may result from changes in the companies from the group of companies to be consolidated, i.e. from an increase or decrease in the number of companies to be consolidated.

The map, which comprises several parts, is structured according to two criteria, i.e. (1) the business model level and (2) the logic of value (Fig. 1).

Figure 1. Key objectives, processes and/or activities of a business model
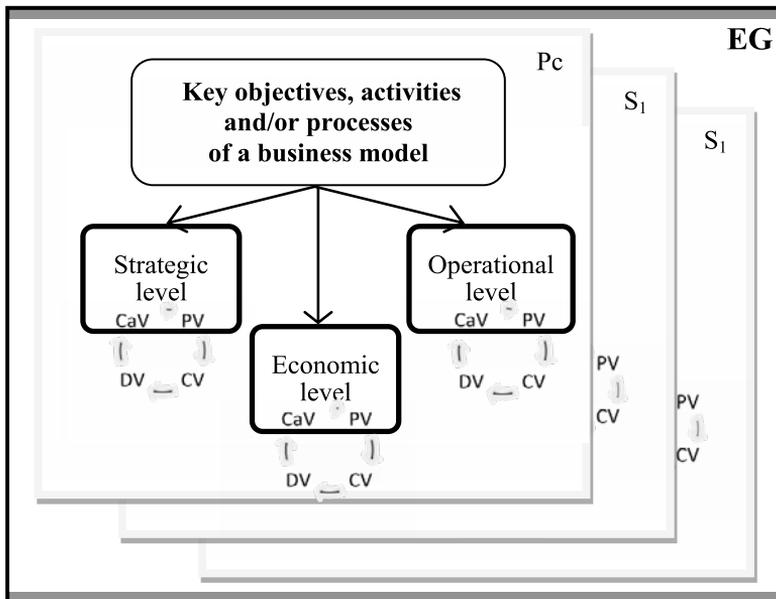
Note: CG – enterprise group; Pc – parent company; S$_1$ – first subsidiary; S$_2$ – second subsidiary; LV – logic of value; PV – activities and/or processes of a business model for proposing value; CV – activities and/or processes of a business model for creating value; DV – activities and/or processes of a business model for delivering value; CaV – activities and/or processes of a business model for capturing value.

Source: own elaboration based on (Morris, Schindehutte & Richardson, 2006, p. 30; Richardson, 2008, p. 6).

Figure 1 illustrates relationships between the business model concept and the value concept. The author has assigned the activities and/or processes of an enterprise group to three levels of the business model: (1) strategic, (2) operational, and (3) economic, thus referring to the conceptual business model framework proposed by Morris, Schindehutte and Richardson (2006, pp. 30-32). Key activities and/or processes of the business model are associated with the logic of strategic thinking about value, i.e. with (1) proposing value, (2) creating value, (3) delivering value, and/or (4) capturing value, which Richardson (2008, pp. 138-140) referred to in his business model framework.

2.2. A Business Model

A business model describes how corporates or enterprise groups do business (cf. Osterwalder, 2004, p. 25; Osterwalder & Pigneur, 2012, p. 19). It explains the combination of the factors of production which contribute to the implementation of a specific strategy of an organization, and the functions of the actors involved (cf. Amit & Zott, 2010, p. 4; Wirtz, 2011, pp. 24-97). "The business model depicts the design of transaction content, structure, and governance so as to create value through the exploitation of business opportunities" (Zott & Amit, 2001, p. 511). A business model reflects the making of strategic choices and their consequences. It requires the examination of both the logic of strategic decisions and their consistency. The focus on both proposing value and capturing value will make it possible to ensure a proper relationship between economic benefits and created values (Teece, 2009, p. 172; Casadesus-Masanell & Ricart, 2010, pp. 196-197). Each business model has its own specific map of strategic objectives which are achieved by means of various activities and/or processes. In the conceptual business model framework proposed by Morris, Schindehutte, Richardson, business model elements are divided into three levels (strategic, operational and economic). The key components of the strategic level comprise, among other things, market factors (e.g. a company's bargaining position, broad or general market/niche market), long-term growth, value system, value creation, partners, alliance and/or business combination. On the other hand, at the operational level, the key components of a business model comprise, for example, unique methods and processes, the infrastructure of a group's companies, internal capabilities (including supply chain management, operating systems), knowledge management, and approaches to implementation, while the key components of the economic level include, for example, revenue streams, income model, cost structures, and printing models (Morris et al., 2006, pp. 30-36).

Richardson's business model framework maps the logic of strategic thinking about value, including proposing value, creating value, delivering value, and capturing value (Richardson, 2006, p. 138). Proposing value refers to the products/services offer, target customer and relationships, and shareholder value. In this case, the following question must be answered: "What value is provided by an enterprise group, and to whom?".

Proposing value contributes to the provision of measurable (social and/or environmental) values and is in line with the economic value (cf. Lüdeke-Freund, 2009, p. 28; Schaltegger, Lüdeke-Freund & Hansen, 2012, p. 19). Creating value is related, among other things, to resources, capabilities, activities, business processes, suppliers, and customers. It is about types of sources of competitive advantage of (complex) organizations, and how such organizations provide value to their customers and other stakeholders. Delivering value is associated in particular with distribution channels and partner networks, hence it pertains to various channels used to reach customers. Capturing value refers to revenue and costs, and the value for society and the environment. Value is captured, for example,

by using existing/new business opportunities, and markets and revenue sources (cf. Richardson, 2008, p. 138; Bocken, Rana & Short, 2015, p. 8; Bocken, Short, Rana & Evans, 2014, pp. 43-44).

2.3. Groups of undertakings and their synergistic effects

In her paper, the author assumes that business combination comprises, among other things, mergers and acquisitions (M&As), and that this is a broader term than either merger or acquisition. Neither a merger nor an acquisition is synonymous with a business combination (cf. Helin, Zorde, Bernaziuk & Kowalski, 2012, pp. 5-12). A group is composed of a parent company (controlling entity), which is the acquirer, and at least one subsidiary controlled by the acquirer. An acquisition is a transaction in which the parent company acquires either interests/shares in another entity (the consolidation of the financial statements of both companies) or selected assets of the acquiree (the consolidation of assets). As a result of this transaction, a business entity takes control of another entity, which becomes its subsidiary.

The synergy concept is based on the "$AV(A + B) > AV(A) + V(B)$" effect. In the case of a business combination, the added value (AV) of a group of undertakings is higher than the sum of the added value of each individual company (A, B) on the day of first consolidation. Both companies decide to combine themselves believing this will contribute to the achieving of specific strategic objectives, particularly regarding value (cf. Jansen, 2004, pp. 263-268; Conybeare & Kim, 2010, p. 1177; Monden, 2012, pp. 21-23).

3. Research methodology

The research was conducted in stages as presented in Figure 2.

Figure 2. Stages of the research on strategic objectives maps for business models
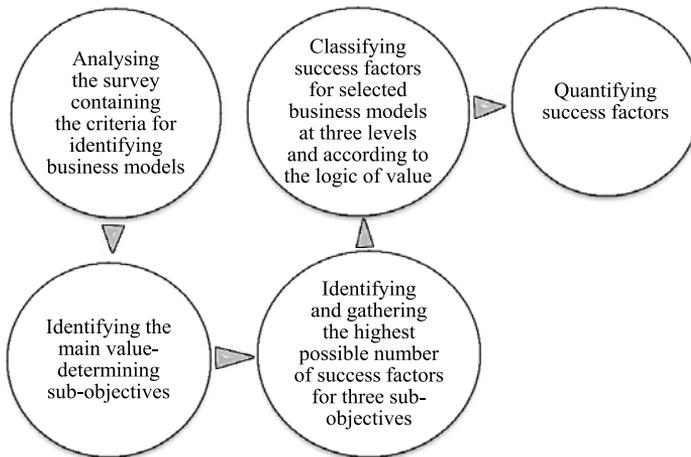
Source: own elaboration.

Research carried out by the author in 2011-2014 under grant No. NN 113 364740 resulted in the identification of fifteen basic business models of companies from the MIS sector and the development of the author's own methodology for analyzing the risk of building the business architecture of an enterprise group based on the various business models of subsidiaries (Tab. 1). This research was the starting point for identifying the influence of subsidiaries' key operating processes on a group's strategic objectives, defined in terms of value growth.

Table 1. The conceptual framework of the typology of business models of the MIS sector

Sector's value chain / Competitive strategy		1 Design	2 Production	3 Distribution	4 Implementation	5 Maintenance
1	Customer integration	1.1. Independent IT Advisor (ADV)	2.1. Independent Software Vendor (ISV)	3.1. Added Value Reseller (AVR)	4.1. Integrator (INT)	5.1. Help Desk (HDK)
2	Effects of economies of scale and/ or experience effect	1.2. Auditor (AUD)	2.2. Software Development Company (SDC)	3.2. Distributor (DIS)	4.2. Freelancer (FRL)	5.2. IT on Demand (ITD)
3	Innovations	1.3. Business Consultant (BCS)	2.3. IT Lab (LAB)	3.3. Challenger (CHL)	4.3 Software House (STH)	5.3. Service Provider (SPR)

Source: (Wartini-Twardowska, 2014, p. 132).

The so-called "strategic objectives maps" are a tool proposed for studying cause-and-effect inter-dependencies between added value in an enterprise group and subsidiaries' key operating processes. They have been developed in such a way as to make it possible to compare the impact of processes on strategic objectives, depending on the business model. In an attempt to discover the theoretical basis for the development of such maps, the author applied Kaplan's and Norton's balanced scorecard concept, in which strategic objectives referred to finances, market, internal processes and development. As a result, value growth, as a strategic objective of a group, was expressed by three main leading sub-objectives: (1) market share growth, (2) return on assets, and (3) return on equity. The author subsequently defined as many factors as possible affecting each sub-objective directly or indirectly. The final set of such factors was developed on the basis of an analysis of case studies of selected companies from the MIS sector. The next phase of the research involved the estimation of the impact of particular factors on leading sub-objectives, depending on the business model. For this purpose, the author used both previous surveys, in which the selection of the companies to be studied was preceded by a preliminary analysis of the profiles of these companies' businesses, and a detailed analysis of the cases of selected representatives of the MIS sector. The impact of individual factors on leading sub-objectives was presented for selected business models.

The importance of individual factors for each business model was determined on a four-point scale on the basis of the scale of the impact of the factor upon the value growth. The maximum number of points, i.e. 4, marked (●●●● or ○○○○) is given to the processes and/or activities key for the value growth. The minimum score, indicated by a single point (● or ○), denotes marginal impact.

The author mapped the key factors affecting the growth of value of an enterprise group to the three levels proposed in the conceptual business model framework developed by Morris, Schindehutte and Richardson (2006, pp. 30-32), and also referred to the logic of strategic thinking about value depicted in Richardson's business model framework (Richardson, 2008, pp. 138-140).

Ultimately, the proposed approach made it possible to identify key factors for value management in an enterprise group from the perspective of business models.

4. Findings and discussion – hypotheses H1, H2

In this paper, the author developed the concept of value growth of enterprise groups from the perspective of business models, focusing on the identification of key operating processes and/or activities of particular models and their role in the creation of added value.

4.1. The Identification of Key Factors Affecting Value Growth – hypothesis H1

On the basis of her research, the author has identified three key factors which, due to specific activities and/or processes, affect value in business models of the management information systems (MIS) sector, i.e. (1) market share growth, (2) return on assets, and (3) return on equity (Tab. 2). The system of key components of the map is composed of several parts arranged according to two criteria: (1) the business model level, and (2) the logic of value. The logic of value of business models in the management information systems (MIS) sector is reflected in the constellation of key (strategic, operational and economic) factors (Fig. 2-4), which is formed by the various relationships existing between them and their various impacts.

Table 2. The constellation of key components affecting value for selected business models of MIS sector

No.	Key Components \ Business models	BSC	SDC	ISV	INT	SPR
1	Market share growth (revenue growth rate)	●●	●●●●	●●●	●●	●●
2	Return on assets	●●●	●	●●●	●●●●	●●●●
3	Return on equity	●●	●●	●●●	●●●	●

●●●● – crucial impact of the components for the business models; ●●● – strong impact of the components for the business models; ●● – significant impact of the components for the business models; ● – marginal impact of the components for the business models

Source: own elaboration.

Market share growth is the main factor for the models focused on a mass customer service strategy (e.g. SDC). On the other hand, in business models characterized by a long-term return on project portfolio, the effects in the form of an above-average return on projects are achieved after a period of investments in a customer. However, the last main factor affecting value growth, namely the structure of capital and assets, is responsible for the financing means of both operating activities (financing the implementation of projects) and investing activities (financing development).

4.1.1. Key Market Share Growth Factors – hypothesis H1

Key "market share growth" factors at the strategic level of a business model correspond to the logic of value, which is formed by (1) proposing value, and (2) delivering value, and the main factor of the "market share growth" map reflects capturing value (see: Fig. 2). The factors at the operational level of a business model are related to creating value. The factors of the strategic objectives map at the economic level of a business model reflect capturing value (see Fig. 2, Tab. 3 and Tab. 4).

Figure 2. Key Market Share Growth Factors
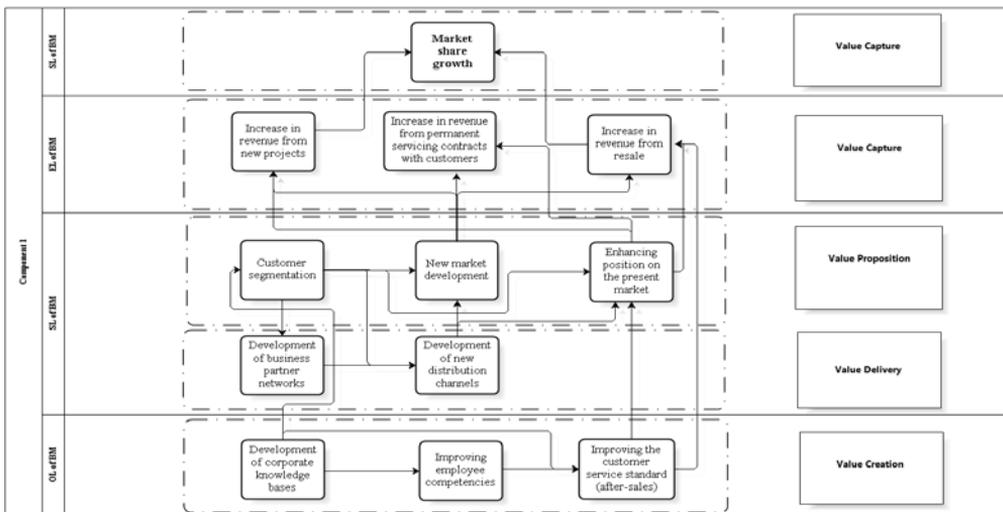
Key: BM – business model; EL – economic level; OL – operational level; SL – strategic level.

Source: own elaboration.

The author has identified three economic factors common to the analyzed business models which affect market share growth, including revenue from: (1) new projects, (2) permanent (servicing) contracts with customers, and (3) additional projects resulting from cooperation with existing customers (see: Fig. 2 and Tab. 3). Revenue from new projects comprises both revenue from projects for new customers and revenue from new projects for existing customers (Tab. 3). Revenue from permanent contracts with customers is generated on the basis of typical servicing (maintenance) contracts and fixed income from other services (rental, outsourcing, resource sharing fees, etc.). Revenue from new projects is critical from the point of view of market share for all analyzed business models (Tab. 3). The attachment to existing markets in ISV or INT models

is emphasized very strongly. Despite various definitions of markets for these models it appears that relatively high costs of market change are a common trait justifying observed preferences.

Table 3. Market share growth factors for selected business models at the economic and strategic levels

No.	Market share growth factors	BSC	SDC	ISV	INT	SPR
1.1	Revenue from new projects	●●●●	●●●●	●●●●	●●●	●●●
1.1.1	Development of new markets	○○○	○○○○	○	○○	○○
1.1.2	Enhancing position on present markets	○○○	○○	○○○○	○○○○	○○○
1.2	Revenue from permanent contracts with customers	●	●●	●●●	●●	●●●
1.3	Revenue from up-sells	●●	●	●●	●●●●	●●

●●●● – crucial impact of the factors for the business models; ●●● – strong impact of the factors for the business models; ●● – significant impact of the factors for the business models; ● – marginal impact of the factors for the business models; ○○○○ – crucial impact of the sub-factors for the business models; ○○○ – strong impact of the sub-factors for the business models; ○○ – significant impact of the sub-factors for the business models; ○ – marginal impact of the sub-factors for the business models

Source: own elaboration.

Table 4. Market share growth factors for selected business models at the strategic and operational levels

No.	Market share growth factors	BSC	SDC	ISV	INT	SPR
1.4	Development of distribution channels	●●	●●●●	●●	●●●●	●●
1.4.1	focusing on own channels	○○○○	○○	○○○	○○○○	○○○○
1.4.2	building third-party distribution channels	○	○○○○	○○	–	○
1.5	Customer segmentation	●	●●	●	●	●●
1.6	Improving customer service standards	●●●●	●●	●●●●	●●●●	●●●
1.6.1	customer service standardization	○	○○○○	○○	○	○○
1.6.2	customer service customization	○○○○	○○	○○○	○○○○	○○○
1.7	Development of corporate knowledge bases in the following areas:	●●●●	●●●	●●●	●●	●●●●
1.7.1	customer acquisition (CRM)	○	○○○○	○○○	○○○	○○
1.7.2	after-sales service (Service Desk)	○	○○	○○○	○	○○
1.7.3	project management	○○	○○○	○	○○○○	○
1.7.4	solving customers' problems	○○○○	○	○○	○○○	○○○○
1.8	Improving employee competencies	●●●●	●●●	●●●	●●●	●●●●

●●●● – crucial impact of the factors for the business models; ●●● – strong impact of the factors for the business models; ●● – significant impact of the factors for the business models; ● – marginal impact of the factors for the business models; ○○○○ – crucial impact of the sub-factors for the business models; ○○○ – strong impact of the sub-factors for the business models; ○○ – significant impact of the sub-factors for the business models; ○ – marginal impact of the sub-factors for the business models; – no impact of the sub-factors for the business models

Source: own elaboration.

4.1.2. Return on Assets Growth Factors – hypothesis H1

Key factors for "increasing/maintaining return on assets" at the strategic level of a business model are related to creating and capturing value. Components at the operational and economic levels, on the other hand, contribute to creating value (Fig. 3). However, the main component of the "increasing/maintaining return on sales" map reflects the effects of capturing value.

The author has identified three main, common factors contributing to an increase in return on assets for business models in the MIS sector: (1) improving the resources management for projects, (2) servicing standardization, and (3) enhancing the bargaining position on the market (in relation to customers and suppliers).

Figure 3. Return on Assets Growth Factors

Source: own elaboration.

The first group of factors is crucial in the case of models in which solving customers' specific problems is important, although, as illustrated by Table 5, the reasons for the importance of this factor are diverse. For example, in the BSC model, HR management is of key importance, whereas in the INT model, the financing of large deployment projects and supplier management are critical factors.

Table 5. Key return on assets growth factors for selected business models at the strategic and operational levels

No.	Return on assets growth factors	Business models				
		BSC	SDC	ISV	INT	SPR
2.1	Improving project resources management	●●●●	●●	●●	●●●●	●●●●
2.1.1	human resources	○○○○	○○○	○○○○	○○	○○○
2.1.2	IT resources	○○○	○○	○○	○○○	○○○○
2.1.3	financial resources	○○	○○○○	○○○	○○○○	○
2.1.4	technical resources	–	○	○○	○	○○
2.1.5	development of relationships with partners	○	○○○○	○○	○○○○	○○○
2.2.	Servicing standardization	●	●	●●●	●	●●
2.3.	Enhancing the bargaining position on the market	●●	●●●●	●●●●	●●	●●
2.3.1	augmenting the bargaining position in relation to customers	○○○	○○○○	○○○○	○○	○○○
2.3.2	augmenting the bargaining position in relation to suppliers	–	○○	○○	○○○○	○○

●●●● – crucial impact of the factors for the business models; ●●● – strong impact of the factors for the business models; ●● – significant impact of the factors for the business models; ● – marginal impact of the factors for the business models; ○○○○ – crucial impact of the sub-factors for the business models; ○○○ – strong impact of the sub-factors for the business models; ○○ – significant impact of the sub-factors for the business models; ○ – marginal impact of the sub-factors for the business models; – no impact of the sub-factors for the business models
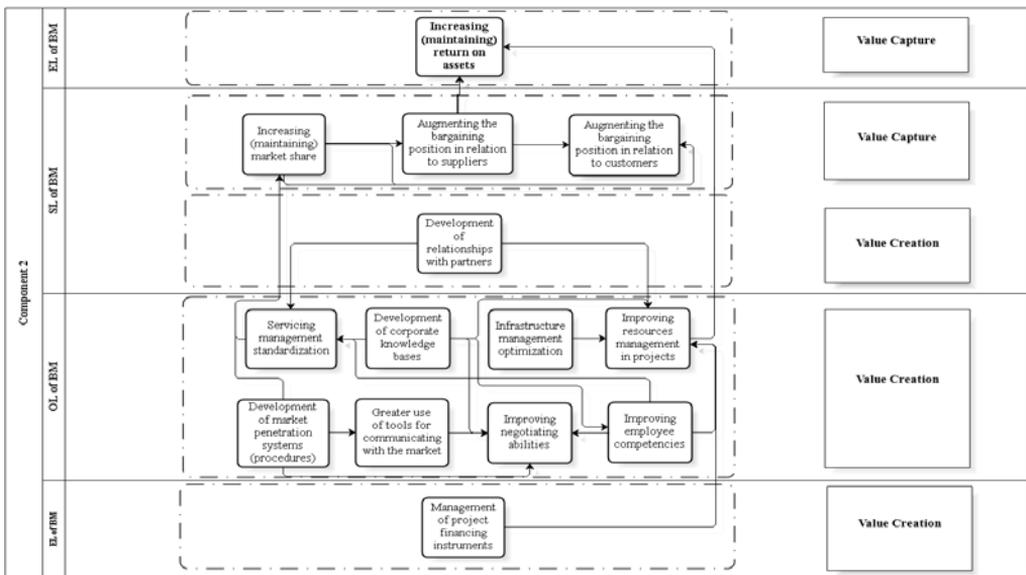
Source: own elaboration.

Enhancing the bargaining position on the market is important in the case of all business models. However, when analyzing this factor with reference to other factors, three models can be differentiated for which it is dominant: SDC and ISV. The first two models pertain to producers for whom licenses sales volume is a critical factor in terms of the return on investment in a product.

Improving project resources management as a factor affecting return on sales and assets can also be analyzed in terms of project types (Tab. 6). Such an approach makes it possible to identify critical measures of the achievement of business objectives for each model in a more efficient way. Thus, for example, investment projects are the domain of producer-based models (SDC and ISV); at the same time, for these models, commercial projects play the key role, which is associated with the required return on investment already mentioned. Deployment projects are important for the remaining models.

Table 6. Return on assets supporting factors for selected business models at the strategic and operational levels

No.	Return on assets growth factors	Business models BSC	SDC	ISV	INT	SPR
2.4	Improving project resources management	●●●●	●●	●●	●●●●	●●●●
2.4.1	investment project management	○	○○○○	○○○	○	○
2.4.2	deployment project management	○○○○	○○	○○○	○○○○	○○○○
2.4.3	commercial project management	○○	○○○○	○○○○	○○○	○○
2.4.4	technical resources maintenance	–	○○○	○○	○	○○
2.5	Bargaining position in relation to customers	●●●	●●●●	●●●●	●●	●●●
2.5.1	improving negotiating abilities	○○○○	○○	○○	○○○○	○○○○
2.5.2	developing market penetration systems	○	○○○	○○○	○○	○○○
2.5.3	using tools for communicating with the market	○○○	○○○○	○○○	○○○○	○○
2.5.4	market share	○○○	○○○○	○○○○	○○	○○
2.6	Bargaining position in relation to suppliers	●	●●	●●	●●●●	●●
2.6.1	market share	○	○○○	○○○	○○○	○○○
2.6.2	developing market penetration systems	✕	○○	○	○○○○	○○○○

●●●● – crucial impact of the factors for the business models; ●●● – strong impact of the factors for the business models; ●● – significant impact of the factors for the business models; ● – marginal impact of the factors for the business models; ○○○○ – crucial impact of the sub-factors for the business models; ○○○ – strong impact of the sub-factors for the business models; ○○ – significant impact of the sub-factors for the business models; ○ – marginal impact of the sub-factors for the business models; – no impact of the sub-factors for the business models

Source: own elaboration.

Other factors supporting return on sales comprise the four identified factors affecting the bargaining position in relation to customers (Tab. 6). Improving negotiating abilities, as a critical factor for the maintenance of the expected return on assets/sales, is important in the case of the models in which service provision depends on specialized resources and a very good understanding of customers' specific needs. Market penetration systems (e.g. CRM) are critical in the case of models focused on the provision of a repeated product/service. As illustrated in Table 5, there is a relatively high correlation between the importance of market share and the development of market penetration systems. The last factor, i.e. using tools for communicating with the market (public relations, publicity, etc.) is essential in the case of producer-based models and models which offer customers dedicated solutions.

4.1.3. Return on Equity Growth Factors – hypothesis H1
Key factors for increasing (maintaining) return on equity are related to creating and capturing value; and, the main component of the "return on equity" map reflects the effects of capturing value. The author has identified three factors contributing directly to an increase in return on equity for business models in the MIS sector: (1) return on assets, (2) the capital structure (borrowed capital/equity), (3) financial burden rate (Fig. 4).

Figure 4. Return on Equity Growth Factors

Source: own elaboration.

Table 7 shows that, in two business models, i.e. ISV and SDC, the sales of proprietary licenses contributes greatly to the creation of added value. In turn, the importance of revenue from the sales of services (particularly of deployment services) refers to the majority of analyzed models. Such services involve human resources maintenance costs , which are critical for BSC, INT and SPR models (Tab. 8). The effects of operating cycle management determine the capital structure and the use of borrowed capital which affects the financial burden rate (Tab. 9).

Table 7. Factors supporting return on equity for selected business models at the economic level – capturing value

No.	Factors supporting return on equity	BSC	SDC	ISV	INT	SPR
3.1	Revenue from the sales of proprietary licenses	–	●●●●	●●●●	●	–
3.2	Revenue from the sales of services, including:	●●●●	●●	●●●	●●●●	●●●●
3.2.1	deployment services	○○○○	○○○○	○○○○	○○○○	○○
3.2.2	consulting services	○○○	○	○	○	○

3.2.3	Servicing	–	○	○○○	○○	○○○○
3.2.4	training services	○○	○○○	○	○	○○
3.2.5	revenue from other services	○	○	○	○○	○
3.3	Revenue from subscriptions	–	●●	●●	●	–
3.4.	Revenue from the sales of goods, including:	–	●●	●●	●●●	●
3.4.1	resale of third-party licenses	–	○○○○	○○○	○○○	–
3.4.2	resale of IT infrastructure components	–	○○○	○○○	○○○	○○○

●●●● – crucial impact of the factors for the business models; ●●● – strong impact of the factors for the business models; ●● – significant impact of the factors for the business models; ● – marginal impact of the factors for the business models; ○○○○ – crucial impact of the sub-factors for the business models; ○○○ – strong impact of the sub-factors for the business models; ○○ – significant impact of the sub-factors for the business models; ○ – marginal impact of the sub-factors for the business models; – no impact of the sub-factors for the business models
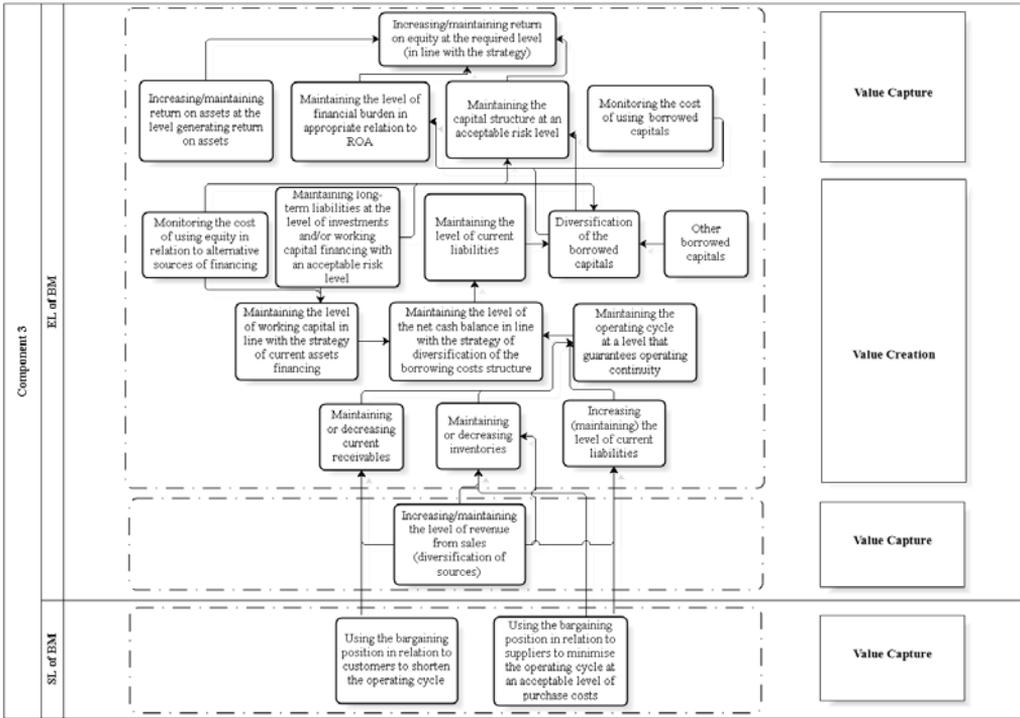
Source: own elaboration.

Table 8. Factors supporting return on equity for selected business models at the economic level – creating and capturing value

No.	Business models / Factors supporting return on equity	BSC	SDC	ISV	INT	SPR
3.5	Investments in infrastructure	●	●●●	●●	●●	●●
3.6	"Investments" in human resources	●●●●	●●●	●●●	●●●●	●●●●
3.7	Human resources maintenance costs, including:	●●●●	●●●●	●●●●	●●●●	●●●●
3.7.1.	consultants/IT consultants	○○○	○○	○○	○○	○○○○
3.7.2.	analysts/IT solutions designers	○○	○○○○	○○○	○○	○○○○
3.7.3.	project managers (PM)	○○○○	○○	○○	○○○○	○○
3.7.4.	Programmers	–	○○○○	○○○○	○	–
3.7.5.	technical support	–	○○	○○	○	○○
3.7.6.	sales representatives	○○	○○	○○	○○○○	○○○
3.8	Other business costs, including:	●●	●●	●●●	●●●●	●●
3.8.1	resale of third-party licenses	–	○	○○	○○○	–
3.8.2	resale of IT infrastructure components	–	○○	○○	○○○○	○○○

●●●● – crucial impact of the factors for the business models; ●●● – strong impact of the factors for the business models; ●● – significant impact of the factors for the business models; ● – marginal impact of the factors for the business models; ○○○○ – crucial impact of the sub-factors for the business models; ○○○ – strong impact of the sub-factors for the business models; ○○ – significant impact of the sub-factors for the business models; ○ – marginal impact of the sub-factors for the business models; – no impact of the sub-factors for the business models

Source: own elaboration.

Table 9. Factors supporting return on equity for selected business models at the economic level

No.	Factors supporting return on equity	BSC	SDC	ISV	INT	SPR
3.9	Equity	●●	●●●●	●●	●●●	●●
3.10	Operating cycle management	●●●●	●●	●●●●	●●●●	●●●
3.10.1	accounts receivable management	○○○○	○○○○	○○○○	○○	○○
3.10.2	inventory management	–	○	○	○	○
3.10.3	accounts payable management	○	○	○○	○○○○	○○○○

●●●● – crucial impact of the factors for the business models; ●●● – strong impact of the factors for the business models; ●● – significant impact of the factors for the business models; ● – marginal impact of the factors for the business models; ○○○○ – crucial impact of the sub-factors for the business models; ○○○ – strong impact of the sub-factors for the business models; ○○ – significant impact of the sub-factors for the business models; ○ – marginal impact of the sub-factors for the business models; – no impact of the sub-factors for the business models

Source: own elaboration.

As demonstrated in the work, the presented strategic objectives maps can help to identify in detail the key operating processes of a subsidiary's business model and serve as a tool to diagnose the impact of these processes on a group's added value. This is particularly important in enterprise groups in which the business models of subsidiaries are heterogeneous, where the key processes of individual entities hamper support of the group's strategic objectives and where the synergistic effects of such combinations may be ambiguous.

4.2. Groups of Undertakings – Selected Synergistic Effects of Business Combinations – hypothesis H2

The tool proposed for studying cause-and-effect interdependencies between added value in a group and subsidiaries' key operating processes are so-called strategic objectives maps. The effects of such a comparison are shown in the analyzed case study.

Two analyzed business entities operate in the profitable MIS sector and are based on B2B relationships, creating a group of undertakings. A related party (Company C) is a niche producer (ISV), while the parent company (Company B) is a mass producer (SDC). The group of undertakings operates in Silesia. The cooperation between these companies results in various synergistic effects. Examples of such effects are presented synthetically in Figure 5.

The offer of both companies depends on the quality of suppliers' components and changes to them. The low cost of their purchase as compared to the price of the final product of each of the group's companies is a factor neutralizing the dependence on suppliers. Companies address their offer to a different market segment. One of Company C's products (services) is a component of the parent company's product portfolio. Owing to this component, Company B is able to develop a broader offer for the group's customers and consolidate its bargaining position. Company B has a strong position in the sector, but Company C can strengthen it significantly by combining with Company B. Company C's solutions support decision-making processes in large organizations

that are growing or are in the restructuring/post-restructuring phase; therefore, they are of little importance for Company B, which provides its products/services to customers from the small and medium-sized enterprises (SME). The increase in Company C's market share depends primarily on the common product strategy of the group of undertakings. Company C uses the group of undertakings' distribution channels, which helps it to acquire customers and gain experience. On the other hand, the combination of Company B and Company C makes it possible to increase the uniqueness (modernity) of the offer and capture a significant share of added value. The broader offer contributes to the generation of significantly higher revenue and the combination makes it possible to reduce costs. The fact of belonging to a group results in a bigger market share, and higher added value and profitability.

Figure 5. Synergistic effects for a selected enterprise group
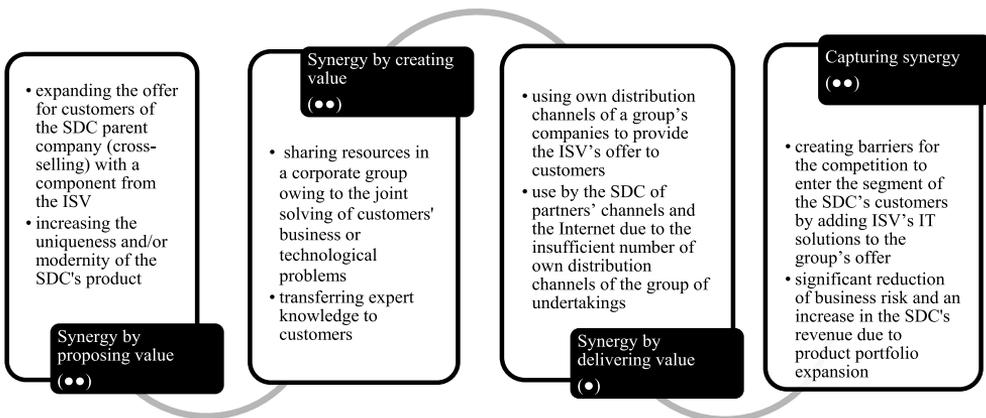
Source: own elaboration.

5. Conclusion and Directions of Further Research

The author has proved in her research that each of the analyzed business models was characterized by a unique combination of key factors affecting added value (Wartini-Twardowska, 2014, pp. 103-112). The key operating processes of analyzed business models are centered around these factors. Prior to any decision changing the structure of capital links in a group of enterprises, the author postulates carrying out a simulation of the impact of planned changes on a group's value. The strategic objectives maps presented here constitute the basis for constructing such a simulation model.

The author proposes to continue this research to carry out further, in-depth analysis of the relationships between the key operating processes of subsidiaries and the possibility of sharing key resources within a group, since the perspective of a business model makes it possible to identify relatively accurately the opportunities and threats related to the allocation of resources among subsidiaries from the point of view of the impact on a group's added value.

The research conducted to date in the MIS sector is important, inter alia for the following reasons: (1) it expands information about business models, supports the creation of added value for a (complex) organization, and reduces business risk (particularly operational and financial risk); (2) it reduces the complexity of a group of undertakings by identifying key success factors characteristic of specific business models, and by recognizing the potential for synergies and possibilities of capturing them; (3) it may facilitate the adapting of subsidiaries' business models to the conditions prevailing within an enterprise group; (4) it improves the profitability of the processes of business models in a group of undertakings, for example, by increasing the utilization of resources or barriers for the competition to enter market segments; (5) it becomes a part of and elaborates on the description of the Polish section of information and communication services, and the development of the characteristics of business models contributes to greater understanding of the specific nature of the MIS sector, as well as being helpful for various groups of stakeholders.

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Main Constraints of Management Practice in Small Business

Božidar Leković, Slobodan Marić

1. Introduction

Although the roles, characteristics and activities of owners, entrepreneurs and managers clear-cut when it comes to entrepreneurial podugvat and its development in a small company then these functions are, in most cases, are concentrated in a single person. It is this knowledge and a number of other objective circumstances that carry the mentioned stages in the development of the business represent a very complex and demanding unity for individuals who hold a business venture. Similarly, chromosomes do not say that all small business owners and entrepreneurs at the same time or that all entrepreneurs start their own business venture in the form of a small business. Although these categories are often replaced with each other, just as there is some overlap between them, but enough differences which requires separate analysis of each individual. Entrepreneurship is the process of identifying market needs and risk assessment in trying to satisfy them. A key requirement of entrepreneurs in the mentioned process is the vision to take advantage of opportunities and achieve the same capitalization. It is this dimension is the key difference between the two processes, as well as a third point of support in the management of small enterprises as Wickham (2004) pointed out in his approach to the dimensions of entrepreneurial ventures and management of small enterprises.

Otherwise, management of small enterprises is an ongoing process of owning and carrying out existing business. Thus, the manager of a small company should be able to meet all the challenges of running a business, such as human resources management, responsiveness to the needs and desires of customers, sales, financial management, and other examples of similar activities that ensure a successful business.

2. Managerial practices of small enterprises

The transformation process of the entrepreneur to professional manager is very problematic, since the skills that were needed for the establishment and management of a business venture in the initial phase are not always identical with the skills needed for business management of large

scale. A fundamental change is happening in the transformation of the mode of thinking as well as workers in the way of thinking as a manager, or the transformation of entrepreneurial leadership style in business management approach. In order to facilitate this transition, it is necessary to pay attention to the following areas:

- A clear presentation of objectives and visions of all employees,
- Effective and efficient management of all resources, including staff,
- Learn to delegate effectively,
- Implement the process to the individuals responsible učinini (Goldhill, 2009).

Common characteristics of different professionally managed a small business and can improve the process of transformation from independent entrepreneurs to larger operations. In order to successfully perform the transformation process is necessary that small business owners manage the stop and start to operate. In order to achieve this it is necessary to:

- Develop effective infrastructure – this is necessary If you elect small business owners want to keep control but not permanently manage every decision.
- Plan and manage growth – the biggest challenge for small business owners can be a realization changes in their roles.
- Protection of time owner of a small company – one of the challenges for the owner of a small business can be a cessation of the execution of tasks that are currently performed, that is the key to this effort becomes delegation (Tozzi, 2008).

"As long as you are lucky in chaos, a small business can be really", one of the comments that happiness for entrepreneurs or small businesses are not always in a mess, although small business owners seem challenging it is significantly different compared to the corporate workers. When it comes to the process of keeping and management, small business experience changes from its inception to the point where they employ professional managers who are trained systematic and analytical methods of management, which includes the line continuum between the two extremes of a very unprofessional to highly professional management.

2.1. Planning as a dominant managerial activities in small enterprises

When it comes to business planning, both for new and for existing small businesses, many researchers, though members of the planning school, the key role of these activities for the survival and development, especially pointing out that systematic prognostic oriented and formal approach to planning leads to remarkable effect business ventures.

Retaining within academic circles, we find that the leading professors of entrepreneurship estimated that the development of a business plan the most important tool in the teaching of entrepreneurship (Hills, 1988). In many of the countries of the business plan is the main instrument of encouraging entrepreneurship and regional development (Russell et al., 2008). Every year hundreds of students participate in state training programs to create a business plan (Brinckmann et al., 2010). Displaying simpler facts come to know that in many bookstores we can see shelves full of literature in the form of books and guides for the preparation of a business plan. Other aspects of planning and consideration of the relationship of the endeavor brings into question the accuracy of the previously mentioned claims. Discuss this relationship for a long time starting from the current Mintzberg (1985), Porter (1985) and another that only intensified with the recent contemporaries (Delmar & Shane, 2003; Gruber, 2007).

In the context of this debate can be identified two opposing schools, primarily referring to the originally planned school that advocates plan to encourage the development of enterprises so as to be far more effectively use resources, faster decision-making process and support that comes due to the high flexibility of the business. Planned school was built assumption that planning generally improves the effectiveness of human activities and abilities to achieve goals. Proponents of this school (Andrews, 1971; Armstrong, 1982; Porter, 1985) highlight the key components of business planning such as the definition of strategic objectives, generating alternatives for achieving the objectives as well as the assessment and control of implementation. This approach to the planning process carries with it a number of significant benefits in the form of better response organization to changes in the environment, better use of resources and control of operations and to achieve the objectives despite the great dynamism and unpredictability of the environment. Especially adequate analysis and assessment as well as the selection of appropriate alternative requires market research, forecasting and detailed analysis particularly competitive strategiesEssentially planned approach is based on predicting (Wiltbank et al., 2006). Taking into account all the previously listed activities that are contained in the business planning process as well as those that are an essential precondition for its implementation, we can conclude that business planning is primarily a rational and comprehensive then formally approach in developing a strategy which is based on the belief that business planning significantly helps predict and prepare the organization for future challenges. Numerous advantages of planning that are listed largely by Delmar and Shane (2003), but also by many other authors, such as quick decision-making, testing attitudes without engagement resources, optimization of resources itself, defining the concrete steps to achieve the goals as well as any deviations from the guidelines and causes variations in the weather can be identified and eliminated. The basis for successful planning as well as the business plan as the final result it is necessary to effective communication both within the company and outside it. The main benefit of this approach during the implementation of business activity is smanjivnje unpredictability dynamic and unstable external business environment.

3. Knowledge of O/E/M as a determinant of maturity of professional management in small enterprises

Basic entrepreneurial resource is the knowledge that the business process is experiencing a transformation as any other resource, but this time the economic knowledge, which is reflected in the identification of business opportunities in the market, while the same power of perception is determined by the amount of the initial knowledge of entrepreneurs. The very process of acquiring knowledge of entrepreneurs and their education process, when viewed in scope and structure, is a key factor in entrepreneurial ventures and positive outcomes. What we can conclude that the concrete entrepreneurial education directly conditioned by the quality and efficiency of exclusive entrepreneurial education and training programs, which are often displaced from the normal education system, since it requires great dedication and expertise in order to achieve adequate and efficient outcomes.

Levi and Autio (2008) cite the "Schumpeter (1934), which explains the difference between the entrepreneur and inventor by being an entrepreneur makes things completed, Lazear (2005) – to keep things looked as previously mentioned, this requires having a special set of skills and a who is recognized for its versatile nature. Entrepreneurs are in need of knowledge not only

of their own technical areas, but also possession of a broad set of skills in the field of business management and leadership in order to be able to assess and mobilize resources for the start-up and growth of new ventures".

Taking into account the views of Levie (2006), Bertrand (1995), Aronsson (2004), this profile pundits seem entrepreneurs as a significant demand for education and training right after the new entrepreneurs, and since most of the programs of education, generally, when it comes to higher education, seeking to focus on individual technical areas or on building professional in the given field, both highly specialized educational programs inappropriate for ensuring broad-based and practical oriented training for the training of entrepreneurial skills.

4. Data and methodlology

4.1. Sample

The basic set of studies are small enterprises in Vojvodina, which according to the Law on Accounting and Auditing ("Official Gazette of RS", No. 46/06 and 111/09) are classified as such. According to available data, the Agency for Business Registers, the group of small enterprises classified a total of 2603 in the territory of AP Vojvodina. The sample on which to perform research for the study will feature a proportional stratified sample. Size of the sample proportion in relation to the basic set is 0:10, which is absolutely satisfying if you take the number of variables represented in the survey. Stratification will be done on the basis of region, to a basic set of spatial aspects were adequately represented. By the method of random selection from a list of small businesses created by the Business Registers Agency, the Government of the Republic of Serbia, formed the sample of 260 small businesses with distribution across regions.

4.2. Collecting Data

The main method that will be used to collect data in the planned research is e-survej, which will be based on the principle of electronic communication (G-Drive) with respondents (in this case the owners/entrepreneurs/managers of small companies selected in the sample) to collect answers to questions from questionnaire taking into account all the advantages and disadvantages of this method.

4.3. Methodology

For examination of a statistically significant difference between the groups under the observation of a number of samples observed to be used categorical variables t – test for independent samples in the case of two groups, and the factor analysis of variance (one-way ANOVA) for the case of two or more groups of the observed variables. Since the ANOVA indicated that there were differences but not where the difference is significant, it is necessary to carry out subsequent comparisons in order to obtain more precise information.

4.4. Hypotesis

Set the following assumptions in the form of research hypotheses H1 is a logical continuation of the expressed intention of the research within the general hypothesis. Dominant segment of entrepreneurial skills and knowledge is the knowledge of the management and conduct of independent entrepreneurial venture in the form of the use of available resources in order to realize the business opportunities in the market, which is one of the definitions of management. So overall entrepreneurial skills and capabilities are determined by the knowledge that the entrepreneur has as a basic aspect of the analysis within the next hypothesis H1 as follows:

- H1: There is a significant difference between small businesses at the level of implementation of formal management practices in relation to the level of knowledge/Education OEM on the management and running of small business enterprise.
- H1a: There is a significant difference between small businesses at the level of implementation of formal management practices in relation to the level of OEM informal education.
- H1b: There is a significant difference between small businesses at the level of implementation of formal management practices in relation to the OEM area education.

5. Analysis of results and discussion

Since the assumption is confirmed by the dependency of business success/impact of small businesses on the level of application management practices, the next thing is logical to ask ourselves are key prerequisites for implementation and application of the control-loop control activities in small businesses. To a large extent, based on the attitudes of the ruling main indirect factor in entrepreneurial success, a direct when it comes to management practices did entrepreneurial knowledge and skills. The dominant segment of entrepreneurial knowledge and skills is the knowledge of the management and conduct independent business enterprise as use of available resources in order to realize business opportunities in the market, which is one of the definitions of management. Thus, the entire entrepreneurial skills and opportunities determined by the knowledge that the entrepreneur possesses the basic aspect of the analysis within the general hypothesis H1.

The scope and structure of a formal application management practices depending on the level of education of the owner/entrepreneur/manager is evident from the results presented in the table below, which allocated two control activities which are a result of the achieved level of education O/E/M.

When variables C3b.04 With all planning documents (long-term, short-term goals – commitments) to meet all employees. We found statistically significant differences at the level of $p < 0.05$ between the three levels of education V/P/M regarding the application of the scope and structure of management activities with F $(2, 529\ 141) = 4.067$, p = .018. The real difference between the mean value of the group at the level of male significance expressed by the use of eta squared is 12:03. Subsequent comparison of the value of using the Tukey HSD test indicates a statistically significant difference between the groups only 5 graduate level of education and a group of 3 middle level education for the observed variable.

Based on the preliminary results of the analyzed variables, we can conclude that the education level of contributions, the differences in the application of management practices that are manifested on two independent variables management activities for which we can say that they belong to a group of key Kakdi it comes to managing and running small businesses. This results potvrđujumo hypothesis H1.

Table 1. ANOVA. C3a.01 Level of O/E/M education?

		Sum of Squares	df	Mean Square	F	Sig.
C3b.04 With all the planning documents (long-term, short-term goals – commitments) were introduced to all employees	Between Groups	16.747	2	8.374	4.067	0.018
	Within Groups	529.141	257	2.059		
	Total	545.888	259			
C3b.19 In your company, as well as management support using the information system	Between Groups	7.903	2	3.952	4.207	0.016
	Within Groups	241.401	257	0.939		
	Total	249.304	259			

Source: own calculations.

The scope and structure of a formal application management practices, depending on the mode of acquisition of managerial knowledge (formal education, non-formal education, work experience) owners/entrepreneurs/managers is evident from the results presented in the table below, which allocated two control activities that are a consequence of the observed variables.

When variables C3b.07 In your company org. structure harmonized with the nature of the work, flexible in relation to the requirements of business, a statistically significant difference at the level of $p < 0.05$ between the three types of ways of gaining knowledge management V/P/M regarding the application of the scope and structure of management activities with $F (2, 77.185) = 13.004$, $p = .000$. The real difference between the mean value of the group at the level of secondary significance expressed by the use of eta squared is 00:09. Subsequent comparison of the value of using the Tukey HSD test highlights the existence of significant differences between categories V/P/M, which are compared to the observed variable and primarily for the benefit of formal education, followed by work experience and only formal education at the level of statistical significance of the observed variable.

Table 2. ANOVAC3a.07 Management knowledge I have gained through...

		Sum of Squares	df	Mean Square	F	Sig.
C3b.07 In your company org. structure harmonized with the nature of the work, flexible in relation to the business requirements	Between Groups	7.811	2	3.905	13.004	0
	Within Groups	77.185	257	0.3		
	Total	84.996	259			
C3b.15 In your company VPM motivating remuneration, according to associates and support adequate vrednovanjemm performance of staff in accordance with the financial effects of the company	Between Groups	6.299	2	3.15	3.027	0.05
	Within Groups	267.435	257	1.041		
	Total	273.735	259			

Source: own calculations.

The scope and structure of a formal application management practices depending on the area of education owner/entrepreneur/manager is evident from the results presented in the table below to allocate five control activities that are the result of specific areas of expertise V/P/M.

Table 3. ANOVA. C3a.02 Area of education?

		Sum of Squares	df	Mean Square	F	Sig.
C3b.04 With all the planning documents (long-term, short-term goals – commitments) were introduced to all employees	Between Groups	19.329	3	6.443	3.132	0.026
	Within Groups	526.56	256	2.057		
	Total	545.888	259			
C3b.10 In your company there is a plan of the necessary personnel, according to the scope and structure – expertise, which is the basis of employment and human resources management	Between Groups	17.315	3	5.772	3.48	0.017
	Within Groups	424.531	256	1.658		
	Total	441.846	259			
C3b.11 In your company the recruitment and selection of employees is carried out in accordance with the real needs and objectives of the company opstavljenim	Between Groups	4.952	3	1.651	2.661	0.049
	Within Groups	158.813	256	0.62		
	Total	163.765	259			
C3b.13 In your company there is a strong and open communication between VPM and employees on all aspects of the business, which is based on mutual trust	Between Groups	8.423	3	2.808	4	0.008
	Within Groups	179.711	256	0.702		
	Total	188.135	259			
	Total	434.554	259			
C3b.18 In your company pays great attention to quality control realization of business activities/processes and quality control of finished products and/or services	Between Groups	7.23	3	2.41	4.698	0.003
	Within Groups	131.324	256	0.513		
	Total	138.554	259			

Source: own calculations.

Based on the preliminary results of the analyzed variables, we can conclude that the area of education contribute to the differences in the application of management practices that are exhibited on five isolated variables control the activities for which we can say that they belong to a group of key Kakdi it comes to managing and running small businesses.

6. Conclusion

To a large extent, based on the attitudes of the main governing indirect factor in entrepreneurial success, a direct when it comes to management practices did entrepreneurial knowledge and skills. The dominant segment of entrepreneurial knowledge and skills is the knowledge of the management and conduct independent business enterprise as use of available resources in order to realize business opportunities in the market, which is one of the definitions of management.

Based on the preliminary results of the analyzed variables, we can conclude that the level of education, field of education, expertise, prior employment, work experience and informal training contributes to differences in the application of management practices that are expressed in most management activities for which we can say that the group includes key when comes to managing and operating small businesses.

In addition to the formal implementation of management practices in small enterprises primarily driven by entrepreneurial – managerial knowledge, skills and abilities of the owners/entrepreneurs/managers, the level of development uravljačkog system depends on the decision V/P/M and its commitment to the priorities defined in a variety of business activities. By this we mean that the critical awareness of the need to develop a control system that should be owned by owner/entrepreneur/management in order to develop a management system and thus facilitate the development of the entire company.

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Chapter **34**

Trust as Specimen of Network Paradigm in Management of Organization[1]

Anna Pietruszka-Ortyl

1. Introduction

The deliberations on paradigms are a domain of most sciences. Similar situation is encountered in the case of management sciences, though in this case, the deliberations are more of a discussion. Management sciences are a young discipline, some even say it is too unfledged to have fully crystallised paradigms.

Such an opinion is favoured by the precursor of research on paradigm in the development of sciences, T. S. Kuhn. He believes that evolution of science is periodical and, as every process, has its stages. The first stage is the "pre-paradigm" period, with a lot of competitive concepts, the environment being determined to search for new solutions and interpretations, as well as explicitly stressed dissatisfaction with the existing knowledge. This results in referring to philosophy and undertaking profound actions, which as a consequence lead to determination of new, cognitively inspiring areas of analysis of science development, as well as to development of paradigms typical of the given community. Successively, a belief is crystallising, at first among narrow groups of scientists, that the valid paradigms cease to comprehensively perform their previous functions of tools of cognition of a specific aspect of reality. Finally, a revolution occurs, which is the beginning of another development phase of science and generates new paradigms. However, with time, the generated paradigms, just like before, cease to fully perform their cognitive functions and this leads to another revolution, and thus another phase in the development of science (Pietruszka-Ortyl, 2012, pp. 69-80).

For this reason, T. S. Kuhn wonders whether any of the disciplines of social sciences, including management sciences, have already achieved any paradigm at all. This opinion of the authority in the field is confirmed by C. Suszyński (2010, p. 50), who emphasises that "management sciences are at the stage preceding development of new paradigms".

Searching for new instruments to describe specific aspects of the dynamically changing reality in management sciences is therefore fully justified. Therefore, the purpose of the study is to undertake a broader discussion dedicated to identification and development of the previous proposals of paradigmatic science patterns, with particular focus on the emerging network paradigm, along with its elements.

2. Paradigm in the development of science

T. S. Kuhn (2001, p. 10) became an international propagator of the theory of paradigms as important factors for scientific research, who suggests that paradigms should be treated as "universally recognized scientific achievements that for a time provide model problems and solutions to a community of practitioners". In addition, the researcher identifies two approaches to the interpretation of the notion – a broad and global one that he calls sociological, and a narrow and particular one that he calls a philosophical point of view.

In a comprehensive, general perspective, a paradigm is considered to constitute all internalised beliefs of a given scientific community (Krzyżanowski, 1999, p. 58) – "it stands for the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community" (Kuhn, 2001, p. 303). In the partial meaning, paradigm is a certain special element, a subset of common beliefs constituting a significant scientific discovery (Krzyżanowski, 1999, p. 58), it thus applies to "one sort of element in that constellation, the concrete puzzle-solutions which, employed as models or examples, can replace explicit rules as a basis for the solution of the remaining mind puzzles of normal science" (Kuhn, 2001, p. 303).

The theory of T. S. Kuhn is expanded by the concept of disciplinary matrix, which is considered by L. J. Krzyżanowski to be a particularisation of the notion of a paradigm in the global meaning (Krzyżanowski, 1999, p. 59). The disciplinary matrix consists of organised elements in the form of beliefs, "attitudes" or convictions shared by scientists working on a given scientific discipline (Kuhn, 2001, p. 315). The matrix consists of symbolic generalisations, models and exemplars.

Symbolic generalisations are the expressions accepted without reservations, which are used unanimously by the group members. These are the formal or easy to formalise components of the disciplinary matrix that can be easily encompassed in some logical formula, for instance (x) (y) (z) Φ (x, y, z) (Kuhn, 2001, pp. 315-316). On the other hand, models provide the group with its preferred analogies, and if they are firmly accepted – even ontologies. Exemplars are specific solutions to particular problems, recognised by the group as paradigmatic in the regular sense of the word. The author of the concept is of the opinion that exemplars and models are far more effective as subculture determinants of a community than symbolic generalisations. He assigns major importance to exemplars, understood in the categories of the narrow meaning of the paradigm, perceived as solutions to a significant problem (Kuhn, 1985, pp. 411-412, 424).

In conclusion, a paradigm should be understood as a science pattern, accepted by the academic community of a given time and commonly accepted, appropriate for a particular period, along with philosophical assumptions constituting its basis (Kowalczewski, 2008b, p. 24). Thus, it includes areas of analyses important for scientific research, which provide formulas acceptable at some stage of scientific disciplines – models, namely laws, theories, applications or even equipment (Lisiński, 2009, p. 555).

3. Network paradigm as compared to other paradigms emerging in management sciences

The issues of paradigms in social sciences have been undertaken by G. Burrell and G. Morgan. They postulated that scientific research or works within social sciences in general, and especially in the theory of organisation, should be settled from the point of view of four paradigms – functional, interpretative, radical humanistic and radical structuralist. The proposal of G. Morgan is treated as an expansion of this concept, which prefers metaphor in the viewing, experiencing, describing, understanding and creating knowledge about the organisational reality. The assumption that theories and explanations concerning the life of an organisation are based on metaphors, leading to viewing and interpreting the organization in a specific but partial manner, was the basis for the postmodernist trend in management. The search for "paradigmatic metaphors" in management sciences is continued by the idea of L. Heracleos and C. D. Jacobs, juxtaposing strategic management school in the system of the paradigms of the positivist theory, social aconstructionism and realised realism, in the perspective of interpretation of metaphors and approach to strategy (Pietruszka-Ortyl, 2011a, pp. 2-6).

The subject literature is abundant in discussions on paradigms, referring to new management tendencies. The most characteristic element of the publications is the broad understanding of the notion of paradigm – general, important principles, rules and approaches to management in organisations (Sudoł, 2012, p. 91).

The paradigms of new economy are thus usually reduced to formulas – models, covering such areas of analysis as: the crucial role of knowledge, globalisation, informatisation, turbulence of the environment, network communication of all business entities and natural persons, sovereignty of customers as co-creators of values, and in fact directly defining the features of knowledge-based economy. These planes of analysis form a whole, and their interrelations, through the phenomenon of synergy, create a particular system of paradigms, determining the contemporary dimension of socio-economic life (Lisiński, 2009, p. 558).

While reviewing the proposals of contemporary paradigmatic postulates of management sciences, first of all, we should refer to the concept of R. Krupski, identifying a dually perceived paradigm, conditioned upon the complexity of the organisation and the complexity and turbulences of the environment. Then, it would be necessary to indicate paradigm "7S" of strategic management or paradigm of joint creation of value of C. K. Prahalad and V. Ramaswamy. Then, we should mention the proposal of K. Obłój, in which the author analyses schools of strategic management and their postulates. Particular analysis should cover the set of "methodological postulates" of P. Płoszajski, who sets the direction of changes in the meta-paradigm of management sciences (Pietruszka-Ortyl, 2011b, pp. 16-20).

When seeking the most recent inspirations with regard to "emerging" paradigms, the meta-paradigm of sustainability can be indicated, supplemented with a holistic model of a sustainable enterprise or the paradigmatic application of the neo-evolution theory to management sciences in the proposals of Ł. Sułkowski (Pietruszka-Ortyl, 2015, pp. 11-20). It may be equally as inspiring to juxtapose two business paradigms of R. Kozielski (2012, p. 187) and learn about the concept of the new paradigm in the metaphorical horizon of a four leaf clover.

The great number of proposals may be overwhelming and lead to the conclusion that, in the age of excess economics, management sciences in fact are not able to form a paradigm, which is inherently stable and recognised by all scientists for a longer period of time. However, the dynamics of the functioning of the organisation and the environment enforces revolutions on a smaller scale, concerning

smaller science fields. Micro-revolutions occur among great revolutions and relate to minor elements of the paradigm. Therefore, S. Sudoł (2012, pp. 88-90) stresses that numerous publications already use phrases that could constitute "canons", basic management principles and aspire to the role of paradigms.

Such divagations may constitute the basis for identification of the network paradigm, more and more strongly accentuated in the subject literature, emerging as the dominant paradigm. After all, a network organisation questions the basic principles, on which the traditional structures have been built, namely: hierarchy, vertical coordination, strict separation of organisational structure and the environment (clear boundaries of the organisation), division into conceptual and executive employees, durability and invariability of the structure, uniformity of commanding bodies (Sułkowski, 2005, p. 28). As a result, it is stressed that the commonly binding and acceptable standards of business behaviours need to be redefined and in the future – the model problems and solutions typical of the researchers need to undergo an evolution. This may contribute to development of the network paradigm.

In the opinion of W. Czakon (2011, pp. 3-6), there is no doubt as to the existence of the network paradigm as a common set of assumptions in the theory of organisation. Researchers only discuss its place within the theories of organization and management. E. Piwoni-Krzeszowska (2015, p. 326) is of the opinion that it is separate from the relational paradigm and its scope is narrower. However, both are emerging micro-paradigms. A. Łupnicka (2014, p. 4) in turn believes that the proposed network paradigm could be a partial paradigm, reaching beyond the established rules within the neoclassical economics trend. B. Woźniak-Sobczak (2015, p. 56) regards it to be a comprehensive paradigm and a plane of partial paradigms in the management paradigms system in the contemporary network space.

Within the synthetic presentation of the network paradigm, W. Czakon identifies three main reference theories comprising the concerned paradigm: sociological theory of social networks, resource theory of a company and theory of transaction costs. At the same time, the author draws the following conclusions in this convention (Czakon, 2011, pp. 3-6):

- discovery of the existence of a certain structural order in social networks is of crucial importance for the network paradigm, which is tantamount to the need to examine the network as a context of operation and implies methods to learn more about the network,
- a particular achievement of the network paradigm is discovering that networks contribute to achieving competitive advantage, and thus the network becomes a resource that can be acquired, created and should be purposively shaped,
- network coordination is an important decision-making area in strategic management, contributing to achievement of competitive advantage, while network paradigm derives from social recognition of coordination mechanism as a solution occurring next to the price and bureaucratic mechanisms.

In the conclusion, the advocate of the existence of the network paradigm in management sciences puts forth research assumptions shared by the scientific community (Czakon, 2011, pp. 3-6).

An expanded proposal of the network paradigm assumptions is presented by E. Piwoni-Krzeszowska (2015, p. 324). They can be treated as symbolic generalisations of the disciplinary matrix of T. Kuhn:

- the organisation's environment is not unidentified, it is not anonymous,
- the organisation's environment is not atomised,
- the organisation partially controls the environment,
- resources do not have to be hierarchically controlled,

- opportunities exist in the network that notices them, conditions them and enables their use,
- competitive advantage depends on the structures, positions and relations within the network,
- the environment's conditions may be stabilised by networks,
- shaping relations is motivated by the desire to obtain Coleman's relational pension,
- shaping relations is intended to establish bonds,
- entities' operations are determined by the structures of intra- and inter-organisational bonds.

B. Woźniak-Sobczak (2015, pp. 56-65) presents a system of management paradigms consisting of the meta-paradigm of environment turbulence, comprehensive paradigm in the form of the concept of a network organisation, and partial paradigms – economic network pension, organisational form – of a network organisation, relational competence in the perspective of competition and coopetition, as well as information technology as information network. Thus, the identified elements in the management paradigms system clearly indicate the functioning of the science pattern discussed in the study.

Knowledge-based economy, treated as "new economy", does not raise any objections of the researchers and is unanimously used by the scientific community – it can thus be perceived in terms of symbolic generalisations as defined by the disciplinary matrix of T. S. Kuhn. Its components are relatively easy to identify. The most commonly indicated one is environment turbulence, constant change and hypercompetition. This proposal can be perceived as a paradigm in the comprehensive understanding – a meta-paradigm of knowledge-based economy (Fig. 1). However, the organisation's reaction should be, in this convention, treated as paradigms in the partial meaning – as a model, a formula. Then the dynamic, imbalance approach connects with the chaos theory, and the second, supplementing partial paradigm approaches the concept of sustainability. The supporters of both partial paradigms rely on the turbulence paradigm, assuming high flexibility and adaptation capacity of the organisation. However, they perceive the target condition of the organisation and its environment differently. The representatives of the chaos theory see the final form of all dependencies as imbalance, while the advocates of the sustainability trend – as sustainability, pursuit of stability (Pietruszka-Ortyl, 2012b, pp. 417-429).

Figure 1. Disciplinary matrix of the network paradigm
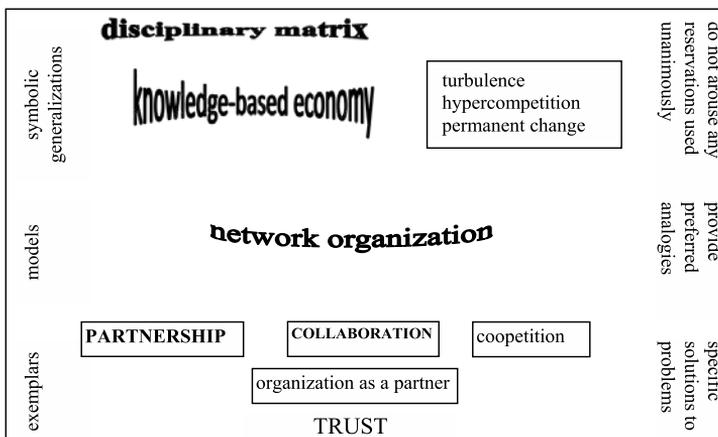
Source: own elaboration.

When suggesting models as elements of the disciplinary matrix, which provide the group with its preferred analogies, the idea of a network organisation may be one of them. Based on the diamond organisational model of H. Levitt (Przybyła, 2001, p. 33), one of the most popular and commonly acceptable – the network paradigm – which can thus aspire to the role of a science pattern, may function as analogy-providing elements of the disciplinary matrix. Network as a structure, network in the form of technology, network nature (complexity, interdependence) of tasks and people in Castells' view of the network society. In such a case, exemplar can be a partnership, both perceived in the perspective of inter-organisational macro-cooperation, as well as in the formula of the network and micro-cooperation at the individual and team level, both within, as well as outside the organisation, on a plane of individual relations and bonds, with the context of a specific company in the background.

4. The place of trust in the network paradigm

According to J. Brilman, the network approach is based on the idea of exchange of mutual trust (Łupicka, 2014, p. 2). The strict relation with trust and these issues being incorporated in the disciplinary matrix of the network paradigm seem to be unavoidable and obvious[2]. Firstly, trust stimulates the development of social capital of the company in the intra-organisational perspective. Secondly, it constitutes the basis for functioning of organisational behaviours on a group level, especially in the context of activity of virtual teams. Finally, it is a necessary prerequisite for effective operation of inter-organisational networks. Additionally, it is the context of cooperation at the meso level, understood as cooperation of individuals acting for the benefit of various organisations, but cooperating within a network, usually in the form of a virtual team.

When analysing the existing definitions binding in the literature (Dent, 2002, p. 51; Sztompka, 2002, pp. 326-327; Fukuyama, 1997, pp. 38-40; Paliszkiewicz, 2013, p. 20), while simultaneously trying to relate the issues of trust to the network paradigm and finding its place in the disciplinary matrix, it should be emphasised that trust (Bugdol, 2010, p. 16):
- builds social capital, since it indirectly contributes to growth in productivity and is favourable for the economic development (e.g. positively affects social exchange processes, reinforces managerial decisions),
- is fundamental in social interactions (allows for cooperation and pursuit of common goals, enables development of social bonds, new contacts, business projects, etc.),
- constitutes the organisation's resource, which, in accordance with the process approach, can be found both at the input and the output of social processes, stimulating the processes of economic and social exchange,
- constitutes the expectation of individual people, groups, organisations concerning actions of other people, groups, partners.

Referring to the individual dimension of trust and concluding the previous deliberations, it should be emphasised that trust affects the organisation's coordination, activates creative thinking, encourages to participate in transactions, promotes exchange of information, increases

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[2]   The growing role of trust from the point of view the new society and knowledge-based economy is presented by K. Żądło (2014, p. 61).

the company's capacity to survive crisis situations, is the key factor when building cooperation and social cohesion networks, as well as enables creation of civil culture (Skrzypek, 2015, p. 162).

Shaping trust is thus becoming one of the primary tasks for organisations operating or planning to operate in the network structures. Trust is clearly the building material of social capital, allowing companies to more easily establish relations, exchange knowledge and run business operations. Not only does it strengthen relations between partner organisations, but also improves flexibility of the agreement, shortens cooperation management processes, while simultaneously improving their quality. Its high level enables development of favourable knowledge transfer and knowledge creation mechanisms, and guarantees limitation of opportunistic behaviours of partners. Along with its growth, the constellation evolves towards creation of values based on intangible resources. Reducing transaction costs, it simultaneously predisposes the allies to invest and exchange hidden knowledge without worrying about it being malevolently taken over.

It thus applies to each of the reference theories of the network paradigm identified by W. Czakon.

5. Conclusion

The subject literature presents three opinions pertaining to the existence of paradigms in management sciences. The first one places them in the pre-paradigm period. The supporters of the second approach argue that management sciences are at the stage of emergence of paradigms, or micro-paradigms, and assume their pluralism. The third, relatively sparse group of researchers believes that the explored discipline is at the post-paradigm stage.

The existence of the network paradigm seems to be final. However, its place in the disciplinary matrix remains undetermined. Some treat it as a comprehensive paradigm, others as partial. The author supports the opinion that, due to the characteristics in the form of research purpose (generalisation, verification, analysis, prediction and programming of changes), preferred methodology (explaining methodology – supplying predictions based on abstract systems of notions), the researcher's attitude towards the value (pursuit of objective knowledge, without evaluating the information) (Sułkowski, 2015, p. 441), network paradigm emerges as the dominant one.

As a consequence, it is suggested to place trust as an exemplar in the disciplinary matrix defined in such a way. After all, partnership within the network is based on mutual trust, common ideology and reputation (Trippner-Hrabi & Hrabi, 2014, p. 55).

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Chapter **35**

IC Leverage: The Concept and Application in Industrial Enterprises

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1. Introduction

One of key problems of management during an era of the development of the knowledge-based economy is a problem of an assessment and measurement of the intellectual capital. Large number of scientific articles are devoted to the solution of this problem. Managers of the companies of creative sector of economy understand essence and the importance of the intellectual capital for development of their business. Specifics of management of the industrial enterprise consist in orientation of such companies to real production. Heads and managers of such companies are not sure in value of the intellectual capital for development of the company, and sometimes such managers refuse to admit the fact of existence of such category of assets as the intellectual capital. Our research is directed to development of the indicators of dependence between development of an intellectual capital and a financial results of the enterprise activity. Leverage of the intellectual capital is the synthetic indicator which must reflect influence of the intellectual capital on the productivity of the enterprise. Our purpose is to explain the value of IC in the terms of the financial management.

2. Methodological Approaches to the Assessment of a Company's Performance

The assessment of a company's performance should have a systematic nature. First, this requires the assessment of a company's performance from the standpoint of various stakeholders, such as companies' management teams, owners, business partners, creditors, suppliers; tax and customs services, and customers. From this point of view, it is necessary to identify the main elements of a company as a system of economic interests, and to identify the indicators associated with each group of stakeholders, according to the criterion of complete satisfaction of their interests related to the activities of a given company.

Second, there exist two basic approaches (resource-based and cost-driven) to the elaboration of a company's performance indicators. This consideration determines the need for the division

of main types of resources included in the economic potential of the company into two groups: applied resources and consumed resources.

In addition, it is necessary to determine the period during which the assessment should be carried out. The results of development may be assessed both in the short term and in the long term. Consequently, let us separate the approaches, which enable us to assess operational and strategic results.

The above approaches to a company's performance measurement (PM) reflect basic development trends of modern economic theory and practice in this field. Having analyzed the advantages and disadvantages of each model, we may now generalize the results.

The majority of the reviewed models claim not only to fulfill the functions of assessing performance. From the point of view of their developers, these models may be viewed as concepts of a company's management (Kaplan & Norton, 1992) This category includes such models as the Balanced scorecard, Management and performance assessment system based on the EVA indicator (economic value added) (Stewart, 1994; Stern, 2004; Pritchard et al., 1989). Productivity Measurement and Enhancement System (ProMES) (Janssen et al., 1995; Hronec, 1993), Quantum Performance Measurement (Arthur Andersen & Co, 1993), Ernst & Young model for performance measurement[1], the Caterpillar company model (Hendricks et al., 1996), and the Hewlett-Packard concept (House & Raymond, 2009).

Let us define the requirements to be met by any management concept.

1. A scorecard should include qualitative and quantitative characteristics of the main factors, which determine a company's performance.
2. A motivating function of the performance targets should be taken into consideration.
3. The interests of internal and external stakeholders should be taken into account.
4. A control model must ensure the interconnection of strategic and operational management levels, and the arrangement and hierarchical subordination of a company's objectives.
5. It is necessary to work out methodological support for the procedures of arriving at estimated indicators and reports. The latter should be of a standard nature, which is mandatory for all of a company's divisions, and which should be formalized in the respective internal regulations.
6. The scorecard should help to forecast future development results, form all planned target performance indicators, and carry out an analysis of performance to plan. The applied concept should support managerial decision-making by providing decision-makers with the required information that must be complete, relevant, and authentic.
7. The system of indicators must be sufficiently flexible, adaptive, allowing rapid reaction to changes in the internal and external environment of a company.
8. A mechanism should be available for taking into account risk and uncertainty, especially in the process of forecasting and long-term planning.

Let us assess how the models conform with basic requirements of management concepts (Tab. 1). At the same time, all models selected for management of a company's development require a further mechanism for forecasting the results of development, which could take into account quantitative and qualitative factors, as well as the risks and uncertainties associated with forecasting future events.

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[1] The Ernst & Young Guide to Performance Measurement For Financial Institutions: Methods for Managing Business Results Revised Edition (Bankline Publication) Hardcover – November 22, 1994.

Table 1. Comparative Characteristics of the Existing Concepts of Measuring A Company's Performance

	The ability to link strategic and operational planning	Motivation	Due consideration of stakeholders' interests	Well-defined scorecard that includes qualitative and quantitative indicators	The possibility of standardizing planning and reporting documents	The possibility of forecasting and advanced planning	Support for management decisions	Flexibility	Consideration of risk and uncertainty	Overall conclusion
Balanced scorecard	Mostly strategic control	Average level of motivation	The axis owners-managers only	None	Standardization is possible in principle	Involves forecasting	Only strategic ones	Yes	Does not take into account	Practically, it is necessary to combine with models of operational management
Management and performance assessment system based on the EVA indicator	Mostly operative	Provides incentives for managers	The axis owners-managers only	One basic EVA indicator, in the absence of clear calculation model	Standardization is possible in principle	Forecasting is possible in terms of one indicator	Only in relation to EVA	Lacks	Takes into account through the cost of capital	It is necessary to combine with balanced scorecard (BSC) for practical use
Productivity Measurement and Enhancement System (ProMES)	Allows for strategic and operational objectives	Provides incentives for managers and, partially, the staff	The axis the owners-managers only	Involves the development of well-defined scorecard that comprises mainly quantitative characteristics	Standardization is possible in principle	Limited	Provides support for management decisions	Yes	Does not take into account	Requires additional forecasting mechanism
Performance Pyramid	Allows for strategic and operational objectives	Provides incentives for managers and, partially, for the staff	The axis owners-managers only	Involves the development of well-defined scorecard that comprises mainly quantitative characteristics	Standardization is possible in principle	Limited	Provides support for management decisions	Yes	Does not take into account	Requires additional forecasting mechanism
Quantum Performance Measurement	Allows for the strategic and operational objectives	Provides incentives for managers and, partially, for the staff	The axis owners-managers only	Involves the development of well-defined scorecard that comprises mainly quantitative characteristics	Standardization is possible in principle	Provision is made for forecasting	Provides support for management decisions	Yes	Does not take into account	Requires additional mechanism for considering risk and uncertainty
Ernst & Young system of Measurement of achievements	Mostly operational control	Provides incentives for managers and, partially, for the staff	The axis of the owners-managers only	Involves the development of well-defined scorecard that comprises mainly quantitative characteristics	Standardization is possible in principle	Limited	Provides for support for management decisions	No	Does not take into account	It is necessary to combine with the balanced scorecard (BSC) for practical use

	Mostly operational control	Provides incentives for managers and, partially, for the staff	The axis of the owners-managers only	Involves the development of well-defined scorecard that comprises mainly quantitative characteristics	Standardization is possible in principle	Involves forecasting	Provides for support for management decisions	No	Does not take into account	Requires formation of additional forecasting mechanism and additional mechanism for considering risk and uncertainty
Caterpillar	Mostly operational control	Provides incentives for managers and, partially, for the staff	The axis of the owners-managers only	Involves the development of well-defined scorecard that comprises mainly quantitative characteristics	Standardization is possible in principle	Involves forecasting	Provides for support for management decisions	No	Does not take into account	Requires formation of additional forecasting mechanism and additional mechanism for considering risk and uncertainty
The Hewlett Packard concept of internal market	Takes account of the strategic and operational objectives. Provides for incentives for managers and that of the staff partially. The axis of the owners-managers only. Involves the development of a well defined scorecard that comprises quantitative characteristics mainly. Standardization is possible in principle	Provides incentives for managers and, partially, for the staff. The axis of the owners-managers only. Involves the development of a well defined scorecard that comprises quantitative characteristics mainly. Standardization is possible in principle	The axis owners-managers only	Involves the development of well-defined scorecard that comprises mainly quantitative characteristics	Standardization is possible in principle	Involves forecasting	Provides support for management decisions (mainly strategic)	No	Does not take into account	Requires additional mechanism of considering risk and uncertainty

Business Management Window	Takes account of strategic and operational objectives Provides for incentives for managers and that of the staff partially The axis of the owners-managers only Involves the development of a well defined scorecard that comprises quantitative characteristics mainly Standardization is possible in principle	Provides incentives for managers and, partially, for the staff partially The axis of the owners-managers only Involves the development of a well defined scorecard that comprises quantitative characteristics mainly Standardization is possible in principle	The axis of the owners-managers only	Involves the development of well-defined scorecard that comprises mainly quantitative characteristics	Standardization is possible in principle	Involves forecasting	Provides support for management decisions (mainly strategic)	No	Takes into account partially	Requires additional forecasting mechanism for considering risk

Source: own elaboration.

Furthermore, none of the models considered have sufficient flexibility. Performance targets established within the framework of these models are strictly determined. As practice shows, during the development process, exactly predetermined performance targets can hardly ever be achieved. Will it be necessary to give up the development as abortive if the development parameters are not achieved? Is it possible to think that the development goal has been reached if a group of target performance criteria are not all met? From a theoretical point of view, using strict logic, we must consider any incomplete performance of the plan as a failure. However, in practice, at the stage of the comprehensive assessment of the development process, with due regard for the synergistic effect, some deviation of actual parameters from target values is considered to be valid and acceptable.

3. Basic approaches to assessment of the intellectual capital

There are several approaches used to measure intellectual capital on the basis of financial indicators. The mainstream one is the indication of intellectual capital impact on the company's value. Pulic (2005) introduced the Value Added Intellectual Coefficient (VAIC™), which later became very popular. It enables analysis of the contribution of intellectual capital components to the creation of value added:

$$VAIC™ = HCE + SCE + CEE \tag{1}$$

where:
HCE = VA/HC – Human Capital Efficiency referring to per unit of value of human capital),
SCE = SC/VA   – Structural Capital Efficiency referring to per unit value of structural capital) and
CEE = VA/CA – Capital Employed Efficiency referring to per unit value of physical and financial assets).

Pulic (2005) also proposed the Value Added Intellectual Potential coefficient (VAIP) for demonstrating how successfully intellectual potential creates value, and the Value Added Capital coefficient (VACA):

$$VAIP = VA/IP$$
$$VACA = VA/CA \tag{2}$$

where:
VA – value added,
IP   – intellectual potential and
CA – physical capital.

Further research either developed this concept or tried to find an empirical approbation of the model. Thus, a second direction is represented in papers by Ozkan, Cakan and Kayacan (2016), Užienė and Stankutė (2015), Toorchi, Asiaei and Dehghan (2015), Örnek and Ayas (2015), Nuryaman (2015) etc.

The company's value management has two main directions:
1. Management of economic value added creation, which is beyond the framework of this paper and has multiple descriptions in various academic papers and practical implications.
2. Intellectual assets management aimed at the maximization of their value. For the indicator reflecting the value growth, we may take the change in VIA (Value of Intellectual Assets) as follows:

$$\Delta \text{ VIA} = \text{VIA1 - VIA0} \tag{3}$$

where:

VIA_1 – the value of an intellectual asset at the end of the year, and

VIA_0 – the value of an intellectual asset at the beginning of the year.

The total value growth of a company, ΔV, is the sum of EVA и ΔVIA:

$$\Delta V = \text{EVA} + \Delta \text{VIA} \tag{4}$$

The process of value management is presented in detail in Figure 1. This process includes the traditional cost management created mainly at the expense of internal value factors, as well as the process of value management created at the expense of external value factors (formula 5 and Fig. 1).

$$\Delta \text{ VIA} = \text{EBL} + \text{ENL} + \text{EHCL} \tag{5}$$

Figure 1. Structure of the ICL – intellectual capital leverage
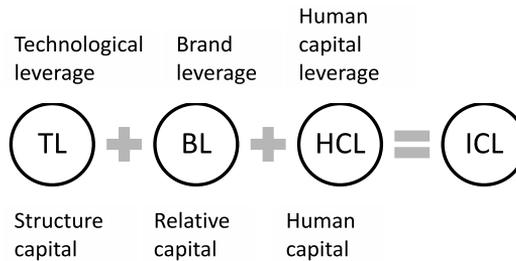
Source: own elaboration.

To reveal the relationship between intellectual capital investments and companies' financial performance, we carried out a survey of top managers of 81 enterprises. The distribution by sector of economy is illustrated in Figure 2.

Figure 2. Enterprises distribution by sector of economy
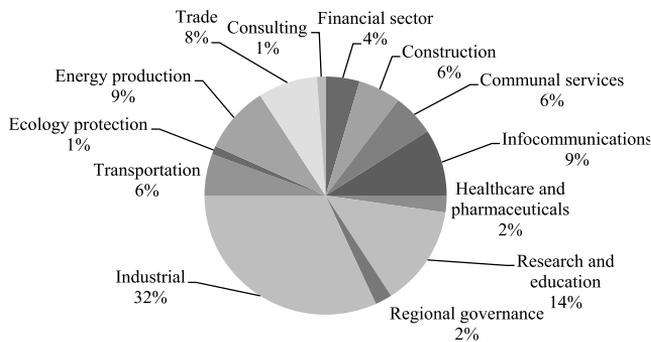
Source: own elaboration.

Respondents were asked to state how they would estimate the investments in the following items of intellectual capital for the previous three years:

1 – investments in technologies,

2 – investments in human capital,

3 – investments in brands.

The suggested answers were converted into points from 0 to 3, as illustrated in Table 2.

Table 2. Suggested answers converted into points

Question	No investments	Occasional investment	Several investments	Systematic investments according to the investment programme
1	0	1	2	3
2	0	1	2	3
3	0	1	2	3

Source: own elaboration.

To estimate financial performance, we asked respondents to express their opinion on the financial stability of their enterprises and proposed the following answers:

- 0 points – financial stability decreased,
- 1 point – financial stability remained unchanged,
- 2 points – financial stability increased.

The regression analysis results are presented in Table 3.

Table 3. Regression analysis results

| Regression statistics						
Multiple R	0.612704					
R-squared	0.375406					
Adjusted R-squared	0.351071					
Std. error	0.686494					
Observations	81					
	Df	SS	MS	F		
Regression	3	21.81062	7.270206	15.42669		
Residuals	77	36.28815	0.471275			
Total	80	58.09877				
	Coefficients	Standard error	t-statistics	P-Value	Lower 95.0%	Upper 95.0%
Y – intersection	0.360899	0.206342	1.749032	0.08427	-0.049980676	0.771779643
X 1 – technologies	0.062383	0.075464	0.826662	0.410983	-0.087884635	0.212650822
X 2 – human capital	0.100726	0.128874	0.781592	0.436851	-0.155893516	0.357346478
X 3 – brands	0.475586	0.117323	4.053648	0.00012	0.241966369	0.709206504

Source: own elaboration.

The model is statistically significant, but coefficients at X1 and X2 have a zero value in the confidence interval, so only investments in brand have a significant direct impact on financial stability: Y = 0.475586X3.

4. Brand leverage and its contribution to the creation of the company's value

The efficiency of brand cost management depends on the brand potential, which is understood as a set of characteristics of a brand influencing the company's potential in general. The brand potential is an element of the enterprise's informational potential. The quantitative measurement of the brand potential is based on the brand cost estimate and on the market understanding of the brand essence. The brand potential is created by way of forming added economic value at the expense of brand market value increment and at the expense of sales volume increment ensured by the influence of brand strength on a consumer (the total effect of the impact of the market brand leverage and operating brand leverage). Therefore, the expenses related to the formation of the brand potential and its support should be taken into consideration. The effect of total brand leverage impact can be measured based on the assessment of the present value of cash flows generated by the impact of operating and market brand leverages:

$$NCF_{BLt} = \Delta V_t + \Delta NOI_t \tag{5}$$

where:
NCF_{BLt} – the net cash flow generated by the impact of operating and market brand leverages during the period t,
ΔV – increment of the enterprise's value caused by the brand cost increment under the market brand leverage during the period t, and
ΔNOI_t – increment of the enterprise's net operating income caused by the impact of the operating brand leverage during the period t.

We suggest calculating the operating brand leverage using the following formula:

$$BL_{op} = (RC_b - RP) \times dc_b \tag{6}$$

where:
BL_{op} – the operating brand leverage,
RC_b – return on the costs for brand support and development,
RP – return on production, and
Dc_b – share of the costs for the development of brands in the enterprise's costs structure during the analysed period.

The return on the costs for the brand development (RC_b) will be calculated as the ratio of net operating income increment (NOI_b) caused by brand development to the costs associated with its development (C_b):

$$Rcb = \frac{\Delta NOI_b}{\tilde{N}_b} \tag{7}$$

The present value of cash flows being generated by brands will be calculated using the following formula:

$$PV_{BL} = \sum_{t=1}^{T} NCF_{BLt} \times PVF \tag{8}$$

where:

PV_{BL} – the present value of cash flows generated by brands,
NCF_{BLt} – net cash flow generated by brands during the period t, and
PVF – present value factor.

We recommend estimating the return on the investments into brand development and support based on investment profitability index PI:

$$\mathbf{P}_b = \frac{\sum_{t=1}^{T} NCF_{B\,t} \times PVF}{\sum_{t=1}^{T} I_t \times PVF} \tag{9}$$

where:

I_t – investments into brand development during the period t.

There are situations frequently encountered in managerial control tasks, when the initial conditions of a task are not clearly defined. These situations reflect a lack of awareness on the part of a decision-maker.

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Chapter **36**

The Assessment of Logistics Risks of Trade Enterprises

Anatolii Mazaraki, Natalia Ilchenko

1. Introduction

Under the conditions of change the dynamic environment of logistic activities and activities of the company as a whole is always associated with risk. Risk – is an economic category, reflecting the peculiarities of perception of stakeholders of economic relations is objectively existing in the condition of uncertainties and conflicts, that inherent in the process formation of strategy, the goal-setting, management, the decision-making, which related with possible threats and unused opportunities.

Since the enterprises are faced with a huge number of negative factors that influence the final result of their work such as the profit, instability of deliveries, the late and partial payments of consumers, difficulty in attracting credit of resources and therefore the selected topic of research is enough of actual in the modern conditions the development of market.

2. The theoretical approaches to the definition of logistics risks

Under the risk in the supply chain understand the risk of delays in the supply chain, supply disruptions or irregularities in of one or more links the chain. Thus, we can say that the most common is logistics risks which associated with the related of logistics functions during manufacture, storage, packaging, labeling and transportation of goods the various modes, the distribution of goods. The legal approach to the definition of "risk" includes a primarily acceptance of the perception of national and international laws and regulations.

According to the standards the management of risk the International Organization for Standardization Australia and New Zealand (AS/NZS 4360/1995, AS/NZS 4360/2004, ISO 31000/2009, ISO 73:2009), the risk – is effect of uncertainty on objectives; an effect is a deviation from the expected – positive and/or negative; objectives can have different aspects (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process); risk is often characterized by reference to potential events and consequences, or a combination of these; risk is often expressed in terms of a combination

of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence (Australian New Zealand International Standard. Risk management-principles and guidelines. Superseding AS/NZS ISO 31000:2009).

Thus, the object of logistics risk the enterprise of trade are logistics system on the microeconomic level (enterprise), as totality of different logistic elements, activities that in conditions of uncertainty to estimate is difficult (Kaczmarski, 2009).

The subject of logistics risks the enterprises are independent enterprises (individuals, legal companies), that are involved in managing the logistics chain.

Sources of logistics risk the enterprise – are factors (processes, events), which arise under conditions of uncertainty and conflicts, lack of information at the moment of decision-making in the logistics system.

The Logistics risks of enterprise trade can be classified by type of flows and components of the different levels of the logistics system. The Table1 presents of types of logistics risks inherent the enterprise of trade.

We have researched approaches of the scientists of the essence of term "logistics risk", and are offered the own approach to the definition of this concept. The logistic risk the enterprise of trade – is an economic category, that reflecting the features of the formation and management the logistics of business processes as a separate enterprise, and all the subjects (participants) of the supply chain, under conditions of uncertainty and lack of complete information at the moment of decision-making on planning, management, coordination, control the activities enterprise.

When assessing of logistics risks we have to optimize of financial, material and informational of business processes (Fig. 2). The enterprise of trade have to identify and internal risks, arising on the enterprise of trade – is risk is directly related with supply chain management and can be projected directly by the enterprise.

We conducted research and determined the main types of risks for the enterprise of trade (Fig. 1). The main risk of enterprises distinguish risk from operating activities that arise in the logistics chain – 40%.

Figure 1. The structure of main the risks that arise in the enterprise of trade
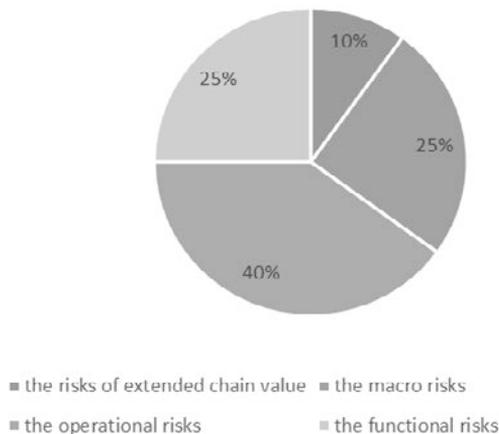
Source: own study.

Figure 2. The system of assessment of logistics risk on the enterprise of trade

Source: own study.

To avoid the logistics of risk in the formation of discrete-continuous model need to take into account the division of responsibilities between the parties in the supply chain. For instance, the transportation goods responsibility vested in carrier, and the unloading of the vehicle vested in recipient.

3. Conclusion

Thus, we propose to isolate the logistics of risks in supply chain for the enterprises of trade:

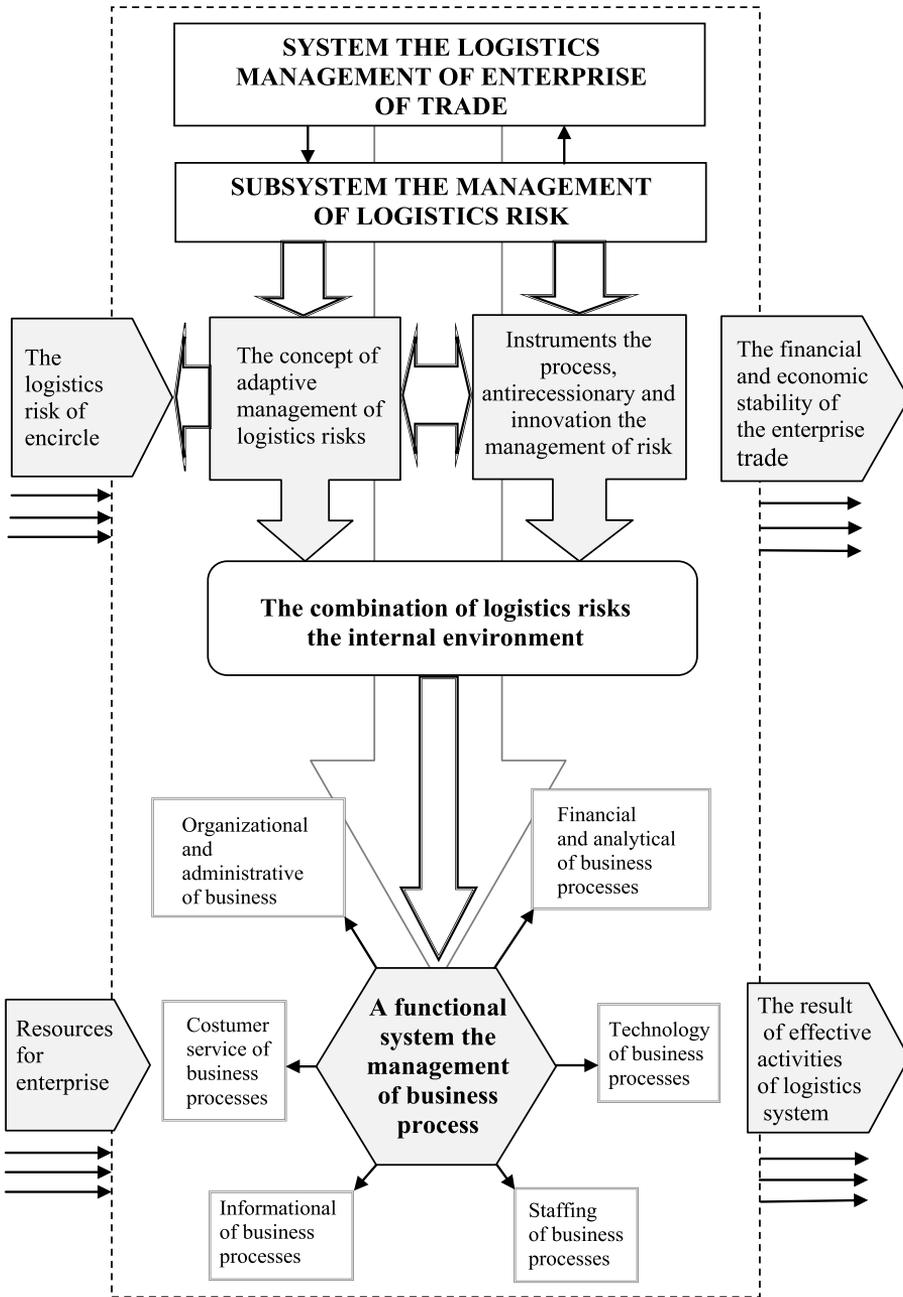1. Logistics risk of matiruial flow – the possibility of losing existing new or existing (necessary for the consumer) properties of the material flow in the process movement through components the logistics system;
2. Logistics risks of customer service – the inability to ensure of proper servicing of customers the enterprise of trade in the supply chain;
3. Logistics risk of information flow – the possibility of incomplete or partial the component of logistic system the information at the right time, the the right amount and the right place;
4. The financial of logistics risk that arise resulting from possible difficulties circulation of funds that are necessary to ensure the smooth movement of the respective material flow in supply chain;
5. Intellectual and labor logistics risks arising from the management of intellectual and human resources trade.

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Chapter **37**

The Concept of User-Driven Innovation (UDI)
in the Development of the Public Sector[1]

Angelika Wodecka-Hyjek

1. Introduction

At present, the issues of effective search for and implementation of innovations do not apply solely to business organisations, where it constitutes the basis for maintaining a competitive position, but also to public sector organisations, where it is an indicator of effective functioning and implementation of socially significant public tasks. In the public sector, innovations are the priority in developing strategies aiming at providing high quality public services, corresponding to the current needs of a wide group of stakeholders. They also contribute to improvement in functioning of public institutions, development of mechanisms of effective and transparent spending of public funds and stimulate cooperation of the public sector with business and non-profit organisations. Innovativeness, especially the capacity of the public sector to generate and use new knowledge resulting from effective dissemination of innovations, emphasises evolution of public organisations, whose tasks are conditioned by generation of public value.

The ability to respond to the needs of the environment in an innovative way is connected with the shift in the paradigm of innovations from thoughts limited to the use internal organisation potential (closed innovation) to the concept based on exchange of knowledge and new solutions between the organisation and its the environment (open innovation) (Chesbrough, 2003). In this respect, changes in the approach to innovation in an organisation is expressed in the currently particularly vocalised concept of User-Driven Innovation, which was developed on the basis of the assumption that, currently, organisations' customers more and more often participate in the creation and development of ideas that they would like to later purchase in the form of a product or service (*Zwiększanie świadomości przedsiębiorców…,* 2008, p. 6).

The purpose of the study is an attempt to show the significance of User-Driven Innovation (UDI) in the development of the public sector. The study presents the unique character of innovations

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in the public sector, characterises the assumptions, the essence, and the research procedure of User-Driven Innovation in the context of the conditions of the public sector. The paper also presents an example of using UDI to improve the tasks implemented in the public sector in Denmark. The conclusions were based on an overview of the subject literature.

2. The specific character of innovations in the public sector

In the subject literature, we may notice ambiguity in defining and classifying innovations in the public sector, which is justified, due to a number of conditions determining the specific nature of this area. The OECD methodology constitutes the current guide for defining innovations in the public sector, just like in business organisations, distinguishing four types of innovations (*Oslo Manual. Guidelines for Collecting and interpreting innovation data*…, 2006, pp. 49-54)[2]:

- product innovations – consist in introducing a product or service that is new or significantly improved in terms of its characteristics or applications – in the service sector, they may consist in introduction of important improvements in the method of provision of services (e.g. improvement of efficiency or speed of provision, adding new functions or features to the existing services or introducing completely new ones),
- process innovations – relating to the processes of creating innovations – in services, they include new or significantly improved methods of creation and provision of services,
- marketing innovations – relate to implementation of a new marketing method related to significant changes in the design/structure of a product or package, distribution, promotion or pricing strategy – in the case of the process of public service provision, new solutions may concern the methods of selling services to customers,
- organisational innovations – are related to implementation of a new organisational method in the operation principles, in the workplace organisation or in the relation with the environment, adopted by an organization. The purpose of organisational innovations may be achievement of better results by reducing administrative costs or transaction costs, increasing the work satisfaction level and obtaining external knowledge.

With regard to the issue of innovation in the public sector, the researchers dealing with the subject matter agree that innovativeness in this area is determined by a number of factors, among which the following, among others, are stressed: responsibility of executives of public organisations for their decisions and risk of disposal of public funds, possibility of occurrence of significant political impacts on the decisions, impossibility to overcome strict principles and procedures, inability to notice long-term benefits. The wide context of research in this respect is presented by: Miles & Roste (2005); Vigoda-Gadot, Shoham, Schwabsky & Ruvio (2008); Smith & Starkey (2010); Klein, Mahoney, McGahan & Pitelis (2010).

An interesting material in terms of the diagnosis and assessment of the current condition of innovation in the public sector is contained in the report prepared as a result of Project "CCIC

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[2]   The author presented the detailed classification of innovations in the public sector, as well as the attributes and conditions, in the study: Wodecka-Hyjek, A. (2013). Innovation as a Determinant of Entrepreneurship in the public sector [in:] P. Lula, B. Mikuła & A. Jaki (Eds.), *Knowledge. Economy. Society. Global and Regional Challenge of the 21st Century Economy*. Cracow: Foundation of the Cracow University of Economics, pp. 39-52.

– Complex Challenges – Innovative Cities", executed as part of the EU programme INTERREG IVC, in ten EU countries and regions: Bulgaria, Catalonia, Estonia, Finland, Italy, the Netherlands, Poland, Romania, UK and Sweden.

As a consequence of the conducted research, innovations were defined as "a novelty in something – a product, service, structure or process – that already exists, including elsewhere, in order to address new challenges or arising social issues". A particular attribute of innovations in the public sector is the focus on the shape of services and on the ways they are provided, which is important from the point of view of creating public value (*Innovation in the Public Sector...,* 2013, pp. 21-23).

Within identification of the goals of implementing innovations in the public sector, the primary objective was deemed to be improvement in the life of the citizens, while partial objectives, constituting components of implementation of the primary objective, were as follows: growth in efficiency of the public sector, improvement in the quality or access to provided public services and improvement in relations between the public sector and the citizens (*Innovation in the Public Sector...,* 2013, p. 33).

In the examined local and regional administration organisations, apart from the objectives, implementation determinants were also identified and factors were presented, stimulating and limiting innovations in the public sector.

The most important factors determining implementation of innovations in the public sector contain the following five (Fig. 1) (*Innovation in the Public Sector...,* 2013, pp. 23-26):
• opportunity for cost-savings,
• observability,
• relative advantage compared to the idea, product or service preceding the innovation,
• trialibility,
• compatibility with (local/regional) values and beliefs.

Figure 1. The current innovation implementation determinants in the public sector
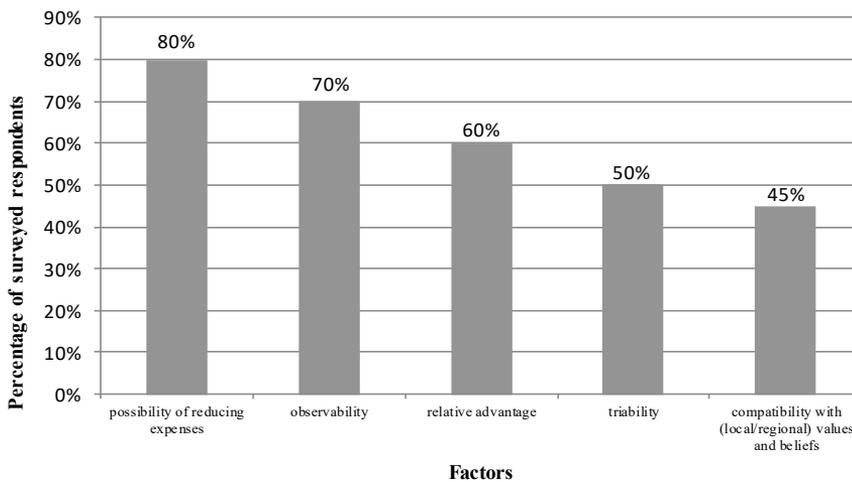
Source: own study based on (*Innovation in the Public Sector...*, 2013, pp. 23-26).

The most important attribute conditioning implementation of innovations in the public sector for the examined respondents was the possibility of reducing expenses, which – in the conditions of cost reduction and decreasing budgets – constitutes an incentive to explore alternative solutions in the provided services and implemented programmes. Observability of changes refers to the extent, to which innovations are used, and to which financial profits or losses resulting from them are visible and noticeable for the recipients and stakeholders. Such a high position of this feature suggests that innovations in the public sector have a greater chance to succeed, when they are obvious and their application affects or brings benefits to many persons. However, such an approach limits the importance of organisational innovations or innovations that, e.g., stimulate systems, actions or structures functioning in the public sector, and their effects are usually long term and slower to be noticed. It is also emphasized by the inconveniences associated with changes in the internal functioning of public sector organisations, especially the fact that more attention to is paid to changes visible from the outside. The relative advantage as compared to the idea, product or service preceding the innovation is not necessarily related only to changes yielding profit in the form of an improved service or product. It relates rather to application of a new approach to existing problems or indicates new opportunities resulting from a specific innovation that were not previously possible. The key value of innovations in this case consists in the fact that a new solution is better than the previously existing one. Trialibility is a factor related to the opportunity to verify the planned innovation and to analyse its effects, before it is officially applied. It should be noted that, in the public sector, introduction of innovations requires a long perspective with regard to obtaining particular results in and evaluation of the effects.

Therefore, when identifying factors stimulating implementation of innovations in public sector organisations, the following drivers were distinguished: internal and external factors (Tab. 1).

Table 1. Drivers of innovation in public sector organisations

Drivers of innovation	
Internal	**External**
• Organisational culture, which awards new ideas • Organisational leadership and management's approach to changes • Human resources management • Internal communication	• Legal conditions • Social needs and expectations • Fast development of new technologies • Communication with stakeholders • Funds

Source: own study based (*Innovation in the Public Sector...*, 2013, p. 37).

Internal factors include: organisational culture, as well as organisational leadership and managers' approach to changes were recognised as the key factors driving innovation. This aspect is directly related to human resources management, in particular the issue of obtaining entrepreneurial employees, open to changes, as well as their proper training and stimulation of the learning process and knowledge exchange. Internal communication in an organisation was also indicated as a key factor. Improvement of horizontal and vertical communication in an organisation, as well as openness to ideas of employees were acknowledged as the main divers of innovation in the public sector.

It was also emphasised that, apart from internal communication, the main factors supporting innovation include creation of efficient communication channels between innovators from the public sector and stakeholders from the external environment. In order to maintain proper relations with important stakeholders, organizations should create such channels, which would provide them with feedback concerning important processes related to innovations. This also applies to better information flow and transparency in innovative activities, which reinforces the social awareness.

Favourable legal conditions, growing awareness of citizens, as well as diverse social needs and expectations constitute the basic external factors determining the need for changes in the public sector. Another important factor fostering innovation in the public sector is fast development of new technologies. In order for new technologies to yield benefits and be reflected in the social success, the organisation needs to be open to new technologies. Managers must be aware of new technologies being available, and employees should be convinced that they should change the old ways of work, while the users should be trained with regard to using the new technologies. The central point of discussion on the divers of innovation also concerned funds. Depending on whether funds for innovation are allocated internally, as a part of the organisation's budget, and/or come from the outside (e.g. government grants, EU funds, private subsidies and others), this attribute may be considered both internal and external.

Barriers for innovation in the public sector are the factors which, by inhibit development and diffusion of innovations, which may limit the organisation's ability to plan strategically – the ability resulting in changes and progress. A number of the most important barriers restricting implementation of innovations in the public sector is presented in Table 2 (*Innovation in the Public Sector...,* 2013, p. 46).

Table 2. Impediments for innovation in public sector organisations

Barriers for innovation in public sector organisations
• restricted budget • innovation is not part of organisational strategy • complex internal hierarchical interdependencies • conflicting political views within the governance hierarchy • organisational culture not supportive of innovation • ineffective cooperation with the private sector • poor leadership • ineffective cooperation with the society • low level of technology adoption • staff is resistant to change • no clear connection between innovation and voters' support • excessive demand from citizens

Source: own study based (*Innovation in the Public Sector...*, 2013, p. 46).

3. The essence and research procedure of User-Driven Innovation

The concept of User-Driven Innovation (UDI) was developed on the basis of the belief that, currently, the consumers are becoming less and less interested in the available commercial offer. More and more often, they participate in the creation and development of ideas that they would like to later obtain in the form of a product or a service. Development of the concept of UDI is a result of evolution of approaches to innovation development. It is also an effect of observing the market environment in the changing socio-economic conditions (*Zwiększenie świadomości przedsiębiorców...*, 2008, p. 6). User-driven approach to creating innovations means the process of applying the users' knowledge in creating new products, services and concepts. The process of User-Driven Innovation is based on understanding of the actual needs of the users and their regular participation (*Popytowe podejście do tworzenia innowacji...,* 2012, p. 28).

In the UDI concept, two theoretical approaches are distinguished, used in the innovative process, which make it different from the standard approach. The essence of User-Driven Innovation assumes producing what is sold (technology push), and not selling what is already produced, investing in skills, resources, in order to ensure better understanding of consumers and their needs (open and hidden), using various tools and methods in the innovative process – combinations of not only technical and business tools, but also incorporating professional knowledge and competences of the users in the innovative process, more directly including consumers in the innovation process through observation and co-participation in creation of innovations. Two kinds of User-Driven Innovation were distinguished (*Zwiększenie świadomości przedsiębiorców...*, 2008, pp. 10-11):

- UDI – Voice of the Consumer is mainly characterised by focusing on identification of hidden consumers' needs and using their creative thinking in order to improve the shape, appearance or other elements of the product that already exist on the market.
- UDI – Lead-User refers to searching for, identifying and developing new solutions originating from consumers.

The research procedure of User-Driven Innovation consists of five consecutive stages (Fig. 2). The first step in the process of User-Driven Innovation is to identify the needs and expectations of consumers. It should be noted that the final user of the innovation may be both an individual customer, as well as another organisation. The result of observations may constitute a dialogue established between the company and the customer or between the company and other entities, which may also develop into further cooperation aiming at development of innovative products and services. An extremely important element of the innovative process is the distinction between the recognised consumers' needs and the unrecognised ones (hidden). At this stage, it seems helpful to use the social methods, psychological tests, as well as observations of the lifestyle, economic conditions of the customer, cultural trends.

Figure 2. User-Driven Innovation research procedure

Implementation stage	Voice of the Consumer	Lead-User
I. Recognition of needs and expectations of consumers	Analysis of trends Group of observation techniques In-depth interviews Focus groups Questionnaires Test groups Case studies	Analysis of trends Group of observation techniques (including self-observation) In-depth interviews (including regular meetings with consumers) Focus groups
II. Creation of own ideas, designing solutions	Group of observation techniques Projection techniques Brainstorms Workshops Panel of experts Games devoted to designing	Design workshops Projection techniques Brainstorms Games devoted to designing
III. Technological capabilities and possibilities	Analytical methods and techniques Brainstorms Testing	Analytical methods and techniques Brainstorms Testing
IV. Estimation of market opportunities	Analytical methods and techniques Brainstorms Panels of experts	Analytical methods and techniques Brainstorms
V. Implementation (analysis)	Analytical methods and techniques Brainstorms Panels of experts	Analytical methods and techniques Brainstorms

Source: own study based on (*Zwiększenie świadomości przedsiębiorców…*, 2008, p. 20).

The second stage includes creation of new ideas and designing solutions. Implementation of this stage is based on knowledge, abilities and internal attitude of employees of a given organisation, although customers may be involved in this stage. At the third stage, the organisation should focus on recognising and analysing the technological potential and production possibilities, as well as on the initial estimation of cost of the introduced innovations and, as a result, estimation of the final price of the designed product or service. Stage four usually requires the use of experience and knowledge of consultancy companies, which is costly. It is also necessary to take into consideration costs related to marketing and promotional activities. Should it be impossible to fund all activities, various kinds of campaigns may be undertaken, aiming at providing financial support to the project, e.g. crowdfunding. The fifth stage is related to implementation of the new solution that is compared with the profile of operations and the strategy of the organisation, and thus is one of the vital keys to its success. Later, the necessary activities include monitoring of demand and evaluation of usability of the innovation from the perspective of the users.

From the point of view of the organisation, a particularly important tool under UDI is process mapping (Røtnes & Staalesen, 2009, pp. 17-19). The process mapping is based on dividing users into those directly and indirectly involved in the innovation process, as well as dividing the needs

into conscious and unconscious needs. It is equally important to identify whether a given company is at the stage of "What?" or "How?" (Fig. 3).

Figure 3. Framework for mapping user driven innovation processes
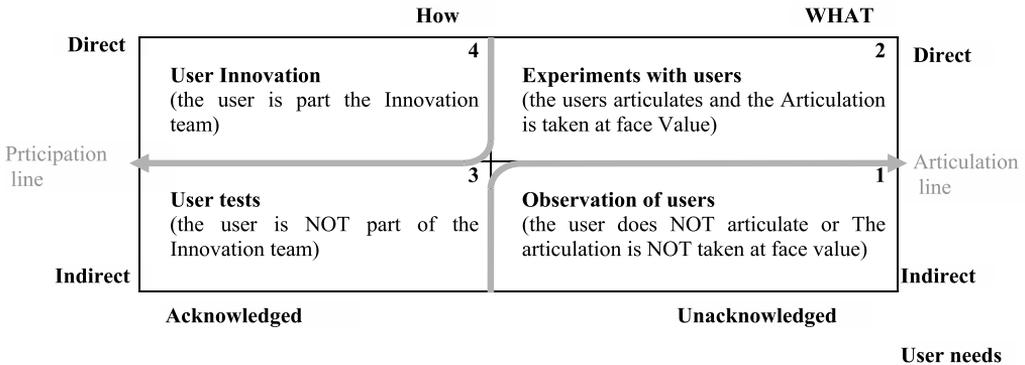
Source: (Røtnes & Staalesen, 2009, p. 18).

The two quarters on the right side belong to the stage "What?" and mostly relate to determination of the opportunities, data collection, recognition of regularities and conceptual ideas.

Observation of the users (lower right quarter) – this quarter contains users indirectly involved in the process, whose needs are not assumed as certain. Typical methods of involving the users in this case include ethnographic methods, such as *shadowing*, self-observation, researchers' visits at the user's home, etc.

Experiments involving the users (upper right quarter) – this quarter contains users directly involved in the process, whose needs are assumed as certain. However, they do not belong to the innovation team. Standard methods of involving the users include, e.g., direct interview, role-playing and the so-called living labs.

The two quarters on the left side are related to the stage "How?", which means that they cover the conceptualisation, prototype development, testing and implementation phases.

Users' innovations (upper left quarter) – in this case, users constitute employees of the company responsible for innovation or members of the innovation team. The needs they express are assumed as certain.

Testing by the users (lower left quarter) – this quarter contains users not belonging to the innovation team, but whose opinions are assumed as certain. Standard methods of involving the users include in this case focus groups and various types of tests conducted by the users.

Introduction of a *participation and articulation line* should facilitate understanding and explaining potential activities of the users within all four quarters of the diagram.

4. Use of the concept of User-Driven Innovation in the public sector in Denmark

The concept of User-Driven Innovation attracted a lot of interest in the EU countries, in particular in Scandinavian countries, which are currently the leaders in development of this approach. They appointed a working group *Northern Dimension Working Group on Innovation*, and then *Northern Dimension Learning Forum*, as an organisation investigating and promoting application of User-Driven Innovation in countries located by the Baltic Sea, whose particular role consists in dissemination of knowledge about UDI among entrepreneurs, managers and consumers. Poland has been taking part in the meetings of the working group *Northern Dimension Learning Forum* since 2006.

The most active participant in the meetings is Denmark, who introduced the concept of User-Driven Innovation to strategic documents and operational activities from the area of stimulating innovative activities – by incorporating UDI at the level of national innovation strategy and by supporting active operation of the FORA organisation, preparing and publishing numerous reports concerning the concept Of UDI, as well as conducting scientific and research activities in this respect (*Zwiększenie świadomości przedsiębiorców…,* 2008, p. 9).

In 2007, *The Danish National Agency for Enterprise and Construction* initiated *the Danish Programme for User-Driven Innovation*. The purpose of the programme is to popularise the concept among Danish entrepreneurs and in the public sector, with the expected outcome being support for development of participating companies, increase in users' satisfaction and improvement in efficiency of public institutions taking part in the programme.

Another programme – *Mind Lab* – is executed at the level of three ministries: Ministry of Taxation, Ministry of Employment, Ministry of Economic and Business Affairs, in order to develop and provide more effective public services in offices by analysing the users and their commitment.

The Alexandra Institute in Aarhus, established in order to propagate UDI, is a research company associated with *Aarhus University*. The Institute operates on the basis matching researchers with enterprises and allows for cooperation between researchers from the public sector, private companies and other organisations. This institution focuses mainly on the so-called *pervasive computing*, namely common access to IT solutions.

Also *the Danish Ministry of Culture* is getting more and more interested in User-Driven Innovation. The department issued a bulletin dedicated to the concept of UDI in culture and organised the first seminar on this subject in the context of culture (*Popytowe podejście do tworzenia innowacji…,* 2012, pp. 39-41).

The pioneering use of the concept of UDI also includes a number of projects implemented in the health care sector. The areas of application of the users' involvement relate to optimisation of medical services provided to patients, the use of modern technologies to improve lives of the disabled and the chronically ill people or optimisation of the nutrition of patients in hospitals. A project is also executed, aimed at improving the quality of life of elderly people living in nursing homes (Røtnes & Staalesen, 2009, pp. 24-26).

5. Conclusion

The previous experiences of the business sector in using User-Driven Innovation allow for noticing a number of benefits resulting from utilisation of the users' knowledge in the process of creating new products and services. They may include: greater competitiveness of the company, increases in sales revenues, lower costs of introducing innovative products and services to the market, improvement in the process of communication with clients, better understanding of the needs and beliefs of customers, as well as systematic acquisition of specialist knowledge and experience. Similar premises currently constitute an incentive for introducing this type of solutions by organisations of the public sector. Undoubtedly, implementation of the concept entails a number of hazards, such as: improper understanding of the needs and expectations of customers, lack of knowledge about the existing solutions, overestimation of benefits, the organisation's reluctance towards the change, lack of solutions stimulating commitment of employees or inadequate number of measures and resources involved in implementation of the change. Furthermore, important barriers may also include the shortening product cycle and the need to continuously adjust to new needs of customers, which results in the organisation's instability (*Zwiększenie świadomości przedsiębiorców…*, 2008, pp. 22-24). The abovementioned hazards may also constitute barriers for UDI implementation in the public sector, which is not as experienced in this respect.

However, a wide range of possibilities resulting from the use of UDI – in the form of a high level of solution adoption to the intensively changing social expectations, popularisation of the learning process and knowledge exchange, focus on continuous improvement and growth in effectiveness – correspond to the paradigm of co-management in the public sector, which justifies the stipulation of application of user-driven approach to innovation in this field.

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Quality of Transport Technical Means and Efficiency of Municipal Transport Companies

Stanisław Młynarski, Jarosław Kaczmarek

1. Introduction

The operation of technical systems is inseparable from an assessment of parameters and factors important for the achievement of aims, which reflect the potential of satisfying the needs. The most commonly used and complex measures for the assessment of confidence in a system's operation include the quality. Confidence is a term related to belief or conviction and is subjective in character, and the degree of confidence may significantly vary between people. There are also significant differences in the measurement of the confidence depending on whether we deal with a technical object in terms of a material technical means or activities such as, for instance, a service. Unlike the assessment of material goods quality, the assessment and measurement of confidence degree defined by the term of services quality is a fairly difficult task. The reasons chiefly stem from specialist features that distinguish services and their provision from production and nature of a product.

The fundamental distinguishing marks of services include:
* non-material character – in the majority of cases the customer cannot be absolutely certain of what he/she will get for their money's worth,
* inseparability – material products are first produced, next stored and finally sold and consumed, whereas services are first sold, next produced and consumed simultaneously,
* inconstancy – as a result of inseparability, elimination or limitation must be preceded by identification of cause,
* impermanence – services cannot be stored.

If a service is perceived as the effect of interaction between the service provider and customer, the aim of the activities being the satisfaction of the customer's needs, the assessment of service quality should be preceded by a definition of the assessment criteria and parameters. This, however, does not solve the problem because customers and service producers by no means need to perceive quality in the same way, and even if they do, their assessment may be different. This results from the relationship between expected, desired, provided and perceived qualities. The first type of relationship refers to finding out the customer's expectations as to the service

quality, which is indispensable in defining the quality requirements. The second type of relationship is determined by the assessment of the company's competitiveness on the market. It is done by the customers by a comparison of the quality desired and the quality received. The third type of relationship is connected with market communications by means of which the comparative assessment of the quality received with the quality perceived decide of the company's image and the services it offers. Finally, the fourth type of relationship refers to the measurement of customer's satisfaction. This measurement should be treated as a result of confrontation between the quality expected and the quality perceived, whose image may be determined, to a lesser degree, by the classic marketing strategies. What is of much greater significance, however, are other interactions between the company and customer, e.g. accessibility, availability of service, contact with staff. Taking them into account gives a basis to distinguish two dimensions of service quality, namely: technical quality and functional quality.

From the point of view of service producer, for whom the vital necessity is to guarantee the company's existence, the most important relationships are economic ones, connected with the services offered. The essential measures of economic relationships are effectiveness of performance, profitability and productivity of invested capital. Therefore, it is necessary to monitor and measure the quality of provided services through the prism of company's economic indices. The present paper gives an overview of the feasibility of a complex assessment of a transport company. Two complementary dimensions of service quality are pointed out together with their role in the assessment done from the point of view of customer's interests, when the assessment of services quality is ultimately always connected with the subjective, and the assessment of the service producer, when the assessment is related to the economic realism of the company's activities.

2. Quality of services in municipal transport systems

Self-government authorities who aim at preventing new problems and improving the conditions in urban/municipal agglomerations promote the quality and mobility for all inhabitants by a sustainable development of the city. To reach this target collective transport facilities should be supported, which by enabling conflict-free mobility contribute to the region's economic vitality. The unrestricted use of individual transport soon reaches its limit in terms of the demand for journey space.

The only reasonable way of reconciling individual aspirations and the collective will (contradictory by the very nature) is to offer public transport services of the highest possible quality and in this way persuade a large number of inhabitants to regularly use public transport. At the same time, public transport of high quality is conducive to political decisions for the benefit of the region.

The orientation toward a high quality services requires an essential change of public transport operators' approach as well as their internal management. Collective transport carriers, particularly in peak hours, following the changing expectations of the population must make relevant technological and organisational transformations to provide attractive transit services. Quality improvement is beneficial to all parties involved in the process, i.e. the public authority, the clients, the operators and their staff.

If such actions to improve quality bring about costs to all the participants, this cost should be perceived as an investment favourable to the authorities, passengers and operators. The effect of particular areas affecting the assessment is shown in Figure1.

Figure 1. Quality components vs. customer's expectations
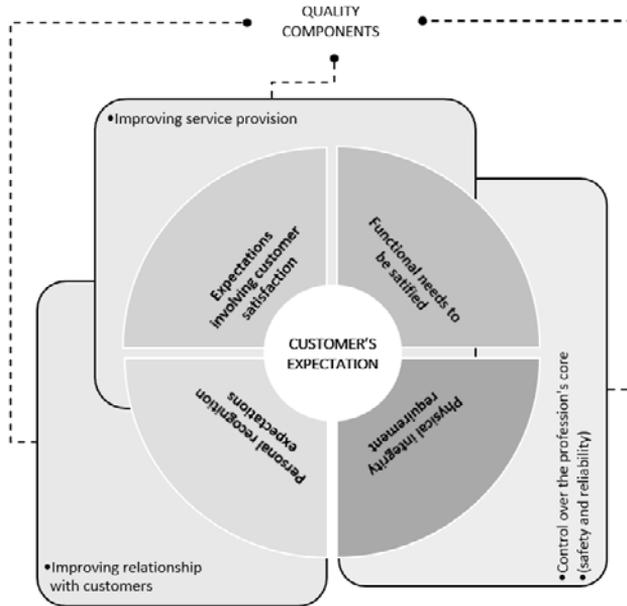
Source*: own study based on (Focus, UITP, 2003, pp. 1-4).

The approaches to quality that favoured one aspect of service quality or another – punctuality, safety, customer service – overlooked the basic overall customer expectation. In the collective transport field, as in any other field, quality has to be taken into account in all the aspects of service (Fig. 1).

Quality begins with safety and reliability, continues with service provision corresponding to the expectations of passengers and is complete only when the interpersonal relationships are improved, i.e. between the operator's staff and the customers. These various aspects of quality do not compete with one another, they compete together as quality as perceived by passengers.

A transport company has control over many features of serves quality, but in general it cannot master the entire process that enables ensuring the quality of all the aspects of service provision.

Quality assurance procedure cannot be implemented without the knowledge of the quality expected by customers. The impression of expected quality obliges all the participants of the transport process execution to view the service provided that customers want to experience and so they assess the current one. The planned quality expresses the ambitions of the authority and operator in terms of service. Taking into account both customers' expectations and strategic decisions taken by the above, it expresses in fact the expectations of the customers. It is the commitment made by the participants with the service to be provided. Quality achieved results from actions taken by the participants who can impact the service (operators, local authorities). The difference between

the planned quality and that achieved is expressed by the efficiency of the transport system and its capacity to achieve its targets.

Eventually, the customer has his own evaluation of the service offered to him. This is perceived quality. The difference between the perceived quality and expected quality allows considering customer's satisfaction, which is the primary objective of our quality actions.

The fundamental element of action is therefore a well-defined quality, in as much detail as possible, planned for customers and its expression in terms of results for customers. It is quality that makes it possible to devise managerial tools partnership procedures for improving quality and to assess the system's performance.

The advantage of such procedure – definition of service, measurement of results – is when it ends at all the levels of responsibility and services production, and the measurement and report of quality results at all the levels are an efficient tool for management and quality improvement.

Quality is but a state a transport company strives to achieve. It is a way toward continuous improvement of services.

3. Quality indices in a municipal transport system

The introduction of formal quality requirements largely depended on the preparation of legal acts on public procurements, covering also services including collective transport services.

An important publication on the preference in the approach to quality in municipal collective transport the Report of the Committee for Transport of the Polish Academy of Sciences called "Transport services on urbanized areas in Poland". In the chapter "Criteria and measures of municipal collective transport assessment" the assessment criteria of significance for passengers were proposed (Project Quattro, 1997, p. 3):

- accessibility to line, measured as percentage of population in the zone of convenient accessibility of collective transport stops,
- spatial and functional integration with other collective transport means (national, regional and local, Park and Ride, Bike and Ride, etc.),
- running hours (including service at night),
- frequency,
- directness of connections (no need to transfer),
- reliability of operation: reliability, punctuality, regularity, availability of seats, probability of reaching destination at expected time,
- flexibility of operation (choice of alternative connection),
- speed of journey,
- travelling comfort, covering:
- conditions of access to (tram, bus) (distance/orientation ease, collision hazard, safety, etc.),
- conditions of waiting at (bus/tram) stop (protection against unfavourable weather conditions, aesthetics of stop, overcrowding, existence of service programme in the neighbourhood, etc.),
- conditions of boarding and alighting (including facilities for the handicapped),
- travelling comfort (availability of seats, degree of vehicle overcrowding, smoothness of ride, vehicle heating and ventilation, lighting, visibility from vehicle, cleanliness, etc.),
- behaviour of staff,

- convenience of transfer (distance, density of pedestrian traffic, information/orientation),
- nuisance of exhaust gases, noise and vibrations,
- convenience of ticket system (ease of purchase, variety of ticket offer, ticket validity observed by various carriers, etc.),
- safety of travel and personal safety.
  On the basis of research results the most important basic specific measures were identified:
- waiting time,
- irregularity probabilistic indicator,
- punctuality indicator
  and complex measures including:
- average arduousness of travel,
- average equivalent travel time.

These indicators may constitute the criteria of transport operation quality assessment important for customers. For a complex assessment of a company's performance quality, however, some other indicators are necessary, chiefly economic, confirming the company's rationality.

4. Quality indicators and their application

Quality indicators can be defined using the indices derived from the theory of probability. For instance, the probabilistic irregularity index (F), was defined as a difference (in minutes) between the real waiting time for 95 percentile (allowing for a case when a passenger will not be able to get on the nearest tram/bus because of lack of room) and the waiting time for 95 percentile when the traffic is irregular and the passenger can get on the nearest coming car at sufficient room supply:

$$F = 2{,}5\beta_t * 1{,}7t \; [min] \tag{1}$$

$$\beta_t = s_t/t \tag{2}$$

where:
s_t – standard deviation of intervals,
t – average interval.

Table 1. Boundary values of probabilistic irregularity index (F) for quality assessment criteria

No.	Range of F index	Assessment
1	0.0-0.9	Very good
2	1.0-2.9	Good
3	3.0-4.9	Satisfactory
4	> 5.0	Unsatisfactory

Source: own study based on (Project Quattro, 1997).

The total quality coefficient – equivalent travel time (HT) – was defined as a sum of time equivalents of components:

$$HT = HD + HW + HJ + HR + HF + HC + HS \qquad (3)$$

where:

HD – getting to/from the stop,
HW – waiting at the stop,
HJ – travel in a collective transport vehicle,
HR – transfers,
HF – fare/ticket system,
HC – passenger complaints,
HS – travel safety and personal safety.

Each of the above variables is a function of many factors and was determined precisely by a corresponding set of numerical values. This method was devised to be applied in the assessment of the quality of a transport system servicing a city or another area of transport operation. It had been developed earlier and a quality assessment system for bus and tram services was proposed in which as basic requirements punctuality, regularity and travel comfort were adopted. The implementation of the concept of quality assessment must follow necessary regulations and consequences specified in the contract for transport operation provided. The contract should specify:

- the number of vehicles necessary for the service and the amount of vehicle/km per day and per month,
- routes network,
- level of fares and mode of tickets distribution (MPK – Municipal Transport Company is responsible for the sale of tickets),
- rate of subsidy which results from the difference between income and costs. The level of subsidy is determined by the city council each year and is a separate item in the city's budget,
- rules and procedures enforcing the carrier's financial effectiveness,
- quality requirements and control system based on certain indicators. The control is executed by a city administrative agency,
- principles of calculating financial corrections in subsidy (penalties and bonuses) based on the level of fulfilling the terms of contract,
- carrier's other responsibilities such as maintaining cleanliness of fleet and stops. In this case, however, there are no quality indicators of meeting the obligations.

The records of transport process components should be kept in a such as to enable calculation of the following indicators:

- punctuality,
- regularity,
- vehicle occupancy rate and resulting overcrowding,
- global time lost by passengers due to unpunctuality and irregularity.

Transit control should be executed by both the carrier and the municipal administrative agency responsible for collective transport. The carrier should be obliged to make daily reports on services performed and to make full information available. Additionally it is necessary to specify a separate system of statistical control of transport quality and performance from the passenger's point of view. It should include fiscal encouragement which effect changes of the carrier's targets from purely economic effectiveness to general effectiveness related to passenger's satisfaction. Statistical control is based on selective gathering of information on certain elements (Borowiecki, Kaczmarek, Magiera & Młynarski, 2004, pp. 32-49):

- control is executed on all lines and encompasses the entire period of transport operation (all day, all days of the week, all months),
- the size of samples is calculated so as to ensure accuracy at a given confidence level,
- choice of points and time is not known to the carrier,
- control is not executed in extreme conditions (heavy snowfall, fog, etc.),
- rules of check random selection are precisely defined.

The proposed programme of inspection is based on six groups of points, five time intervals across the day, type of day (four categories) and periods (six cycles). One series of measurements covers over 1500 two hour observations, which essential for obtaining an adequate sample.

Three quality indices are used in analysis:

- punctuality/regularity,
- overcrowding in collective transport vehicles,
- failure to perform service (Borowiecki, Kaczmarek, Magiera & Młynarski, 2004, p. 8).

For each basic service quality indicator there are available useful tables of correction and consequences (bonus/penalty). The bonuses or penalty are calculated as a per cent share of the monthly subsidy indicator:

$$A = punctuality/quality,$$

exactly as:

$$A = 0.6 * T + 0.4 * F \ [min] \tag{4}$$

$$T = 1/n\sum\sigma_i \ [min] \tag{5}$$

where:
T –   indicator of arduousness of unpunctuality,
n –   number of deviations observed,
σ_i –   indicator for an individual deviation dependent on the difference between the time of arrival at stop observed and scheduled – h (min).

For punctuality/regularity index (*A*) gives the value of bonus/penalty, as per cent share of monthly subsidy (Tab. 2).

Table 2. Correction of monthly subsidy dependent on punctuality/regularity index/indicator

W (%)	Bonus (%)	Penalty (%)	W (%)	Bonus (%)	Penalty (%)
<0.13	8	–	5.83-6.82	–	3
0.13-1.12	6	–	6.83-7.82	–	4
1.13-2.12	4	–	7.83-8.82	–	5
2.13-3.12	2	–	8.83-9.82	–	6
3.13-3.82	0	0	9.83-10.82	–	7
3.83-4.82	–	1	> 10.83	–	8
4.83-5.82	–	2	–	–	–

Source: own study based on (Borowiecki, Kaczmarek, Magiera & Młynarski, 2004).

Similar tables are also prepared for the other indicators – occupancy rate exceeding 5 passengers/m2 and the third indicator – failure to perform rides.

The execution of the quality systems procedures is based on a contract for transit, which also specifies the control method. For instance, punctuality is checked and measured in the following way:

- arrival at a stop ahead of time (up to 2 minutes) is treated as punctual,
- delay less than 50% of scheduled interval or 5 minutes (or less) is treated as punctual arrival,
- control is performed at certain pints,
- control duration is not less than 100 hours monthly,
- punctuality index is calculated after formula:

$$P_r = N_p : (N_k - N_u) \qquad (6)$$

where:
N_p – number of punctual arrivals,
N_k – number of expected rides as scheduled,
N_u – number of unpunctual rides or rides not executed due to justifiable reasons).

In the increasing number of Polish cities the satisfaction of public transport users is checked more or less systematically. Previously, it was usually part of standard surveys on travelling, such as complex surveys on sources/destinations. When 90 or more per cent of travelling was done by public transport, attention was focused on its availability, assurance of room in a vehicle (since in the past the main problem was overcrowding in vehicles), etc. Gradually other aspects became more prominent, e.g. punctuality. Recently, due to a rapid growth or motorization and a large portion of travellers preferring individual modes of transport, a new approach to public transport is becoming more common. City governments faced with the challenge of increasing traffic are interested in searching for ways of reducing the number of passengers preferring private cars to public transport. At the same time, carriers are becoming more interested in winning clients. Three categories of problems can be considered typical:

- satisfaction of public transport users from service provided,
- preferences in reference to various requirements,
- factors that can attract private cars owners to using public transport means.

The ranking of travellers' preferences, specified in eight categories, is shown in the Table 3.

Table 3. Importance (ranking) of various quality measures

No.	Items	Value	No.	Items	Value
1	Punctuality	19.37%	5	Low cost	11.82%
2	Directness	14.37%	6	Comfort	6.98%
3	Frequency	14.03%	7	Speed of travel	6.81%
4	Availability	13.95%	8	Speed/time	6.39%

Source: own study based on (Borowiecki, Kaczmarek, Magiera & Młynarski, 2004).

It is evident that punctuality and frequency rank highest among the features of public transport, and contrary to popular opinion, fare is not that important.

Meeting quality requirements is directly related to the system of use of durable assets which include vehicles executing transport actions.

The use of property components is a process which starts with a vehicle manufacture and ends with its disposal (breaking). In the case of tramway fleet exploitation includes the use and servicing of the fleet. Rational execution of these processes requires employing information on both the transport means and technical and economic aspects of their functioning as well as the environment and external factors. The ability to use the information efficiently enables not only rational management of the company's assets but also significantly affects the quality of services provided. To take advantage of information a specification of measures necessary for quantitative assessment of the processes is required. The major measures of a company's operation are economic ones which produce a measurable image of the quality of operation.

5. Efficiency of exploitation and its measures in the operations of municipal transport companies

Transport technical means constituting the company's fixed capital are considered as used effectively when the given resources yield the maximum value of production (services) of a required structure (*A Dictionary of Economics*, 1977, pp. 72-73). This can be achieved in two ways. One way, reduced to the maximization of the value of production (services) of a required structure using the given fixed capital in the form of transport technical means, aims at increasing the exploitation of transportation means over the predicted time period intended for exploitation. The other way consists in the minimization of costs of using the fixed capital resources at the company's disposal to produce an assigned amount and structure of production (services offered). The first solution in the area of rational management of fixed capital is equivalent to rational management of transportation means, and the measure of its realization is the productivity of fixed assets (Φ_r), as the relation of the quantity of production achieved (Φ) to the quantity of fixed assets (Γ_t) (Byrski & Luchter, 1972, pp. 22-24):

$$\Phi_r = \frac{\Phi}{\Gamma_t} \qquad (7)$$

The rational use of fixed assets in the adopted variant of maximization of the productivity of the fixed assets can be executed by various particular solutions (Borowiecki, 1997, pp. 103-104):
- maximization of fixed assets use time,
- optimization of fixed assets use rate,
- improvement of fixed assets structure and reliability not involving investment,
- restructuring fixed assets via investments.

The idea of optimal use of fixed assets is interpreted in various ways, e.g. as optimization of the use of fixed assets components by actions aiming at a search for most favourable procedures in terms of the adopted criterion (e.g. maximum accumulated surplus at given resources, highest profit, lowest cost, highest productivity).

In market economy, and the more so in the operation of municipal transport companies, reducing the optimization of fixed assets use to specifying their productivity would be a considerable simplification because the production itself of products and delivery of services of a given value

does not guarantee the company achieving a profit. The fixed assets productivity ratio should therefore be replaced by indices of (Siudak, 2001, pp. 114-117; Sapijaszka, 1996; Borowiecki, 1998; Borowiecki, 1993, p. 114):

- fixed assets turnover O_{FA} (the relations between revenues from sales S_e and fixed assets Γ_t),
- profitability of fixed assets E_{FA} (the relations between financial result R_f and fixed assets Γ_t):

$$O_{FA} = \frac{S_e}{\Gamma_t}, \quad E_{FA} = \frac{R_f}{\Gamma_t} \tag{8}$$

These indices may be used for the assessment of the degree of fixed assets use by the company, however, in view of the target of a company's operation in a short period of time which is the maximization of profit and maximization of value in a long period. What is considered the most adequate measure of optimal use of fixed assets by a company is the profitability index. It defines the relation of the value of financial asset achieved by the company and the value of fixed assets. To make this measure more precise the result produced by the whole company should be separated from the result produced by the fixed assets, to be more accurate, by particular components of the assets and refer it to both the value of the overall fixed assets of the company and the value of its particular components. Thus specified index of fixed assets profitability index should be employed by the company across the entire period of exploitation of permanent resources and its particular elements. The knowledge of this index enables the optimization of the use of fixed assets components, the optimal time of it use in particular (Wodniak-Sobczak, 1994; Diederich, 1989, pp. 40-41).

Moreover, it should be pointed out that there is a relation between turnover and profitability of fixed assets that can be described as:

$$E_{FA} = \frac{R_f}{S_e} \cdot \frac{S_e}{\Gamma_t} \tag{9}$$

Fixed assets profitability is a product of sales revenues and fixed assets turnover (Slatter, 1984; *A Dictionary of Economics*, 1977, pp. 74-75).

Such presentation of the issue of the optimal use of fixed assets allows one to return to the issue of employing the concept of fixed assets productivity and understanding fixed assets management and its optimal use. If productivity is a relation of achieved production (services) to the quantity of fixed assets, then developing this relationship it can be proved that productivity is a relation between employment effectiveness (R) and technical facilities supporting employment (TUP):

$$P_r = \frac{P}{\Gamma_t} = \frac{P}{M} \div \frac{\Gamma_t}{M} = \frac{R}{TUP} \tag{10}$$

In terms of profitability measures, in turn, the relation of financial result (R_f) to fixed assets (Γ_t) is the profitability of fixed assets (E_{FA}), the relations of financial asset (R_f) to employment (M) is the profitability of employment (E_M), and the relation of financial result (R_f) to production (P) is production profitability (E_P):

$$E_{FA} = \frac{R_f}{\Gamma_t}, \quad E_M = \frac{R_f}{M}, \quad E_P = \frac{R_f}{P} \tag{11}$$

If the relation of employment profitability (E_M) and fixed assets profitability (E_{FA}) is determined by technical facilities backup (T_{FS}), while the relations of employment profitability (E_M) and production profitability (E_p) describes employment effectiveness (R) (A Dictionary of Economics, 1977, p. 76):

$$TFS = \frac{R_f}{M} \div \frac{R_f}{\Gamma_t}, \quad R = \frac{R_f}{M} \div \frac{R_f}{P} \tag{12}$$

Finally, then, the relations of labour efficiency (R) and technical facilities backup (TFS) describe fixed assets profitability (P_r), which is described by formula:

$$P_r = \frac{P}{\Gamma_t} = \frac{R}{TFS} \tag{13}$$

From the conclusions presented so far it follows that there are certain relationships between fixed assets management in a company and their optimal use. The optimal management of fixed assets components is not a category identical with the management of fixed assets, but it is an essential and synthetic factor. In such an approach the analysis of the optimal use of fixed assets in a company is reduced to the analysis of the level of costs associated with the use of fixed assets and the financial result achieved by the company from the exploitation of this fixed assets (Borowiecki, 1993, p. 118).

In all the considerations presented above the optimal management of fixed assets was defined with the quantitative aspect of the concept clearly highlighted. Such an approach is important when the aim is to describe the essence of the optimal management of fixed assets in a company and mainly the effect of cost factors on this management. The optimal management of fixed assets is one of the indicators of a complex assessment of the quality of a municipal transport company operation.

6. Conclusion

The conclusions drawn from the observation of municipal transport systems exploitation indicate that quality begins with safety and reliability, continues through provision of services that fulfill passengers' expectations. The process of quality assurance is complete if it increases effects and stimulates economic rationality and when interpersonal relationships among the participants of the company's operation process are improved. These diverse aspects of quality are competitive but at the same time they compete as a quality perceived by customers.

It is obvious that the implementation of the concept of assessment of quality in municipal transport must be based on indispensable regulations and consequences included in the contract

on the transportation activity, which must precisely specify the quality assessment criteria. Consequently, it is necessary to focus on services of high quality, which significantly affects the changes of the attitudes of public transport operators as well as adaptations in internal management. Collective carriers, especially in peak hours, must by following the changing expectations of customers introduce transformations in the organization and technical conditions to offer attractive transportations services.

From quality improvements all the involved parties will profit, i.e. public authorities, customers, operators and their staff. A transportation company has control of numerous aspects of services quality but cannot master the whole process enabling to ensure quality of all aspects of service provision.

Since quality assurance policies cannot be implemented without the knowledge of the quality expectations of the customers, it is expedient to carry out regular survey and prognosis of the expectations of future users of municipal transport. Desired quality obliges all the contributing parties of the transportation process to reflect on the service offered that the customers want to experience, and consequently the current one is assessed and on this basis alterations will be made.

The conclusions presented so far indicate that there are certain relationships between operation quality and fixed assets components management in a company and their optimal use. In such approach the analysis of optimal use of fixed assets is reduced to checking the level of costs of using them. The evaluation of the financial result obtained by a transport company derived from the use of its fixed assets should be one of the major measures of the company's performance quality. The economic factor is extremely important not only because of market competitiveness but also due to the necessity of confirming the economic rationality of the company in a given organizational form despite the function of transport companies of serving the public and the need for their financial support.

To conclude, it should be pointed out that the presented aspects of the assessment of fixed assets management or their optimal use are applicable only in respect of the entire fixed assets and the company's results as a consequence of using these assets. In the analysis of the particular components of fixed assets or their typological aggregates it is necessary to adopt a different group of methods applicable in this respect.

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Chapter **39**

Methodologies for Business Process Reengineering

Hubert Obora

1. Introduction

The notion of reengineering appeared in literature at the beginning of the 1990s. It was defined as a concept consisting in thorough, comprehensive redesigning of businesses processes to achieve major improvements in their functioning. According to the classic definition by M. Hammer and J. Champy (1993, p. 32): "Reengineering is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed". Reengineering is based on many previously known ideas. And so, from Value Analysis, which appeared in the sixties, it derives a focus on current needs of customers as well as reduction in unnecessary costs. From the inventic methods developed in the 1970s, reengineering takes over cross-sectional thinking characteristic for them. A significant role in reengineering is also played by approaches popularized in 1980s, among others, by Benchmarking, Just-in-Time or Total Quality Management. Reengineering does not constitute, however, an accidental conglomerate of management methods known for a long time – their elements are juxtaposed on new terms, obtaining, as a result, a multiplied synergy effect. The classic methodology of reengineering suggested by M. Hammer and J. Champy (1993, p. 35) assumes the following stages:

1. Introduction into Business Reengineering.
2. Identification of Business Processes.
3. Selection of Business Processes.
4. Understanding of Selected Business Processes.
5. Redesign of the Selected Business Processes.
6. Implementation of Redesigned Business Processes.

Reengineering, in its classic version is a concept which proposes only extreme results: we will achieve everything or nothing. "Re-engineering is... about rejecting the conventional wisdom and received assumptions of the past. ...Reengineering is the search for new models of organising work. Tradition counts for nothing. Re-engineering is a new beginning... To succeed at reengineering, you have to be a visionary, a motivator, and a leg breaker" (Hammer & Champy, 1993, p. 49). The essence of the classic approach to reengineering is well described by principles provided by such authors as: M. Hammer or P. Grange (Tab. 1).

Table 1. Classic principles of BPR

Principles of reengineering according to P. Grange	Principles of reengineering according to M. Hammer
1. Start out from customer needs 2. Analyse processes in the company 3. Consider the existing restrictions 4. Think differently	1. Action should be organized around results, and not tasks 2. The process result users should be organizers of this process 3. Spatially dispersed resources should be treated as if they were in one place 4. Parallel processes should be coordinated at the time of their performance 5. Decisions should be made at the place of process implementation and spatially remote management has the exclusive right to control the decisions 6. Collected information should flow to one generally available data bank

Source: (Hammer, 1990, pp. 104-112; Grange, 1994).

In practice, implementation of reengineering on the basis of its classic principles presented in Table 1 is a barrier difficult to overcome, as it requires a change in the previous rules in many areas of the organization. These difficulties caused, in practice, creation of different approaches and methodologies of Business Process Reengineering. The purpose of this article is to indicate the selected development directions of this management concept.

2. IT-aided BPR

The methodology of Business Process Redesign prepared by T. H. Davenport and J. E. assumes use of business processes in IT technologies in modelling process. In the opinion of the authors, IT has for a long time been a useful tool for analysis and design of production processes. Among the most popular applications of IT in production, the authors mention: modelling of production processes, production planning and control, resource management, building information systems and logistics management (Davenport & Short, 1990, p. 11). Noticing the positive effects of application of IT in production, T. H. Davenport and J. E. Short have once again asked the question of whether these technologies can be applied in the area of designing and improvement in business processes. The solution to this question was preparation, by these authors, of a reengineering methodology based on using IT tools. This methodology assumes action divided into five subsequent stages (Stoica, Chawat & Shin, 2004, p. 8):
1. Development of the vision of conducted business and process goals.
2. Identification of processes for reconstruction.
3. Measurement and understanding of currently operating processes.
4. Identification of IT leverage.
5. Design and building of process prototypes.
The first three stages of this methodology are almost identical with the classic course of reengineering in the perspective of M. Hammer and J. Champy. The first stage assumes development of the vision of conducted business into goals for processes performed by the organization.

In the opinion of the authors of this approach, rationalization undertaken under single, often unrelated processes performed by the organization is hardly effective, and in some cases, such a selective improvement of processes may be detrimental to the organization. To prevent making many inconsistent analyses, the authors suggested that reengineering should start from the analysis of the organization's vision. The adopted vision indicates goals of process reengineering, which may be, e.g. cost reduction, elimination of losses, time reduction, quality improvement etc. The purpose of the 2nd stage of the methodology is identification and prioritization of processes due to the possibility of their reconstruction. Identification and prioritization of the processes for analysis takes, in practice, two different forms. The first one, named exhaustive approach, assumes identification of all processes in the organization and then their prioritization according to the criterion of the possibility to apply reconstruction. The other – referred to as high-impact approach – consists in indicating the processes particularly important from the point of view of implementation of the vision of the organization as well as the processes conflicting with it. In most cases, the second approach is used. It is sufficient and does not result in the need for analysing numerous processes, some of which have little effect on development of the organization's vision. The assumption of the subsequent stage is to accurately recognize each process selected for analysis. Particular processes are examined owing to the possibility of achieving the assumed reengineering goals by them. An important issue is that people performing the analysis should think in an innovative way, and should not limit themselves only to examination of the current situation. Another step consists in indicating the possibility to apply IT in the process of preparing new and improving the already existing processes. The authors of the approach indicate several capabilities of supporting the reengineering process by IT tools (Tab. 2).

Table 2. Capabilities of support of the reengineering process by IT tools

Capability	Organisational Impact/Benefit
Transactional	IT can transform unstructured processes into routinized transactions
Geographical	IT can transfer information with rapidity and ease across large distances, making processes independent of geography
Automational	IT can replace or reduce human labour in a process
Analytical	IT can bring complex analytical methods to bear on a process
Informational	IT can bring vast amounts or detailed information into a process
Sequential	IT can enable changes in the sequence of tasks in a process, often allowing multiple tasks to be worked on simultaneously
Knowledge management	IT allows the capture and dissemination of knowledge and expertise to improve the process
Tracking	IT allows the detailed tracking of task status, inputs, and outputs
Disintermediation	IT can be used to connect two parties within a process that would otherwise communicate through an intermediary (internal or external)

Source: (Davenport & Short, 1990, p. 17).

Undoubtedly, apart from the indicated possibilities to apply IT in the reengineering process there are others, enabling conversion of processes. Organizations create their own lists of such possibilities resulting from their specific nature, types of executed processes or the level

of the employees' competence. The last step in the described methodology is to prepare prototypes of new processes. As part of it, it is necessary to operate on the basis of three basic principles: use IT as a tool of designing, generally understand the design assumptions, and prepare organizational prototypes.

3. Object-Oriented BPR

Nowadays, object-oriented approach is not only the basis for numerous methodologies of used for designing IT systems, but becomes a starting point to create solutions in the field of organization and management. A good argument proving the accuracy of this approach is the fact that the organization (business) models prepared on its basis describe reality very well, and thereby they are more understandable and legible. Additionally – if the same approach is used for modelling of the organization and the IT organization supporting this organization – as a result, it is possible to obtain a complete model prepared for implementation and equipped with appropriate tools facilitating this implementation.

An example of the application of the object-oriented approach in management may be the object-oriented quality management model prepared in the Netherlands – OQM (Object-Oriented Quality Management). Object-oriented approach is also applied in the Business Process Reengineering methodology prepared by I. Jacobson.

The main assumption of the object-oriented approach is a statement that every organization and its environment may be perceived as a set of objects remaining with each other in various relationships that can be accordingly shaped and managed. In this context, an object may be understood both as a specific entity (process, machine, material, employee) and as a certain abstraction (culture, standards, expectations). Referring to an organization, I. Jacobson defines an object as a phenomenon containing actions and information that are understandable for an organization and should be described in its environment. Examples of objects in this context, may be: customer, supplier, employee, invoice, control parameter sheet etc. Objects, in the opinion of I. Jacobson, are also tasks performed by the organization. Using object-oriented approach as an excellent way to explain internal dependencies of the organization (relations between resources used by it, applied processes and products or services generated as a result of their application) the team of I. Jacobson prepared an object-oriented reengineering methodology. According to this methodology, reengineering actions are performed under the organization development and come down to five consecutive steps (Jacobson, Ericsson & Jacobson, 1995):

1. Envisioning.
2. Reversing the existing business.
3. Engineering the new business.
4. Installing the new business.
5. Re-engineering directives.

In the opinion of I. Jacobson reengineering actions should start in response to the directive the organization's management, containing a short specification of problems to be solved, confirmation of the need for changes and characteristics of the anticipated results of reengineering (Fig. 1).

Figure 1. The object-oriented reengineering methodology according to Jacobson et al.
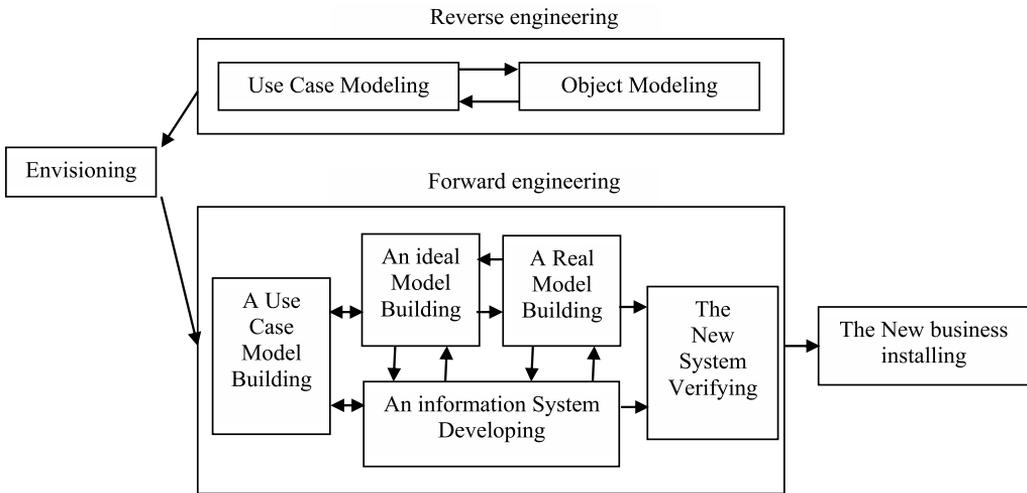
Source: own study based on (Jacobson, Ericsson & Jacobson, 1995).

Such a specification should contain a list of new and previous, but radically changed business processes, indicating differences in relation to the currently functioning processes. Then for each of the indicated processes, it is necessary to specify goals and measurable characteristics describing these processes, such as: time of implementation, costs, quality, life cycle, degree of customer satisfaction, and define the technology needed for their support. In order to predict the effects of introduced changes, in the long run, viable scenarios of actions along with specification of related hazards are prepared. The vision of changes cannot be created when the organization strategy is unknown and the assumptions of conducted business are not understandable. Additionally, the organization should know the requirements of its customers and use benchmarking for analysing the experience of those organisations which were successful in the process of reengineering. This may be achieved thanks to the stage of restoration of the existing organization, under which the models of existing processes are created and analysed by means of measurable models. In particular, two consistent points of view on the organization are characterized:

- External point of view describing the organization and its environment through the prism of tasks implemented by it and entities (actors) involved in it.
- Internal point of view describing the internal, hierarchical structure of the organization as well as processes and resources used within it.

Therefore, in the course of implementation of reverse engineering, actions focus on modelling of use cases and modelling of objects – such actions are represented by the indicated 2 points of view.

Use cases are scenarios necessary for understanding principles of operation of a system (process). They present various interactions between the system and its users, characterize goals of users and responsibility of the system towards its users. Description of a use case should contain:

places in which the use case starts and ends, interactions between the use case and its actors, how and when the use case requires the use of information stored in the system and how and when it creates such information, exceptions in event flow, when and how solutions to problems are implemented.

During use-case modelling, a model of the present process is created, including entities and activities (matters) present within it. The entities may be suppliers, customers, specific positions or the whole parts of the organization. The models of occurring cases present complete variants of events, indicating their effect on a customer. The occurring cases are assessed by means of certain indicators. Cases most essential for improvements are identified and given priority.

Object modelling involves identification of all subsystems of the organization taking part in implementation of use cases indicated earlier. Then, interactions between all objects taking part in implementation of use cases are modelled. For occurring cases, appropriate measures are stated, thanks to which they can be compared with cases present in the designed "new business". The result of this action is the assessed object-oriented model of the present business.

Use-case modelling and object modelling are interdependent. The process begins with modelling possible events, then objects taking part in these events are designed. Both models are then processed so that, as a target, a new business model could be obtained from them.

The purpose of the stage referred to as forward engineering is to establish a model of a new organization. This goal is achieved by parallel implementation of the following activities:

- External view on the organisation presenting new or re-designed process, based on use-case model analysis.
- Looking at a new organization from the inside in terms of object-oriented models. These are predominantly theoretical models describing an ideal organization. Each process may be modelled based on this approach. It involves tasks implemented in this process, the way of their linking as well as their effect (e.g. a product).
- Preparation of real models adapted, on one hand, to constraints present in the organization, while on the other hand reflecting interaction of objects necessary for the implementation of use cases.
- Analysis of IT support required for re-constructed/new processes.

Before implementation, each new model is subjected to simulations and testing. The last stage of object-oriented reengineering is introduction of the proposed changes during which new or reconstructed processes are implemented. The processes existing before the change are maintained until complete implementation of new ones, so as not to interrupt the operation of the whole organization.

4. Integrated BPR methodology

In 1999 during the 4th Annual International Conference on Industrial engineering Theory, Applications and Practice, S. Muthu, L. Withman and S. H. Cheraghi presented a paper entitled Business Process Reengineering: A Consolidated Methodology. Its purpose was to present the approach based on integration of five BPR methodologies known from the reference books (Tab. 3).

Table 3. BPR methodologies used for creating an integrated approach

Methodology 1 D. R. Underdown	Methodology 2 B. D Harrison, M. D. Pratt	Methodology 3 T. R. Furey	Methodology 4 R. J. Mayer, P. S. Dewitte	Methodology 5 R. L. Manganelli M. M. Klein
1. Develop vision & strategy 2. Create desired culture 3. Integrate & Improve enterprise 4. Develop technology solutions	1. Determine Customer Requirements &Goals for the Process 2. Map and Measure the Existing Process 3. Analyze and Modify Existing Process 4. Design a Reengineered Process 5. Implement the Reengineered Process	1. Set Direction 2. Baseline and Benchmark 3. Create the Vision 4. Launch Problem Solving Projects 5. Design Improvements 6. Implement Change 7. Embed Continuous Improvement	1. Motivating Reengineering 2. Justifying Reengineering 3. Planning Reengineering 4. Setting up for Reengineering 5. As Is Description & Analysis 6. To-Be Design and Validation 7. Implementation	1. Preparation 2. Identification 3. Vision 4. Technical & Social design 5. Transformation

Source: own study based on (Stoica, Chawat & Shin, 2004, p. 5).

Based on the analysis of indicated five methodologies, the authors suggested an integrated approach to BPR, assuming five following phases of action (Muthu, Whitman & Cheragi, 1999, p. 3):
1. Prepare for BPR.
2. Map & Analyse As-Is Process.
3. Design To-Be Processes.
4. Implement Reengineered Processes.
5. Improve Continuously.

The first of indicated stages begins with appointment of an interdisciplinary team of professionals, whose task will be implementation of reengineering. The team includes the senior management staff whose presence is necessary for planning and introducing very significant changes in processes important from the organization's point of view. Another action implemented at this stage is identification of customer-oriented reengineering goals. It requires the analysis of the customer's requirements and consideration of the points in which the present process is far from fulfilment of these requirements. Later on, the prepared strategic objectives of an organisation are developed by indicating the mission and vision of the organization.

The purpose of the 2nd stage is mapping and analysis of the present process. In the opinion of the authors of the described methodology, the reengineering team before beginning redesigning of the process should first get to know it well. This stance is questioned by some researchers on reengineering (in particular M. Hammer and J. Champy), who believe that searching for information about the present process may thwart creative approach to its reconstruction. The authors of the presented approach debunk this charge indicating that the approach represented by M. Hammer and J. Champy may be useful in organizations being in really big trouble where these processes require less improvement and more replacement. However, in most cases

it is enough to redesign the already existing processes, and then their recognition is a necessary condition for success of BPR.

Another stage of integrated BPR methodology comes down to prepare one or more alternative changes in the present processes, leading to their achievement of goals assumed in the first stage. This stage begins with process benchmarking (if possible). For this purpose, similar organizations are sought after, having the tested process organized better than the one subjected to reengineering. The main action implemented at this stage is design and validation of new processes (their proposed versions) with the use of the generally known modelling methods. The developed changes are later evaluated in terms of their impact on achievement of assumed goals, possibilities of their implementation and the costs generated by them.

The developed, well-assessed designs of changes are later prepared for implementation. The implementation of this stage of the procedure involves preparation of implementation plan for new solutions. It should be remembered that introduction of the proposed changes may encounter strong resistance of employees. It is a natural phenomenon related to concerns of employees about changes. To overcome this resistance, the implementation plan for new solutions should include the elements concerning preparation of employees for changes. This postulate is implemented by organizing a special training program describing the essence of changes, their importance for the organization and the employees. The last action performed at this stage is implementing the plan.

As opposed to the methodology by M. Hammer and J. Champy, the described approach assumes continuous, evolutionary improvement in reengineered processes. It is even believed that continuous improvement is one of the most important elements, influencing the effectiveness and efficiency of reengineering. This stage begins with monitoring the progress of implementation and effects of reengineering. Assessing the degree of implementation of the assumed goals of reengineering, the scope of necessary changes is determined and then implemented. This stage is a combination of two extreme process improvement concepts – quick, fundamental change characteristic for classic reengineering and gradual, consistent improvement characteristic for TQM.

5. Conclusion

Since the 1990s, the concept of reengineering has been subject to diffusion and development. Most of the methodologies and approaches to BPR known in the literature contain a substantial part of principles and stages of actions known from the classic approach of M. Hammer and J. Champy, however, they differ from each other often substantially. The most common differences that can be found in practice in reengineering methodologies include:
- detail of proposed solutions,
- degree of focus on radical improvement,
- degree of use in the IT tool reengineering process.

Some reengineering methodologies constitute only a set of general principles of analysis and reconstruction of processes (e.g. methodology by R. I. Manganelli and M. M. Klein), others, on the other hand, are equipped not only with very detailed principles but also with a set of auxiliary tools facilitating analysis and reconstruction of processes (e.g. methodology by T. H. Davenport and J. E. Short or methodology by I. Jaobson et al.). The methodologies as suggested by M. Hammer and J. Champy rule out the analysis of the present process owing to the assumption that the new

solution obtained through reengineering, to be effective, must disregard a solution which has not proven effective. This problem is approached completely differently by T. H., Davenport and J. E. Short, who believe that reengineering without elements of continuous improvement in most cases is difficult and very risky. Along with the development of IT, grows the share of methodologies based, on the one hand, on certain solutions known for designing IT systems, on the other hand, the very IT tools (software). An example here may be the methodology by T. H. Davenport and J. E. Short, as well as Object-Oriented BPR by Jacobson.

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Chapter **40**

Establishing a Strategic Alliance as a Way to Increase the Value Added in Manufacturing Enterprises – The Empirical Research

Jolanta Walas-Trębacz

1. Introduction

The ongoing process of globalization in the world causes the necessity of looking for new strategic option by enterprises. Currently, more and more enterprises and industries show a willingness to establish cooperation. It helps them to make decisions concerning changes of configuration of its value chain in order to better respond to customers' needs and to raise the level of value added for the customer. The cooperation with enterprises that are familiar with local environment creates an opportunity to acquire necessary knowledge and experience, as well as to enter markets protected by barriers. Enterprises operating in industries that require flexible and rapid responses to customers' needs and constant introduction of technological progress, in the era of globalization, might have difficulties in acting alone. Establishing a strategic alliance is one way for an enterprise to enter the market cheaper and safer, increase the level of its competitiveness and the value added.

The aim of the article is to present the role of strategic alliances in increasing the value added of an enterprise and its competitive position in the market. The article contains theoretical aspects concerning explanations of the terms "strategic alliance", "value chain", "value added". The article depicts mainly the results of empirical research conducted among 215 manufacturing enterprises operating in Poland in terms of the type of undertaken strategic alliances and the kind of benefits they obtain, inter alia, the evaluation of the level of achieved value added.

2. The role of the strategic alliance in improving the enterprise value chain

A value chain is a sequence of different type of functions (operations) that generate value of a product, which is determined by market relations between an enterprise and a purchaser. This is a sequence of interrelated (serial or parallel) phases of management process and executive

process referring to the particular sector of enterprise activity. It is a sequence of functions of a particular system, for instance an enterprise or a broader corporate system, that has developed external relations (Stabryła, 2007, p. 165). The concept of value chain, known also as economic chain, is closely related to the value added that arises in subsequent links of business processes. It describes increase in value of products (goods), and also formation of costs in the enterprise (Drucker, 1976, p. 120).

The value added, which is a consequence of the implementation of the structured processes and is a relevant measure of the efficiency of the value chain, is considered to be a key concept in implementing the enterprise value chain[1]. The value added can be understood as:

1. the difference either between the price and the production costs or the difference between the market value of the results of activities (sales revenue) and incurred expenditures: costs of materials, capital, labour and external services (Marcinkowska, 2012, p. 336);
2. the value which is obtained by subtracting materials and services acquired from outside from sales (Dobija, 1992, p. 356);
3. the difference between sales revenue and acquisition costs of goods and services from other enterprises (Barro, 1997, p. 59);
4. increase in the value of goods as a result of the production process (Kubiak & Nakonieczna-Kisiel, 1999, p. 43);
5. a real contribution of business entities in the value of manufactured products and services, which they offer to their customers (process-based approach).

Using the model of the value added chain enables the enterprise to make an analysis of the co-operation and its particular external links and to evaluate the effectiveness of internal links (operations). In such a way, the foundation of chain structure, which reflects a particular system of activities, is a network consisting of functional links of the enterprise and its partners associated with the sources of formation of the value added and the relationship between those links and the environment[2].

The concept of the value added chain refers to the issues concerning creating the strategic alliances of enterprises, both in the context of the internal and external value chain. A. Sulejewicz describes strategic alliances as the configuration of the splice of chains of at least two enterprises, identifying specific types of alliances from the names of the stage or its bundles i.e. technological and development coalition (TD), coalition of operations and logistics (OL), coalition of marketing, distribution and service (MDS), coalition of alliances with many stages (MS) (Pietruszka-Ortyl, 2007, pp. 91-92). The strategic alliance is an alliance established with the suppliers, customers, enterprises which are actual or potential competitors. It seeks to improve the management of some venture or area of activity by coordinating competences, measures and necessary resources in order

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[1]   In particular, the value added of enterprises operating in the same sector can be achieved at various levels, which will be conditioned upon factors such as: the scale of production, the utilization of production capacity, the scope of integration along the chain (with customers, suppliers), the nature of external relations and interdependencies within the enterprise, the vertical integration, the location of individual processes, the level of learning, the state of the art of technology (including IT), etc.

[2]   The presentation of examples of strategic alliances, which have strengthened the value chain of particular allies and have contributed to raising the competitive position of enterprises in the market, is included in several elaborations such as: (Walas-Trębacz, 2013, pp. 68-71; Kuraś, 2012, pp. 62-69; Trott, 2002, p. 128; *Łańcuch tworzenia wartości dodanej przedsiębiorstwa*, 2007, pp. 62-69).

to: achieve the better competitive position by all partners, make mergers, assignments or acquisition of any field of activity among themselves (Romanowska, 1997, p. 12).

The enterprise while adopting a business model should decide to adopt a particular method of configuration (deployment) of the value chain links. It is an important task related to the adoption of an effective strategy of business management and to the occupied place in the structure of the entire value chain. Therefore, the enterprise that operates in a given sector (or several sectors) is able to improve its external and internal value chain by (Walas-Trębacz, 2013, p. 65):

- strengthening its particular links (processes), thus raising its value added,
- reducing unprofitable links (entrusting them to external enterprises in the form of outsourcing), thus focusing on core competences,
- relocating links (processes) to areas with low maintenance costs (e.g. by introducing the internationalization process of the enterprise's activities),
- improving coordination between particular links (through efficient communication and information systems, introducing standards and procedures, setting coordinators, process owners, creating task forces etc.),
- establishing relationships between different entities so-called cooperative agreements that will bring higher results,
- using efficient management concepts and methods.

The decision to establish a strategic alliance may affect the enterprise in the way of selecting one or more links that participate in creating the value added. The results of empirical research are presented below. They depict the set objectives and the achieved benefits arising from strategic alliances among the surveyed manufacturing enterprises.

3. The scope of the research and the characteristics of the surveyed entities

The overall objective of the empirical research, conducted in 215 manufacturing enterprises functioning in Poland, was aimed at identifying the scale of interest in undertaking strategic alliances in order to improve the existing structure of the value chain, and also to increase the value added[3].

Detailed research tasks were related to: the identification of basic objectives realized by the surveyed enterprises, and among them the attention was paid to what position is taken by the external development through alliances, mergers, acquisitions; the determination of the type of alliance concluded by the surveyed enterprises; the determination of sectors in which the bigger amount of alliances is undertaken; the indication of the type of benefits arising from the undertaken strategic alliance and the assessment of the level of the achieved value added by the surveyed enterprises due to cooperation with allies.

Table 1 presents the structure of the surveyed enterprises according to various criteria.

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[3] The presented results constitute a part of research that was carried out with interview questionnaire in terms of a broader elaboration concerning the issue of the value chain analysis of the enterprise. The research was conducted from June 2013 to February 2016 in 215 enterprises functioning in ten sectors: food, chemical, textile, ICT, construction, metal, pulp and paper, automotive, electrotechnical and machine.

Table 1. The structure of the surveyed enterprises according to various criteria

The criterion for classifying enterprises	Sum of indications	Division groups of companies					
1. Experience in a sector		under 10 years		11-20 years		21-30 years	over 30 years
Number of indications	215	44		65		68	38
Share %	100	20.46		30.2		31.6	17.6
2. Organizational and legal form		Stock company	Limited liability company	Civil partnership	Self-employment	General partnership	Limited part-nership
Number of indications	215	48	87	18	44	14	4
Share %	100	22.3	40.5	8.3	20.5	6.5	1.8
3. Number of employees		10-49		50-249	250-500	501-1000	over 1000
Number of indications	215	94		50	22	20	29
Share %	100	43.7		23.25	10.23	9.3	13.5
4. Overall rating financial condition		very good		good		average	bad
Number of indications	215	62		119		32	2
Share %	100	28.8		55.3		14.8	0.9
5. Type of activity		components production			production of the final product		services
Number of indications	215	53			162		90
Share %	100	24.7			75.3		41.8
6. Production type		unit production			serial production		mass production
Number of indications	238	59			79		108
Share %	100	24.8			33.19		45.3

Source: own elaboration based on data from empirical research.

According to the experience in a sector, the greatest group of the surveyed enterprises constituted enterprises operating in the market in the range from 21 to 30 years (31.6% of the surveyed enterprises) and enterprises functioning in the industry in the range between 11 and 20 years (30.2%). Taking into account the organizational and legal form, the largest group was represented by limited liability companies (40.5%) and stock companies (22.3%) in the structure of the surveyed enterprises. From the point of view of the headquarter's location of the surveyed enterprises, the biggest group came from Lesser Poland Voivodeship (42.7%), Masovian Voivodeship (17.3%) and Silesian Voivodeship (13.3%). The highest percentage of the surveyed enterprises operate in the following sectors: construction (15.3%), chemical (14.4%) and food (13.95%). In terms of the number of employees, the largest percentage of the surveyed enterprises constituted small enterprises (43.7%), and large and very large enterprises (33.03%). The enterprises participating in the research declared mass production (45.3%), serial production (33.19%) and

unit production (24.8%). Some of them had mixed production type. More than 41.9% of the surveyed enterprises sell their products and provide services on the international market, 40.26% on the domestic market and 9.2% on the global market. Over 75% of the surveyed enterprises are involved in the manufacture of finished products and approximately 25% of the enterprises produce components. In more than 41% of the surveyed enterprises, services are also provided. Approximately 43% of the surveyed enterprises operate in one sector, over 26% operate in two sectors, and about 12% operate in more than four sectors. More than 28% of enterprises said that they have a very good financial condition, about 55% – indicated a good financial condition and only about 15.7% of the surveyed enterprises had average or bad financial condition. About 9% of enterprises declared that operate in a sector with very high attractiveness, over 43% indicated that their sector is of a high level of attractiveness and only 4% of enterprises operate in a sector with a low level of attractiveness.

4. The strategic objectives undertaken by the surveyed enterprises and the types of concluded strategic alliances

The executives of the surveyed enterprises were asked to indicate the level of significance that have the proposed strategic objectives in terms of the further development of the enterprise (see Tab. 2).

According to data contained in Table 2, the executives have attributed the greatest significance for the further development of the enterprise to the implementation of the following strategic objectives (according to share % of responses at the level 5): meeting customers' needs (68.54%), survival of an enterprise in the market (54.41%), profit maximization (52.61%) and acquiring new markets (51.17%). Moreover, the significant strategic objective is connected with increasing value of an enterprise, what was declared by 46.63% of the respondents. The next place in terms of significance was taken by internal development through diversification (32.60%) and internal development through specialization (32.55%). Among the surveyed enterprises, little interest in external development through alliances, mergers, acquisitions (16.91%) is noticeable.

Table 2. The significance of main objectives in terms of the development of the surveyed enterprises

Strategic objectives	Number of indications (share %)					Ranking of objectives due to their importance for the enterprise's development
	1 – very low significance	2 – low significance	3 – average significance	4 – high significance	5 – very high significance	
Survival in the market	10 (4.72)	13 (6.04)	35 (16.27)	37 (17.20)	117 (54.41)	2
Further internal development through specialization	6 (2.8)	8 (3.72)	23 (10.69)	81 (37.67)	70 (32.55)	7
Further internal development through diversification	6 (2.8)	17 (9.39)	38 (20.99)	56 (30.94)	59 (32.60)	6

Increasing value of an enterprise	3 (1.44)	13 (6.25)	28 (13.46)	69 (33.17)	97 (46.63)	5
External development (alliances, mergers, acquisitions)	55 (26.57)	50 (24.15)	35 (16.91)	32 (15.46)	35 (16.91)	8
Profit maximization	0	7 (3.32)	28 (13.27)	65 (30.81)	111 (52.61)	3
Meeting customers' needs	1 (0.47)	5 (2.35)	8 (3.76)	53 (24.88)	146 (68.54)	1
Acquiring new markets	4 (1.88)	13 (6.10)	30 (14.08)	57 (26.76)	109 (51.17)	4
Corporate social responsibility	14 (6.67)	22 (10.48)	51 (24.29)	82 (39.05)	31 (14.41)	9

Source: own elaboration based on data from empirical research.

Among 215 surveyed manufacturing enterprises, the executives of 136 (63%) enterprises have concluded the strategic alliance. Within the framework of domestic and foreign cooperation, the type of undertaken alliance was indicated as follows: technological, production, trade and comprehensive. In addition, the executives of enterprises have determined what type of alliance was concluded with domestic and foreign partners. One enterprise was able to establish several cooperation agreements. The surveyed enterprises have entered into 208 domestic alliances and into 96 alliances with foreign entities. Table 3 presents the amount and types of concluded alliances and the role played by enterprises in terms of national alliances, while Table 4 depicts the amount and types of concluded alliances and the role played by enterprises in terms of foreign alliances.

Table 3. The amount and types of concluded alliances and roles played by entities in national alliances

Type of the alliance	Number of indications (and % share of the total undertaken alliances)				Number of the under-taken types of the alliance
	The leader of the alliance	The coordina-tor of the alliance	The partici-pant in a sin-gle network of the alliance	The partici-pant in several networks of the alliance	
Technological alliance	18 (37.50 %)	14 (29.17%)	15 (31.25%)	2 (4.17%)	49 (23.55%)
Production alliance	17 (30.36%)	13 (23.21%)	13 (23.21%)	14 (25%)	57 (27.40%)
Trade alliance	26 (31.71%)	21 (25.61%)	25 (30.49%)	10 (12.20%)	82 (39.42%)
Comprehensive alliance	6 (30%)	6 (30%)	5 (25%)	3 (15%)	20 (9.61%)
Sum of indications	67 (32.21%)	54 (25.96%)	58 (27.88%)	29 (13.94%)	208 (100%)

Source: own elaboration based on data from empirical research.

Data presented in Table 3 depicts that among 208 alliances concluded between domestic entities, the greatest part refers to trade alliances (39.42%), and the smallest part is associated with comprehensive alliances (9.61%). In undertaken alliances, around one-third of enterprises

act as a leader (32.21%), more than one quarter of the surveyed enterprises participate in a single network (27.88%), and 25.96% of enterprises act as a coordinator. Only 13.94% of the surveyed enterprises take part in several networks of the alliance.

Table 4. The amount and types of concluded alliances and roles played by entities in foreign alliances

Type of the alliance	Number of indications (and % share of the total undertaken alliances)				Number of the under-taken types of the alliance
	The leader of the alliance	The coordina-tor of the alliance	The partici-pant in a sin-gle network of the alliance	The partici-pant in sev-eral networks of the alliance	
Technological alliance	10 (45.50%)	4 (18.18%)	8 (36.36%)	1 (4.55%)	23 (23.95%)
Production alliance	8 (30.77%)	1 (3.85%)	9 (34.62%)	8 (30.77%)	26 (27.08%)
Trade alliance	8 (22.86%)	9 (25.71%)	13 (37.14%)	7 (20%)	37 (38.54%)
Comprehensive alliance	3 (30%)	2 (20%)	4 (40%)	1 (10%)	10 (10.41%)
Sum of indications	29 (30.20%)	16 (16.66%)	34 (35.41%)	17 (17.70%)	96 (100%)

Source: own elaboration based on data from empirical research.

Based on the analysis of data contained in Table 4, it can be seen that among the surveyed enterprises the largest number of agreements with foreign partners is concluded in the trade area (38.54%), and the smallest part constitutes comprehensive alliances (10.41%). If it comes to the roles performed by entities in the foreign alliances, it is visible that most of the surveyed enterprises are involved in a single network (35.41%), and the smallest share comprise the enterprises that act as a coordinator (16.66%) or participate in several networks of the alliance (17.70%).

Table 5 presents the number and type of alliances concluded in ten surveyed sectors.

Table 5. Types of alliances in the surveyed sectors

Type of the alliance Sector	Technological alliance	Production alliance	Trade alliance	Comprehen-sive alliance	Sum of indications	Share %
1. Textile	2	7	12	–	21	6.9
2. Food	10	11	16	3	40	13.2
3. ICT	11	10	17	5	43	14.1
4. Construction	9	8	12	4	33	10.9
5. Metal	4	6	7	1	18	5.9
6. Chemical	16	17	19	6	58	19.1
7. Automotive	8	9	11	-	28	9.2
8. Pulp and paper	4	6	9	3	22	7.2
9. Electrotechnical	2	3	8	3	16	5.3
10. Machine	6	6	8	5	25	8.2
Sum of indications	72	83	119	30	304	100
Share %	23.7	27.3	39.2	9.8	100	–

Source: own elaboration based on data from empirical research.

The greatest number of alliances among the surveyed enterprises is concluded in the following sectors: chemical (19.1%), ICT (14.1%) and food (13.21%). When it comes to type of the alliance, most alliances concern trade area (common sale, distribution or promotion and advertising) (39.14%). Then, production alliances (27.3%) and technological alliances (23.7%) can be indicated. The entire research sample contains only 9.8% of comprehensive alliances. Its major part falls inside chemical sector.

5. The benefits arising from alliances achieved by enterprises and the assessment of the influence of the alliance on the level of obtained value added

The respondents have indicated the type of benefits arising from concluded strategic alliances. Among the benefits mentioned in Table 6, they could choose seven that are the most important for them.

Table 6. The benefits obtained from participation in alliances

Type of benefits	Number of indications	Share %
Finding a partner supporting a given project	25	17.99
Reducing costs of a product development	39	28.06
Willingness to undertake further cooperation	28	20.14
Increasing market share	73	52.52
Dividing costs and risk between allies	17	12.23
Entering new markets	59	42.45
Access to necessary knowledge, technologies and specific skills	44	31.65
Access to the supply channels (raw materials)	28	20.14
Increasing the degree of utilization of the enterprise's potential	35	25.18
Common costs of marketing activities	28	20.14
Getting to know the cultures of other enterprises	19	13.67
Broadening the scope of activities into new products/services	37	26.62
Access to distribution channels	32	23.02
Raising the operating profit	24	17.27
Increasing profitability	36	25.90
Entering new value chains	13	9.35
Becoming specialized in the specified field of activity	16	11.51
Getting to know experience of other enterprises in management (methods and concepts)	20	14.39
Sum of indications	573	100

Source: own elaboration based on data from empirical research.

The executives have distinguished the most commonly occurred benefits that are achieved because of concluded alliances, mainly: increasing market share (52.52%), entering new markets (42.45%), access to necessary knowledge, technologies and specific skills (31.65%),

reducing costs of product development (28.06%) and broadening the scope of activities into new products/services (26.62%). Among one quarter of the surveyed enterprises have occurred increasing profitability (25.90%) and increasing the degree of utilization of the enterprise's potential (25.18%).

What is more, the executives have assessed the overall impact of concluded alliances on the achieved value added on a scale of 1 to 5, where 0 means no increase in the value added, 1 – increase in the value added achieved at very low level, and 5 – increase in the value added achieved at very high level. The average achieved out of all evaluated alliances is equal to 3.01, what means an average increase in the value added. Table 7 contains detailed grades granted in the surveyed enterprises at different levels.

Table 7. The assessment of the influence of concluded alliances on increasing the value added that was obtained in the surveyed enterprises

Granted grade	Number of indications	Share %
Increase in the value added rated at very low level – 1	2	1.47
Increase in the value added rated at low level – 2	42	30.88
Increase in the value added rated at average level – 3	53	38.97
Increase in the value added rated at high level – 4	30	22.06
Increase in the value added rated at very high level – 5	9	6.62
Sum of indications	136	100

Source: own elaboration based on data from empirical research.

Around 22% of the surveyed enterprises assessed the impact of concluded alliances on increasing the value added at high level, only 6.6% ranked it at very high level. Almost one-third of the surveyed enterprises indicated that the alliance resulted only in small increase in the value added.

The executives of 106 surveyed enterprises have depicted the most important reasons for withdrawal from the strategic alliance in the last five years, namely: achievement of smaller amount of benefits than it was assumed (36.5%), incompatibility of partners' objectives (25.6%), loss of independence in decision-making (24%), dishonesty of partners (25.6%), and problems with coordination (21%).

6. Conclusion

Globalization of the market, increasing competition and increasing standardization of products have contributed clearly to growth in the amount of concluded strategic alliances. Nowadays, they have become one of the most popular, next to mergers, ways to gain new market, strengthen either the value chain or the competitive position. These alliances bring many benefits to enterprises, provided that they are well planned and managed, and above all, they have made a right choice of partner.

The results of empirical research conducted in manufacturing enterprises operating in ten sectors depict that establishing cooperation in the form of strategic alliances has significantly improved their ability to quickly acquire missing knowledge, competences and to learn faster.

The solution has contributed to strengthening the competitiveness of the surveyed enterprises, as well as the alliance as a whole, and consequently it has helped to increase the value added not only for enterprises participating in the alliance, and above all, in creating the value added appreciated by customers.

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Intensive or Extensive? How to Measure the Way Companies Grow?

Maria Lisiecka

1. Introduction

Among many others, the growth of a company is its essential aim. There are two potential ways of developing, one is extensive, the other intensive. In short-term there are hard to distinguish, but in a long-term it is ultimate for a company to grow in an intensive way, which means to truly develop and challenge its technological weaknesses. Extensive way of management is more related in bigger involvement of assets and capital. It is hard to decide the way company grow, especially form outside. Part of financial analysis called synthetic analysis of efficiency could bring solution. It is a tool to be used to determinate the way of management and growth. It is based on a model systems of inequity of many financial indicators, its dynamics indexes and analysis of variations from profits. Nevertheless this method has many folds. One of them is enormous data panel, which is hard to read and conclude from.

In this study, polish listed WIG 20 companies were analyzed for a period of four years with synthetic analysis of efficiency. The results were firstly treated with classic version of the method. Later new proposition of indicators based on classical approach were constructed. The aim of this research is to simplify and moderate method of growth assessment. New indicators like intensive management indicator and intensive profit/ gain deviation indicator should be able to bring the same information like the whole model results interpretation, but in a more approachable and transparent way. As a result new possibilities and perspectives were created from the same data panel, but in a more modern and clearer way. This might be encouraging to use this tool to asses long term determinates of prosperity for companies and to search for its weaknesses, where there is place to improve.

2. Companies' aims and efficiency

In the professional literature there are many classifications of companies main assumptions and purposes. Among lots of others, despite the companies specifications, essential is its survival on the market and sustain once existence (Lichtarski, 1999, p. 52). Other important aim

is to maximize companies' market value in long term perspective (Damodaran, 2007, p. 44). Key is to develop and grow bringing the best possible outcome for stakeholders and owners. It is not possible neither to survive nor to enlarge value without good management supporting growth and simultaneous development.

Above cannot be accomplished without a category of efficiency. It is essential economic characteristic of all company's actions and pursuits (Samuelson & Nordhaus, 2004, p. 41). Efficiency means there is no room for waste. (…) Economy is working in efficient way, when it is impossible to enlarge production volume of commodity x, without making some restrictions in commodity y production. Then it is on the edge of production possibilities (Samuelson & Nordhaus, 2004, p. 185). The same ruses applies to all activities, from single household to big companies and whole economies. Efficiency is commonly used as a synonym of effectiveness. Nevertheless there is difference between this terms. Through effectiveness there is an effect, the result of earlier planed and taken action. Efficiency brings positive effect, even accomplished by a chance or thanks to good management. Efficiency is proper way of managing and using resources and effectiveness is managing and working according to earlier strategy and plan to accomplish target, even if it brings no positive outcome (Pszczołowski, 1977, p. 12). Through history of economy one of more popular concept of efficiency is one presented by Vilfredo Pareto (Varian, 2005, p. 45). In his theory, it is presented that question of effectiveness answers to one question: How to have the same level of costs and bigger profit or how to minimize costs and maintain the same profit? With this perspective effectives is understood as a surplus, or pursuit to reduce waste, always in relation between input and results (Fried et al., 2008, p. 7). Financial efficiency is measured basing on financial data, indicators and assessment of resources allocation. To improve efficiency it is essential to manage company in further described ways.

3. Intensive and extensive ways of management

Management is a set of many activates focused mainly on allocation and use of resources in the way that all needs of companies owners are satisfied. Managing means to use and transfer all approachable resources in the best and most ergonomic way, so company could be efficient. The aim is to meet all companies needs and bring the biggest gain to its owners. For successful management it is essential to look through wide perspective and holistic vision on whole company and its activities. It can be provided only by sustainable growth and constant development (Vollmuth, 2000, p. 161). There are two possible way of management, which can bring company to growth and development. Extensive way of growth, accomplished by expensively managed companies and intensive way of growth, accomplished by intensively managed companies. This distinction is based on characteristics of growth indicators. In short-term both systems leads to certain enlargement of company. Nevertheless in long-term only intensive way of management leads not only to rise in financial results volume, but it also meets criteria of rational and effective action. It is way of organizing resources already available to company. Extensive way of management is based on increased commitment of resources, property and employment in both quantitate and valuable aspects, as well as time consumption augmentation (Bednarski, 2004, p. 45). In this way company accomplishes growth of profits form sale and financial results, but it is related to bigger upswing in employment and property (assets)

level, than the real profit growth. This strategy understood as short-term way of development, which generates more costs then profits. Relations and changes within are not proportional. Despite above, there is an important difficulty in financing all new resources. Since Adam Smith's works it is known, that all resources are limited, consequently this is not long- term strategy. On contrary, intensive way of management leads also to growth of profits form sale and financial results, but is based on positive changes in costs and pricing, as well as release of internal reserves. Consequently it is a way of organizing resources already in possession of company and related to research and development, technic and organizational changes (Bednarski, 2004, p. 45). This strategy is understood as long-term way of development, which brings company to proper development. The purpose, it is to sustain company and increase its efficiency and advancement. Such an advancement could be accomplished by search of new technologies, new markets, new forms of shipment and sale, new pricing system. Main outcome is better profitability of assets and work, increase of efficiency and positive changes in financial factors. All above is to be accomplished through constant development and inside evolutional changes.

4. Synthetic analysis of efficiency

Synthetic analysis of efficiency is system of analysis, which is a tool to determinate way of generating growth. Main objective of the analysis is a holistic assessment of the financial result and identification of factors shaping changes in financial result. The aim should be to determine whether development have been obtained as a result of economic activity based on the use of intensive factors (Bednarski, 2004, p. 45). Essential is also to assess economic performance, enabling the orientation of the expected or achieved management efficiency.

4.1. Comparative and casual analysis

Synthetic analysis of efficiency is based on system of four or more different analysis of past data or prognoses. Synthetic analysis of efficiency contains two panels of study, later detailed in four models:
• Comparative analysis,
• Casual analysis.
Comparative analysis is focused on the dynamics and deviations of selected factors. Analysis of their mutual relations and the relations between their deviations. It is a tool for comparative analysis are model systems of inequality of economic factors, which are widely and universally used in comparative analyzes. Casual analysis is based on partial deviations of certain factors from the algebraic sum of general deviations. It is focused on deviations in profit and financial result. As important part of research it is necessary to include the interpretation of the content of economic factors, the size and direction of deviation, and the relationship between deviations.

4.2. Model systems of inequity

For the purposes of synthetic analysis of efficiency there is carried out a comparative analysis of heterogeneous factors. It is in the framework of the single undertakings compared with each other according to the enterprise's real values and according to theory of economy. Tool for this analysis are standard systems of inequality in quantitative and qualitative approaches. This are the ranks of inequality based on the value of indicators and indicators of their dynamics. The model system of inequalities for basic factors of quantity corresponding to the requirements of the intensive managing can be summarized as follows:

$$i_R < i_M < i_P < i_Z, \tag{1}$$

where:
i_R – dynamic index of employment level,
i_M – dynamic index of assets value,
i_P – dynamic index of sales profits,
i_Z – dynamic index of financial result.

On the basis of pre-defined four quantitate indicators, it is possible to design six basic qualitative factors making up the following model of quality system of inequalities (Kopiński, 2012, p. 224):

$$i_{MR} < i_{PM} < i_{PR} < i_{ZP} < i_{ZM} < i_{ZR}, \tag{2}$$

where:
i_{MR} – dynamic index of average assets engagement on one employee, where MR = M/R,
i_{PM} – dynamic index of average assets rotation, where PM = P/M,
i_{PR} – dynamic index of profits from sales assigned on one employee, where PR = P/R,
i_{ZP} – dynamic index of return on sales, where ZP = Z/P,
i_{ZM} – dynamic index of return on assets, where ZR = Z/M,
i_{ZR} – dynamic index of financial results assigned on one employee, where ZR = Z/R.

4.3. Profit and gain deviation analysis

Causal analysis of changes in revenues is based on the breakdown of sales revenues on a logical sequence of cause and effect factors that build revenue. In the method of the functional there are few following steps (Bednarski, 2006, p. 37):
1. Specification of factors creating profits or gain changes.
2. Determine the factors of volatility and absolute deviation ratio of sales revenue.
3. Determine the impact of changes in each of the factors on the absolute deviation.
4. Check if sum of all minor deviation sums up to absolute deviation.
5. The last step in the analysis is the inequality in deviations and share of intensive management deviations in total deviation.

Profit from sales deviation analysis model is based on previously used indicators as employment number, assets assigned to one employee and profitability of assets.

$$P = R * MR * PM \qquad (3)$$

where:

P   – profit from sales,

R   – average employment level – extensive factor,

MR – average assets value on one employee – extensive factor,

PM – average profits value on – assets intensive factor.

Financial result (gain) deviation analysis model is based on previously used indicators as employment number, assets assigned to one employee, profit form sales assigned to one employee and return on sales indicator.

$$P = R * MR * PM * ZP \qquad (4)$$

where:

Z   – financial result (gain),

ZP – return on sales – intensive factor.

Percentage of deviations described as intensive should generate the biggest increase in results changes. Through comparison it is possible to determinate whether increases in results are due to positive changes and growth or through short-term, extensive actions.

5. Empiric research and classical approach

Empiric research conducted on synthetic analysis of efficiency was scheduled for four years period. Companied chosen to this study were form polish stock market index WIG 20. To achieve conclusive results four stages of analysis were conducted. Firstly comparative analysis for four years period, both quantitate and qualitative. Secondly casual analysis for four years period, both profit and financial result. All information received from this study could be presented as follows on few examples.

Table 1. Quantitate approach model systems of inequity for PKN Orlen

Model	iR	<	iM	<	iP	<	iZ
Year 1	0.985	<	1.157	>	0.830	>	-1.041
Year 2	0.976	<	1.078	<	1.310	<	1.441
Year 3	0.993	<	1.150	<	1.270	>	0.588
Year 4	0.988	>	0.903	<	1.118	<	1.535

Source: own elaboration.

Interpretation of above data, included in Table 1. comes as follows. If inequity reflects first row model, then this sector of enterprise is developing in intensive way. For example year for shows smaller decrees of employment then of assets, in year two profit form sales had big increase, but financial result decreased almost at 42%. Such disproportions are showing lack of intensive management in whole company.

Figure 1. Number of inequities based on its specification in quantitate approach model systems of inequity
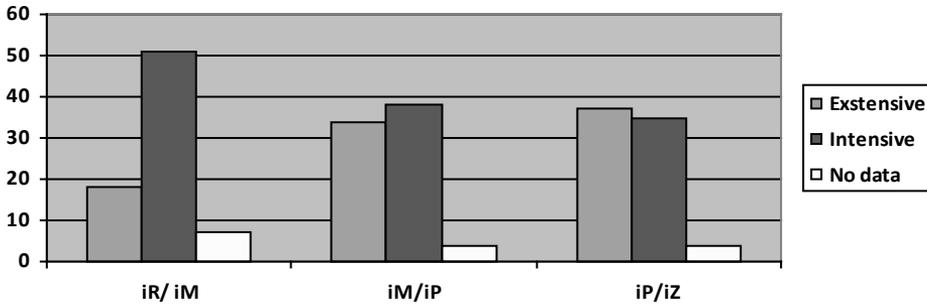
Source: own elaboration.

Figure 1 contains cumulated data of based on its specification in quantitate approach model systems of inequity for four years analysis of twenty companies. It can be concluded that dynamic of profits from sales and its relations especially to financial results are endangered with big participation of extensive management. This summary is able to provide statistic enabling identifications of exposed areas in all analyzed companies.
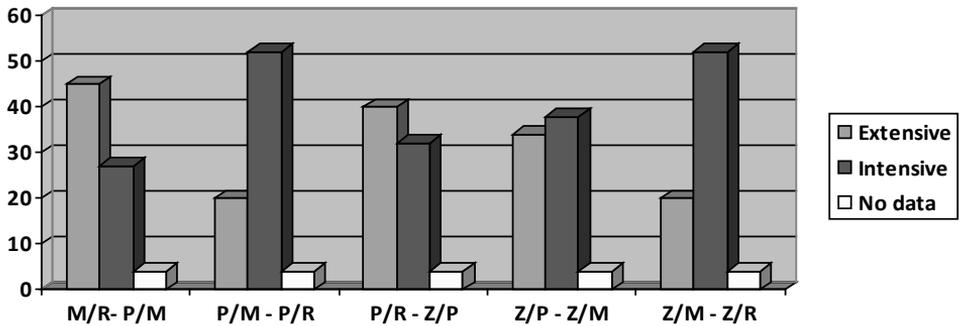
Table 2. Qualitative approach model systems of inequity for BZ WBK

Model	M/R	<	P/M	<	P/R	<	Z/P	<	Z/M	<	Z/R
Year 1	0.958	<	1.074	>	1.029	<	1.196	<	1.285	>	1.231
Year 2	1.002	>	0.977	<	0.979	>	0.950	>	0.929	<	0.931
Year 3	1.133	>	0.963	<	1.091	<	1.156	>	1.113	<	1.261
Year 4	1.074	<	1.128	<	1.212	>	1.044	<	1.178	<	1.266

Source: own work.

In Table 2 are presented results of qualitative approach model systems of inequity. Their interoperation is quite similar, but through more indicators it is possible to see management ways in more detailed way. In first row there is model system to which all data from company are compared. For example in year 2 of the analysis assets assigned to one employee has increased, when productivity of this assets has decreased. Thanks to model systems of inequity it is visible where company may have problems with intensive development.

Figure 2. Number of inequities based on its specification in qualitative approach model systems of inequity

Source: own elaboration.

Figure 2 presents statistics from number of inequities based on its specification in qualitative approach model systems of inequity. Similarly to results shown in Figure 1 consequently endangered area of companies' existence are areas related to dynamic of profits from sales and financial results. Relation between return on sales to other indicators shows the biggest exposure to extensive management.

Casual analysis for four years period, for both profit and financial result contains information about changes in indicators creating general change in main financial positions like profits and gain. Classic approach results are presented in Table 3 and 4.

Table 3. Casual analysis for four years period, profit level for Bank Handlowy

Deviations	OR/O	O MR/ O	O PM/O	check	Qualification
Year 1	75%	62%	-37%	100%	Extensive
Year 2	-426%	386%	140%	100%	Intensive
Year 3	-77%	-544%	721%	100%	Intensive
Year 4	-174%	230%	44%	100%	Extensive

Source: own elaboration.

Table 3 contains results of casual analysis for four years period, on profit level for one company. This example presents what is the construction of profit deviations analysis. The absolute change of profit form sales from each year is 100%. Partial deviation for example for year 2 are on extensive edge -426% and + 386%, which gives -40% (decrease) and part of intensive factors change profits form year 2 by +140%. Intensive factor is stronger and has more influence on change than sum of extensive factors. Interpretation would be that in this year increase in profit from sales enlarged due to intensive management changes, mainly better productivity of assets.

Table 4. Casual analysis for four years period, financial result level for EuroCash

Deviations	OR/O	O MR/ O	O PM/O	O ZP/O	check	Qualification
Year 1	41%	95%	65%	-101%	100%	Extensive
Year 2	-264%	-61%	255%	170%	100%	Intensive
Year 3	244%	1994%	-1838%	-299%	100%	Extensive
Year 4	8%	-10%	19%	83%	100%	Intensive

Source: own elaboration.

Casual analysis for four years period, on financial result level is presented in Table 4. The process of both analysis and interpretation is similar as for example from Table 3. It is only extended by return on sales deviation, which is also an intensive factor. To determinate extensive way of creating financial result change first two factors must outnumber the second ones. Example in year 1 from Table 4 is that extensive factors has together impact of +135% and intensive ones impact of -35%, that results in extensive qualification of financial result changes.

6. New indicators of intensive way of management

One of the aims of research described was to simplify results of synthetic analysis of efficiency. In classical approach for each company (in this study for twenty) there were four tables with data. To assists in creation of conclusions, all data were summarized with statistic tools. This only brought general information on all sample. As proposition to extract more information form this big panel of data new indicators were proposed. It is created from the data obtained in classical approach method and show more generalized summary of information. Usage of basic statistic tools enabled creation both intensive management indicator and intensive profit/gain deviation indicator. Both of this proposed ratio shows not only general standing of a company basing on previously described study, but also enables comparison of methods and its results.

Intensive management indicator is based on percentage of desirable inequities to all research data[1]. It can be calculated for both quantitate approach and qualitative approach of comparative analysis. It is calculated with upcoming formula. For four years there are 12 or 20 possible inequities, for example 6 of them are intensive and indicator of intensive management level is 6/12 or 6/20. The value of indicator is between or equal to 0 (100% extensive action) or 1 (100% intensive action). Thanks to such flexible calculation and simple outcome it shows level of intensity of management as one number. The higher the value of indicator the more intensive management it indicates. It is also complementary with extensive management indicator, which could be calculated with similar formula or as difference.

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[1]   The statistics of certain inequalities in each year accepted for testing has been present as a method of analyzing model system of inequality. See: (Kopiński et al., 2012).

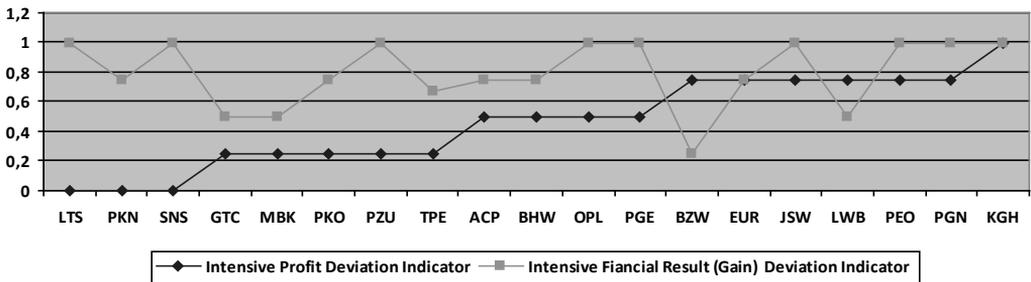Figure 3. Intensive Management Indicator – comparison of two approaches
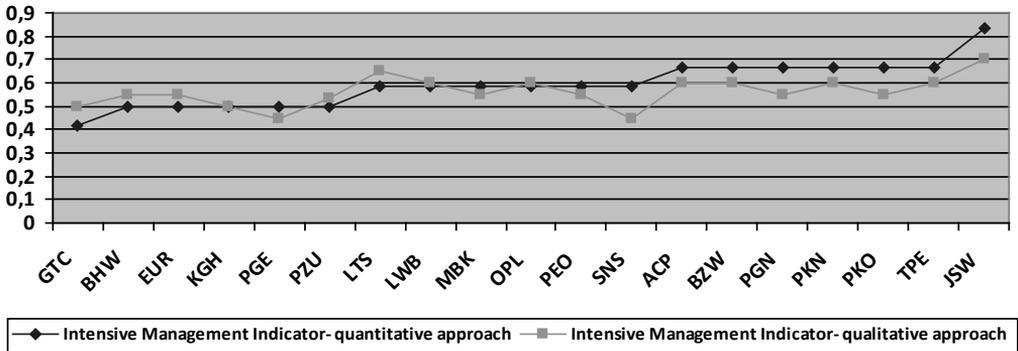
Source: own elaboration.

Intensive management indicator for both approaches is presented in Figure 3. It shows not only each companies' (indicated by abbreviations form GPW Stock Market) level of intensity in management, but also comparison of both approaches. It is visible that despite small distinctions, results of both approaches in model systems of inequities presents similar results and qualifications of companies.

Intensive profit/ gain deviation indicator is based on all observations of qualification of deviation from both profit and financial result. Yearly changes of financial data are qualified for its influence on profit/ financial result changes. It is one indicator for whole analyzed period, calculated as simple average of years with intensive deviation qualification to all observations. This indicator allows to asses way of generating profit or financial result in terms of extensive or intensive management. The higher the indicator's value the more intensive are companies actions and more positive should be their long- term reference.

Figure 4. Intensive Profit/ Financial Result Deviation Indicator- comparison of two approaches

Source: own elaboration.

Figure 4 presents summarized data for intensive profit/financial result deviation indicator for all analyzed companies. In the Figure both levels of analysis are shown. It is clear that unlike

intensive management indicator, deviation indicators has very different results and are not conclusive for most of companies. The reason to this situation are earlier mentioned lacks of intensive management of profits. It seems that even if resources of company are managed in intensive way and extensive factors are minimized, companies struggle with intensive management of profits. Consequently in many cases changes of financial results are being qualified as extensive. Financial result is the most important value for public listed companies, this could cause all actions neglecting long- term development and basis of intensive management.

7. Conclusion

The usage of synthetic analysis of efficiency gives possibilities to analyzed big data panel in context of ways of management and directions of development. It brought conclusive results about analyzed companies and its growth. It is enriching standard financial analysis with interesting long- term development analysis. With summarize data this method enables identification of common aspects of extensive management. New indicators sums up all data and are easy to present final information. Intensive management indicator shows clear in interpretation preferences in management way. Secondly intensive profit/gain deviation indicator allows to summarize information received in classical model approach and present them in clearer way. Disseminate of new indicators may bring useful information to mangers and could encourage companies to conduct synthetic analysis of efficiency.

Conclusions from empiric study are conclusive and enrich knowledge of analyzed companies. Results of analysis of model system of inequity based on intensive management indicator in quantitate and qualitative approach are similar. Common in analyzed companies is lack of efficiency in managing profits from sales and financial results (ROS). The is visible big discrepancy between profit and financial result deviation analysis. Most of profits from sales are managed in extensive way. Changes in qualification of gain deviation may be based on other activates and profits and main focus on financial result (financial result manipulations), as well as on short-term perspective in managing financial results (e.g. costs increase etc.). There is limited use of profits in intensive creation of financial results.

As a result of above study new possibilities and perspectives were created from the same data panel, but in a more modern and clearer way. This might be encouraging to use this tool to asses long term determinates of prosperity for companies and to search for its weaknesses, where there is place to improve.

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Chapter **42**

Use of the Key Success Factors in Formulating Competitive Strategy of Municipalities

Magdalena Gorzelany-Dziadkowiec, Julia Gorzelany

1. Introduction

Environment in which operate today's organizations is fast, turbulent and volatile. As a result, competition is becoming one of the most important determinants of the organization in the market. Competitiveness is not just for businesses but concernsall organizations including municipalities. Formulating competitive strategy is nowadays seen as a determinant of development. Competing between organizations can take place on many levels and manifest itself in various forms and methods of operation and may have different intensity. Referring to the issue of competitiveness of municipalities it can be stated that competition between municipalities is becoming increasingly apparent. Increasingly, managers of municipalities recognize the need to find sources of competitive advantage. The strength of the organization lies in the diversity and complex organizational situations require a comprehensive diagnosis of organizational problems and the accumulation of knowledge in the management of (Walczak, 2010). This applies to all organizations including municipalities. Competitiveness is the ability of municipalities to cope with other municipalities to its rival in domestic scale. The competitiveness of the community determines a set of features such as strengths and weaknesses. The competitive strategy of municipalities should include the choice of profile a competitive advantage over rival communities, which consists of a set of strengths and strategic business portfolio which is subject to competition from other municipalities, which consists of a group of products and target markets (Klasik, 2001, pp. 39-40).

For these reasons, the aim of this article is to identify the factors determining the competitiveness of municipalities, as well as the diagnosis of the competitiveness of the analyzed municipalities and the formulation of competitive strategies for the study of the municipality. For the purposes of this article the following research hypothesis was formulated: broad identification of key success factors of municipalities is necessary for the formulation of competitive strategies in a turbulent environment.

The study was conducted in the municipality of Myślenice. As a research method an interview and questionnaire with a five- point Likert scale was used.

2. Development strategy according to competitive strategy of municipality (region)

Competitiveness is an issue that has become a subject of interest to many fields of science in recent years. Considered in a general sense plays a significant role in the modern development. Competitiveness may affect companies as well as municipalities, regions and other territorial units. The issue of competitiveness can affect different areas of science (Lesniewski, 2010, p. 70). Competitiveness is associated with the processes of competition and rivalry (Figurska & Wisniewski, 2008) and for the purposes of this article it is assumed that competitiveness means the ability to achieve and maintain a competitive advantage. Competitiveness should not be equated with a competitive advantage. Competitive advantage is achieved through the proper use of resources and skills, but competitiveness is a set of characteristics that determine the success of the organization at any given time. Competitiveness is a potential capabilities and the ability of an entity to meet market competition, or competition from other operators in the same sector (see: Stankiewicz, 2002; Lachiewicz & Matejun (Eds.), 2009; Czyżewski, 2009; Bossak & Bienkowski, 2004; Reiljana, Hinrikusa & Ivanova, 2002; Porter, 1985; Przybytniowski, 2013).

Overview of studies devoted to competitiveness and included in their definitions of the concept raises a request. If competitiveness is considered in the context of economic life (i.e. companies or industries), then it can be described fairly clearly. If, however, is related to the country's economy or its selected area (region), then is defined more generally (Klamut & Passella, 1999). The concept of competitiveness of the regions (municipalities) is much more difficult to define clearly and more complicated than in the case of companies or economic sectors. Regions, which seems obvious, organizations are much more complex in terms of organization, territorial and functional. The regions do not compete with each other directly, as the company, because it does not offer a similar product. From the nature of things appear the diversity of territories and regional autonomy (Kudełko, 2005).

The issue of competitiveness of municipalities is a relatively new area of economic life. Understanding this issue can be sought in the deliberations on the competitiveness of enterprises, because there are some similarities between them. Both between enterprises and municipalities it comes to competition, so therefore the competitiveness of municipalities in terms of their development is defined as the ability to adapt the municipality to changes in the environment, the maintenance of a new, better position, as well as efforts to further improve it.

Considering the problems regarding the municipalities, attention should be paid to two groups of strategies. First of them create development strategies and the second group are the competitive strategies of municipalities. Development strategies of municipalities insist on promoting, supporting and providing aid to various participants and visitors of the region in priority areas. They consist in creating favorable conditions for the development by public authorities, including by local authorities, through the use of incentives for entrepreneurs and investors, employees and tourists, founding companies and the unemployed. Generally speaking it can be stated that the aim of the development strategy of the municipalities is to raise the level of development and to facilitate the structural adjustment in their areas. Competitive strategy while activates the mechanism of inter-comparisons. It is a way to play the game about the development of the rival regions. This is a game of equal entities in terms of formally held decision-making powers. Competitive strategy is improving the competitive position of the municipalities on a national scale. This strategy affects

the moves of other municipalities because it contains measures aimed at target groups that are distinguished in the market segments and aims to meet the needs of present and future of its users in a more advantageous and efficient than they are able to do this other municipalities. Competitive strategy municipalities answers to the question of how to maintain existing and attract new users, existing and new residents or visitors, to stop existing or acquire new companies and institutions as well as domestic and external investors (Klasik, 2001, pp. 39-40).

3. Key success factors of the municipality according to its competitive position

Very useful in the diagnosis of the organization is the method of assessing the competitive position based on key success factors (KSF), which is often called the diagnosis of potential competitiveness. This method can be used not only in businesses but in all organizations, including the municipalities. The aim of this method is the identification and evaluation of competitive factors inherent in the broadly defined resource organization. After the diagnosis and removal of competitiveness profile of the organization studied in the next stage of the formulated strategy for competitiveness. (Gorzelany-Dziadkowiec, 2015, p. 42). The competitiveness of the community determines a set of characteristics that distinguish it from municipalities with which it competes. These features are called key success factors (KSF), which are defined as factors having the greatest influence on the competitiveness of the organization. KSF can serve as the cornerstone on which is built a business strategy. (Gorzelany-Dziadkowiec, 2015, pp. 40-41).

KSF determine the success of organizations operating within the sector. Each sector is determined by a different set of KSF, which concern not only businesses, but all organizations. When analyzing the municipalities determine the KSF and the degree of control is very important. Determination of KSF and the degree of master determines whether we are dealing with a strong or weak municipality, with lasting competitive advantage or not. Structured distance of some municipalities in relation to the latter determines the uniqueness of each of them. Advantages and uniqueness – the factors distinguishing a particular community – define business investment and competitiveness in the region. Factors determining the competitiveness of municipalities may concern: financial markets, the educational system, economic structure, the underlying sectors, labor market, infrastructure, social equipment.

Factors of competitiveness of municipalities can also be defined in terms of the relations in various municipalities between potential economic activities, i.e., using the wealth – activity. This kind of competitiveness is of macroeconomic nature – this is the economic base of the municipality. Another group of factors is the dimension of the microeconomic nature of municipality. In this area, the factors determining the success are seeking in the orientation to the market and resources. So, success factors are sought in a specialized public services (e.g.: e-services), capital goods in the form of e.g.: real estate, agri-food , industrial products and services, tourist-recreational products, intellectual property, intangible assets, as well as in the use of modern management methods and techniques.

Specify a list of the key success factors is extremely difficult, but for strategic analysis is a very important element. Such a list may contain from a few to tens position and operating strategy involves selecting one or more of KSF, which the organization will improve and thus reach advantage over competitors. Identification of KSF is a priority. Managers must know the data of the sector

and consider what is more important to achieve competitive success and should be able to determine what is less important. To emerge KSF for municipalities was constructed questionnaire resource – functional areas (spheres) which was sent to the offices of municipal managers, as well as to the inhabitants of the municipalities. Respondents answered questions using a five-scale Likert, where 1 meant that the agent has no effect on the competitiveness of the municipality, 2 – has a minimal impact on the competitiveness of the municipality, 3 – partly has an impact and partly has no impact , 4 – factor has an impact on the competitiveness of municipalities , 5 – has a very high impact. The study involved all 50 inhabitants of municipalities and people working in communal offices (urban and rural-urban). The results, expressed as a percentage of the response were illustrated in Table 1.

Table 1. KSF for municipalities – research results

The area (the sphere of resource – functional)	Gradingscale				
	1	2	3	4	5
The economy, education, labor market, infrastructure					
The growth of new businesses	–	3.1	9.4	37.5	50
Indicator of entrepreneurship (entrepreneurship – the creation and development of small enterprises)	–	–	12.5	46.9	40.6
Investment climate	–	3.1	6.2	43.7	46.9
The growth of new residential buildings	–	6.2	53.1	34.4	6.2
Technical infrastructure (sewage system, access to water, water prices)	–	3.1	28.1	31.2	37.5
The level of unemployment	–	6.2	31.2	40.6	21.9
The increase in unemployment	–	9.4	43.7	37.5	9.4
Creating jobs (manufacturing)	3.1	6.2	12.5	31.3	46.9
Location, population, demography, accessibility					
Environmental conditions (e.g.: water areas, mountains)	–	9.4	34.4	28.1	28.1
Migrations	6.2	21.9	34.4	31.2	6.2
Population growth	9.4	25	34.4	25	6.2
Suburbanization (influx of people from the cities to the villages – expanding urban fabric)	–	25	31.2	34.4	9.4
Road infrastructure	3.1	–	18.7	34.4	43.8
Public transport (bus, train, plane, bus, etc.)	3.1	3.1	15.6	40.6	37.5
Education, culture					
Educational establishments primarily over lower secondary	9.4	9.4	6.2	50	25
Ensembles	12.5	25	43.8	12.5	6.2
Public libraries	12.5	9.4	62.5	12.5	3.1
Cinemas, museums, theaters	6.2	15.7	31.2	40.6	6.2
The organization of cultural events	–	12.5	40.6	25	21.9
Tourism and the organization of free time					
The attractiveness of tourism	–	6.2	9.4	46.9	37.5
Accommodation	–	15.6	25	43.8	15.6
Sports facilities (e.g.: pitch, halls)	–	6.2	34.4	50	9.4
Sports facilities – recreation (e.g.: water complexes – swimming pools, saunas)	6.2	6.2	21.9	46.9	18.8

Tourist attractions	–	3.1	21.9	50	25
The organization of sporting events (e.g.: competitions, tournaments)	–	6.2	28.1	46.9	18.8
Modern management in offices					
The use of modern management methods and techniques	6.2	6.2	31.2	34.4	21.9
Information systems – creating ICT systems	12.5	9.4	25	37.5	15.6
The use of modern IT technology	12.5	9.4	56.2	3.1	18.8
Incentive systems in offices	12.5	18.8	28.1	31.2	9.4
Teamwork in offices	15.6	18.8	37.5	25	3.1
Staff openness for changes	6.2	15.6	37.5	31.2	9.4
Openness of employees to external stakeholders (customers – locals, tourists, investors)	3.1	9.4	25	34.4	28.1
Skills managers (e.g.: in raising funds in the implementation of investments in organizing events)	6.2	3.1	12.5	25	53.1
Organizational culture in the municipality open to market	6.2	9.4	18.8	43.8	21.9
Flexible organizational structure	6.2	21.9	21.9	46.9	3.1
E-services	–	18.8	15.6	46.9	18.8

Source: own study based on the research.

When analyzing the statements presented in Table 1 it can be stated that a very high impact on the competitiveness of municipalities is to gain new businesses, entrepreneurship rates, investment climate and attractiveness of tourism (over 80% of respondents answered that these factors influence or have a very big impact on the competitiveness of the municipality). Other factors from the resource – functional spheres, which affect the competitiveness of the municipalities are:
- technical & road infrastructure, creating jobs, transport connections (77%),
- sights (75%),
- skills of managers (78%),
- the level of unemployment (60%),
- sports and recreation, culture, openness to the market and e-services (64%),
- organization of sports events (66%),
- openness employees to external stakeholders (62%),
- accommodation (58%),
- sports facilities (59%),
- cinemas, museums, organization of cultural events (46%).

The above analysis allowed us to determine the KSF of municipalities and assign them to appropriate weights. KCS together with weights are described in Table 2 in the first and second column. It should be noted that the sum of the weights must be equal to 100. The next stage of research designed questionnaire was used to study the competitiveness of the community by means of which the municipality Myślenice was investigated and determined its competitive position. The study was attended by local inhabitants, who answered the five-point scale as the KCS is invaded by the municipality. 1 – meant that KCS is not mastered, 2 is composed of a small extent, 3 – is partly invaded and partly not, 4 – is self-controlled, 5 – is composed of a very large extent. The results are shown in Table 2.

Table 2. Competitive position of Myślenice municipality – an empirical analysis

KSF	Weight	Rating					Cumulativeass-essment
		1	2	3	4	5	
The growth of new businesses	9	–	–	X	–	–	0.27
Indicator of entrepreneurship	9	–	–	X	–	–	0.27
Investment climate	9	–	–	X	–	–	0.27
Technical infrastructure	5	–	–	–	X	–	0.20
The level of unemployment	4	–	X	–	–	–	0.08
Creating jobs	5	–	X	–	–	–	0.10
Environmental conditions	5	–	–	X	–	–	0.15
Road infrastructure	5	–	–	–	X	–	0.20
Connections	5	–	–	–	–	X	0.25
Educational institutions	1	–	–	X	–	–	0.03
Cinemas, museums, theaters	1	–	–	–	X	–	0.04
The organization of cultural events	2	–	–	X	–	–	0.06
The attractiveness of tourism	9	–	–	X	–	–	0.27
Accommodation	3	–	–	X	–	–	0.09
Sports facilities (e.g.: pitch, halls)	4	–	–	–	–	X	0.20
Sports facilities – recreation	4	–	–	–	X	–	0.16
Tourist attractions	3	–	–	X	–	–	0.09
The organization of sporting events	4	–	–	–	X	–	0.16
Openness of employees to external stakeholders	4	–	–	–	X	–	0.16
Skills managers	5	–	–	–	X	–	0.20
E-services	4	–	X	–	–	–	0.08
SUM:	100						**3.33**

Source: own study based on the research.

The competitive position of the organization is determined to other entities and is the final step in the process of competing organizations. It is therefore a summary of the activities undertaken by the organization. Note, however, that this position is not determined once and for all, because the process of shaping the competitiveness is cyclical and for this reason this stage can also be a starting point to increase or maintain competitiveness. As the competitive position of a qualitative dimension, it means what the organization is better or worse than its competitors. The competitive position may be weak, medium, strong or marginal. Another classification is that the competitive position could be critical, poor, satisfactory, good and distinctive. It is identified depending on the result of the evaluation summary.

When analyzing the statements presented in Table 2 it can be stated that the competitive position of the municipality Myślenice is satisfactory, since the collective assessment is 3.33. There were no comparisonto other municipalities because the municipality model is one that KSF has mastered four and five points, that its competitive position is good or fancy so no analysis of other municipalities can conclude that the analyzed municipality need visible areas of change. You may also find that in the municipality there are factors that are mastered by the municipality at minimal level, such as e-services and creating jobs. Also analyzed the municipality has the high

level of unemployment (7.3%), which has not a positive influence on competitiveness. Nine of these factors are only partially dominated by the municipality (increase of traders, the rate of entrepreneurship, investment climate, educational institutions, organization of cultural events, the level of attractiveness of tourist accommodation, tourist attractions, environmental conditions). These factors are those elements to which particular attention should be paid during formulating competitive strategy. Other factors are controlled by the municipality and determine its competitiveness. These include the technical infrastructure, roads, cinemas, museums, theaters, sports facilities – recreation, organizing sports events, openness employees to external stakeholders, the skills of managers. With five points transport links and sports facilities were assessed, which means that these factors determine the competitiveness of municipalities Myślenice and are better controlled than in neighboring municipalities (e.g.: Dobczyce, Sułkowice).

## 4. Formulating competitive strategy for the analyzed municipalities

Whether the organization will know how to maintain or even strengthen its position, it is the direct result earned its competitive advantage on the one hand and the need for acceptance of the continuous changes in the environment, on the other hand. The competitive position of the organization is relative, i.e. is determined relative to other entities that operate in the sector. Is determined, not only for the present situation of the company, but also for the future, and its purpose is to determine whether an organization has a competitive advantage and how it is large?, whether this advantage will last?, what are the sources of this advantage? American specialists G. Stalk, Ph. Evans, L. E. Shulman say that organizations should combine scale and flexibility to outperform competitors in terms of (Penc, 2003, pp. 321-322):

- Speed, i.e. the ability to respond quickly to customer demandand the market and the speed of "processing" of new ideas and technologies into new products – for municipalities is attracting investors and satisfy the needs of residents and tourists,
- Consequences, i.e. the ability to manufacture such products which fully meet the expectations of customers – municipalities, e.g.: e-services,
- Visual acuity competitive environment, i.e. ability to clearly view the balance of power in the competition, overtaking her skillful, accurate response to emerging needs and wishes,
- Dexterity, i.e. the ability to adapt simultaneously to different requirements for the company by the external environment,
- Innovation, i.e. the ability to produce new ideas and such combining existing elements that were a source of new values.

Competitive position of the analyzed municipality is satisfactory, which means that it is not combined scale of operation and flexibility. There is a huge need for changes in the analyzed municipality. By answering the above mentioned questions, it is clear that analyzed municipality does not have a competitive advantage over other municipalities. KSF which have a weight of nine points, by analyzed municipality are mastered only partially. Investment climate, stimulate entrepreneurship, support for home business, increase tourism attractiveness (e.g.: development of recreational areas – the upper weir) constitute the competitiveness of the municipality. Changes in the above mentioned areas would raise the competitiveness of the municipalities, have attracted investors, as well as boosted the tourist traffic. For example, in the neighboring municipalities of Sulkowice artificial lake with kayaks, spinning water and the beach was made. A lot of people

take a rest on the reservoir and by the way they use the services of companies operating there. Another area that needs to change is the creation of e-services. In the era of the Strategy Information Technology is a factor, which influence the competitiveness of municipalities in the large extend. In the analyzed municipality, this area is neglected. Creating new jobs is also needed. The next problem is that the analyzed municipality factories was closed to open chain stores (e.g.: Biedronka, Tesco, Carreffour, Ant), there are plans to open Kaufland and Lidl. Opening this type of business inhibits entrepreneurship, which is already at a low level in the analyzed village. Formulating competitive strategy for the municipality Myślenice is illustrated in Figure 1.

Figure 1. Formulating competitive strategy for the municipality of Myślenice
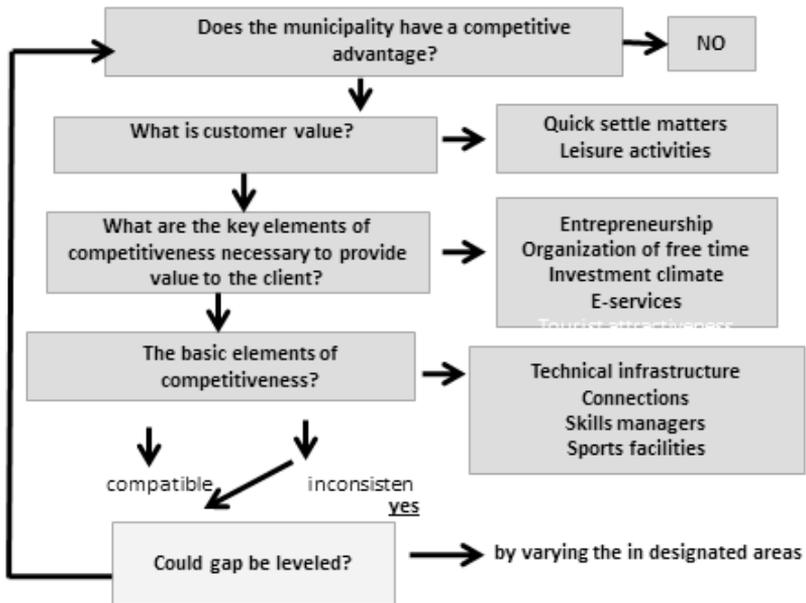
Source: own study.

The development is a prerequisite for the survival of the organization. Means the coordinated changes in organization systems, adapting them to the ever-changing environment. Adjustments are then effective and efficient if they provide organizations achieving and maintaining competitive advantage. Organizations including municipalities, which aim to achieve a good competitive position or to check what is the current position or to maintain already achieved, should make specific choices, attempting to force forecasting variables that may affect the shape of the sector in the next few years. Organizations such as municipalities must begin to define the market of the future, i.e., forecast trends, which may occur in the future, as well as the need to analyze what is happening in other municipalities.

5. Conclusion

Competitive analysis is carried out in order to determine what position has a municipality in comparison to others. The conclusions of the diagnosis are carried out for the formulation of competitive strategy in the region. This strategy should include areas for changes (Gorzelany-Plesińska, 2012, pp. 130). Formulating competitive strategy is a very important factor in determining the development of organizations including municipalities. Identify key success factors and the level of the control is very important to identify areas of changes. The research allowed to determine the list of factors determining the competitiveness of municipalities, while the analysis of Myślenice municipality has shown that its competitive position is only satisfactory. Factors, which largely determine the competitiveness of the municipalities are only partially mastered in the municipality of Myślenice. First of all, entrepreneurship should be stimulated in the analyzed municipality, to create a good climate for investors and ensure the development of tourism and recreation. The carried out in the article analysis can also be used for the diagnosis of other municipalities. This method is based on the KCS is very useful for the diagnosis and determine the direction of changes.

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