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EMPLOYEES' COMPETENCES IN KNOWLEDGE-INTENSIVE BUSINESS SECTOR – COMPARATIVE ANALYSIS IN TWO CEE COUNTRIES

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Abstract
Knowledge-Intensive Business Services (KIBS) are services that involve intensive use of high technologies, specialized skills and professional knowledge. However, there are insufficient findings on the competences of employees in the sector of KIBS. The purpose of this paper is to present the results of the research on employees' competences in different service sectors of two CEE countries: Poland and Belarus. This study adopted a quantitative approach based on a questionnaire applied to 101 companies from Poland and 42 companies from Belarus. The comparative analysis shows quite similar findings - the most significant competencies are employee engagement, motivation and customer-focused orientation and play a crucial role in the efficiency of services in both countries.

JEL Classification: M12, M51, M54

Keywords: competences of employees, knowledge-intensive business services, human capital

1. Introduction

There is widespread agreement that knowledge is a source of economic growth and that, in turn, learning and innovation are key drivers of global competitiveness for both companies and economies. The increasing importance of knowledge has triggered interest towards knowledge-intensive business services (KIBS). Those activities involve intensive users of technology that employ specialized skills and professional knowledge

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which is a significant source of job growth and competitiveness in a modern knowledge-based economy. KIBS accomodate private organizations which use a high degree of professional knowledge and provide other companies with high quality industrial services that are based on this knowledge (Viljamaa, Kolehmainen, Kuusisto, 2010). The value of KIBS companies lies in their capacity to offer services that meet their customer's needs with regard to the access to technical, commercial, or scientific knowledge (Muller, Doloreux, 2009). Most companies need highly-skilled, experienced and motivated employees to gain competitive advantage. Human capital is more important in a service sector which is knowledge-intensive work (Kianto, Hurmelinna-Laukkane, 2010). Therefore, there is a need to shed light onto the role of human capital in KIBS and the challenges of managing those services.

The authors want to investigate the factors that have a positive impact on the efficiency of services in KIBS, the significance of employees' competences that contribute to the development of services in this service sector, and the methods of assessment of selected aspects of employees' work. The authors specifically concentrate on knowledge-intensive business services in two neighboring post-communist CEE countries – Poland and Belarus.

2. Research trends in KIBS

The growing interest in KIBS has contributed to emergence of various research in this sector. This leads to the possibility to identify different approaches and trends on the topic.

Most of the previous studies focused on the nature of these services. Some researchers tried to conceptualize KIBS (Gallouj, 2002; Hertog, 2000; Miles, 2005; J-Figueiredoet et al., 2017). Their research has proposed definitions, classifications, and pointed out the features of this sector. Some of this has determined the characteristics of KIBS in terms of methodological aspects (Djellal, Gallouj, 2000; Toivonen, 2006).

A great number of studies concentrate on a broad range of innovation research and treat KIBS as a support innovative activity. It is a crucial organizational ability to compete in highly innovative, professional business environments (Menguc, Auh, 2006; Benkenstein, 2017). Most studies have emphasised the contribution that KIBS make to regional innovation and growth (Aslesen, Isaksen, 2007; Cooke, Leydesdorff, 2006; Hu, Chang, Lin, Chien 2006; Koch, Stahlecker, 2006; Simmie, Strambach, 2006; Toivonen, 2006). One of the most common definitions presents KIBS as 'bridges of innovation' between manufacturing and service sectors (Miles et al., 1995). This sector allows one to support a company in its innovation process and to transfer existing innovations from one entity, or industry, to another company or industry by benchmarking practices (Hauknes, 1998). Muller and Zenker (2001) suggest that KIBS play the role of a co-innovator and provide a bridge or an interface function between the environment and the customer. In the KIBS sector, significantly more money has been spent on innovation than in the non-KIBS sector (Tether, Hipp 2002, p. 173).

The research of the subject has provided information on different levels of the analysis, e.g. with regard to regional and national aspects, micro and macroeconomic views as well as for the comparisons between the KIBS sector and other sectors defined as non-KIBS sectors or manufacturing sectors. A key focus in many studies

was to identify the factors associated with different levels of innovativeness and to show that KIBS are indeed innovative (Cainelli, Evangelista, Savona, 2004; Camacho, Rodriguez, 2005; Freel, 2006). These issues are analyses across the KIBS sector. Moreover, past research treated KIBS as a homogenous group, while now there are the variety that exists among KIBS (Pina, Tether, 2016).

It is suggested that there are differences between professional KIBS (P-KIBS) and technological KIBS (T-KIBS) (Freel, 2006), or technical KIBS, compared to nontechnical KIBS (Tether, Hipp, 2002), or KIBS with non-KIBS (Camacho, Rodriguez, 2005). Freel (2006) indicates that innovativeness in P-KIBS is connected with highly qualified personnel, whereas innovativeness in T-KIBS is linked to cooperation between customers and suppliers. Tether and Hipp (2002) observe that R&D, as a component of innovation expenditures, is more important for technical KIBS than nontechnical KIBS. Most studies compare the nature of innovation activities between KIBS and manufacturing companies, showing that innovativeness in KIBS is dependent on 'soft' sources such as knowledge and qualification (de Jesus, Mendonça, 2018), while in manufacturing companies, the intensity of R&D distinguishes the most from the least innovative companies (Freel, 2006). This research has been confirmed by Wong and Singh (2004). The authors suggest that KIBS are more intensively engaged in innovation activity, human capital intensity and training, but they are less likely to develop innovation in collaboration with international partners and to perform R&D (Wong, Singh, 2004). Some studies examine the factors such as regional economic specialization, regional firm size distribution or concentration of (high-tech) manufacturing or business R&D centres of selected KIBS (Ženka et al. 2017).

The following research trend analyzes accumulation, creation, and dissemination of knowledge within the KIBS sector. In the KIBS sector the knowledge allows a company to achieve and sustain its competitive advantage to ensure its long-term success (Zahra, George, 2002; Miles, Belousova, Chichkanov, 2018).

The most significant finding of the research is that the knowledge-intensive services influence the productivity in manufacturing and industry in general (Doloreux, Shearmur, 2013). For a long time, the service sector and manufacturing were analyzed separately as two clearly distinct economic activities. The attempts to analyze the innovation processes and the spread of knowledge within KIBS and the other sectors have been made by many researchers (Consoli, Elche-Hortelano, 2010; Djellal, Gallouj, Miles, 2013). The output result was that KIBS played a crucial role as a knowledge producer and a stimulator of innovation in the entire economy.

3. Significance of human capital factor in services

A lot of research in KIBS shows the intensity of knowledge. The processes for managing and creating knowledge are the heart of the competitive advantage of knowledge-intensive companies, in particular in professional services (Swart, 2007), where their innovativeness is directly connected to the acquisition, processing and delivery of new knowledge (Amara, Landry, Doloreux, 2009). However, knowledge lies in people and the process of knowledge sharing is controlled by an employee. Thus, KIBS are, most of all, built on intangible assets, with the knowledge and experience embedded in human capital. KIBS provide quality services with a high added intellectual

value (Muller, Zenker, 2001). They are people-based rather than equipment-based services (Hill, Johnson, 2003). Intellectual capital is practically becoming the only competitive advantage for companies (Shakina, Barajas, 2013, p. 41). Therefore, there is a need to shed light onto the significance of human capital management in KIBS.

Firstly, the main production and outcome factor is knowledge. Its use and the way of sharing depend on an employee. There are few studies that examine the links between knowledge sharing and employee attitudes, such as their competences, commitment, or trust (Hislop, 2003; Lin, 2007; Ravishankar, Pan, 2008]. Hislop (2003) finds that commitment affects the employees' knowledge sharing. Lin (2007) finds that organisational commitment and trust in co-workers are important mediators in the sharing of tacit knowledge. However, professionals are committed not only to the organisation that employs them but also to the work teams and the customers with whom they work (Ravishankar, Pan, 2008). Thus, knowledge is closely tied to the person who has created it and strongly connected to its knower. Consequently, companies should be able to manage the process of organizational learning effectively and encourage employees to create, share and exploit knowledge. Human capital management plays a critical role in knowledge sharing practices so leaders have an important impact on developing human capital in organisations (Mayo, 2001).

Secondly, a significant fact is that a custoimer plays a crucial role in the service provision process. Services are characterized by a high degree of customization and an every new order introduces elements of diversity and changeability. A customer participates in the process of co-creation of service. Each time, they co-create the value of service. A service provider does not deliver it – they only propose it (Bettencourt, Ostrom, Brown, Roundtree, 2002). In KIBS, there is an interaction between the knowledge and experience of experts from KIBS companies with the knowledge and experience of their customers (Hertog, 2002). In KIBS companies, workers adapt their knowledge to specific requirements of individual customers in order to solve a problem. The interaction between a service provider and a service receiver is of great importance. Thus, KIBS need specific paths for human capital management because of the significance of customers' contribution and close relations with them. From a managerial point of view, finding methods to ensure client's participation in the co-creation process of service and delivery provides valuable information which beneficial to both parties. This also leads one to another issue.

Thirdly, there are strong and close in-depth interactions between a customer and a creative supplier. There is always a direct contact between a customer and a service provider in KIBS. A client should at all time know who the performer of the service is, which makes this performer (an employee), contrary to work performed in production, a non-anonymous party (Skapska, Samul, 2015). Knowledge-intensive service enterprises must concentrate their efforts on personnel that are in contact with a client. Many companies found it difficult to recruit commercially aware and customer-focused professionals. In some cases, work-focused individuals and their commitment to customer's needs were seen as an important attribute (Bryson, Taylor, Daniels, 2008). People employed in services should have professional knowledge on the subject matter and also understand information regarding psychological aspects of a client's behavior. Thus, KIBS companies should take into account workers' competences with the same degree of diligence as they care about their prospective customers.

Finally, the activity of KIBS is mostly based on the exploitation of the skills, abilities, knowledge and specializations of their employees. Multiple qualifications such as professional training, competence, predispositions and attitudes of people who provide services determine the content and a form of the service provision. It is righteous to say that qualified personnel come first and this fact is in accordance with the collection of twenty five determinants of a service enterprise success (Mangold, 2000). Paige and Littrel (2002) show that creative individuals play a critical role in creative industries such as advertising, architecture, branding and design consultancies. Furthermore, they suggest that employee's motivations and characteristics, such as their lifestyle, have a great impact on the company and its operation. Most researchers indicate the influence of human resource management on an employee and organizational performance (Sanders, Shipton, Gomes, 2014; Sydler, Haefliger, Pruksa, 2014).

The awareness of the significance of human capital influences the way in which KIBS are managed and organised. Following this logic, the most important task of companies is to recruit and retain the most qualified and suitable employees, to train skills and abilities, and to codify and capture knowledge in order to improve overall performance. A strategic approach in human competence enhancement may contribute to organizational success.

4. Problem statement

A brief look at trends in KIBS shows that there has been little study done on human capital in this sector. It seems the researchers have paid little attention to the management of employees' competences in knowledge-intensive business services.

The authors want to investigate factors that have positive impact on the efficiency of services. This is the first inquiry in this study. The second one regards employees' competencies which contribute to the development of services. Then, the third question concerns the indicators of human capital management that are usually used in companies.

5. Methodology

Measurement and sampling

This study adopted a quantitative approach by means of a questionnaire in order to reach the largest possible group of respondents. The quantitative study was used because of the need to measure the researched phenomenon. The results were obtained in a way that allowed to know the opinion of a given group of respondents and then to use them to form certain generalisations.

The questionnaires were hand-delivered to the representatives of service companies that operating in Poland and Belarus. The study participants were randomly selected from the population for inclusion in the study. As for the selection of companies, senior executives were chosen (i.e., directors, chief executive officers) and approached to respond to the survey. The questionnaire was aimed at KIBS. The business services were grouped into three main categories according to classification of KIBS. The firms which belong to the one of the group were selected:

- technical services, such as engineering, architecture and technical studies;
- computer services, such as software design and database management;
- other professions concerning legal services, accounting, consultancy and management services.

The research was carried out in 2018 from February to June. The questionnaires were prepared in Polish and then, translate in Belarusian by the native researcher. Thus the questionnaires were identical. The questionnaire was made up of several parts. One of them focused on human capital and included factors that have a positive impact on the effectiveness of service. The others covered the significance of employees' competences in the development of services and tools used for the assessment of employees' effectiveness.

All items were rated on the five-point Likert scale ranging from 1 ('strongly disagree') to 5 ('strongly agree'). The questions had an option of adding one's own additional answer.

Research sample

The final sample consists of 101 companies from Poland (Podlaskie province) and 42 companies from Belarus (Table 1). The companiess are represented by various kinds of profiles. Most of them have domestic capital in both countries. However, the structure of companies, in terms of size, is definitely different. In Poland, the majority of the surveyed enterprises are small entities, including micro enterprises (93%) and only 1% are large enterprises. This is quite consistent with the overall structure of enterprises (due to the number of employees) in the economy of the country as well as with European trends. In Belarus, the structure is slightly different: small and micro enterprises account for slightly more than 50%, and the large ones constitute about 17%.

Table 1. Characteristics of KIBS companies

	Poland	Belarus
Profiles of service companies		
Computer programming, consultancy and related activities and coomunication	8%	19%
Accounting activities	3%	5%
Legal activities	0%	2%
Consultancy activities	9%	2%
Architectural and engineering activities	14%	29%
Advertising	9%	2%
Educational activities	29%	2%
Medical activities	9%	10%
Trade activities	12%	17%
others	8%	12%
Total	100%	100%
Size of service companies		
micro (1-9 employees)	65%	17%
small (10-49 employees)	28%	36%
medium (50-249 employess)	6%	31%
large (at least and more than 250 employees)	1%	17%
Total	100%	100%

Ownership of capital		
domestic	96%	76%
foreign	2%	10%
mixed (domestic and foreign)	2%	14%
Total	100%	100%

Source: Own elaboration.

5. Results

Business representatives were asked about factors that had a positive impact on the efficiency of services. It can be noticed that the mean of the factors is simillar in both countries. However, in Belarus it is lower than in Poland (Table 2). The second highest factor is customer-focused employees. It is one of the most important competences of workers and it has beem mentined before. The next highest factor is the access to knowledge and its transfer, which is also related to employees.The other factors do not have such a significant impact. There were no additional answers from the respondents.

Table 2. Factors that have a positive impact on the efficiency of services in KIBS

Factors	Poland		Belarus	
	mean	std. dev.	mean	std. dev.
high competences and skills of employees	4.8	1.3	4.5	1.0
customer-focused employees	4.3	0.8	4.0	0.5
access to new knowledge /knowledge transfer	4.3	1.3	4.0	1.0
relatively large number of loyal customers	3.9	0.9	3.8	0.8
indirect character of the service	3.8	0.8	3.6	0.6
a high degree of specialization	3.7	0.7	3.5	0.5
investments aimed at reducing labor intensity	3.6	0.6	3.4	0.4
the right location of the facility	3.6	0.6	3.4	0.4
automation of services	3.5	0.5	3.9	0.9
indirect character of the service (via the Internet)	3.4	0.4	3.5	0.5

Source: Own elaboration

Next, the business representatives were asked about particular employees' competences which can be important for the development of services (Table 3). Nearly all the mentioned factors have a significant influence. Again, there are certain differences between the countries. All competences were assessed slighty higher in Polish companies (almost all competencies are above 4 points) than in Belarusian ones (all competencies are below 4 points). Moreover, in Polish companies, employee engagement has the higest mean. Whereas in Belarusian companies, this competence has the lowest rate. A surprising fact is that the ability to create innovation was assessed quite low - the last place in Polish companies and the last but one in Belarusian companies. It seems that the companies from the KIBS sector should appreciate the ability of creating innovation. There were no additional answers from the respondents.

Table 3. Employees' competences that contribute to the development of services in KIBS

Employees' competences	Poland		Belarus	
	mean	stand. deviat.	mean	stand. deviat.
Employee engagement	4.76	0.76	3,67	1.76
Employee motivation	4.52	1.02	3,93	1.02
Strong customer orientation	4.42	1.42	3,86	1.42
Sharing knowledge	4.31	0.31	3,86	1.31
Ability to create innovation	3.41	0.41	3,76	0.41

Source: Own elaboration

The participants were also asked about the use of indicators for human capital measurement in their companies. The purpose was to determine which measures are usually used in those businesses. The indicators were divided into six groups:

- Assessment of employees' attitudes (i.e. level of commitment, motivation)
- Assessment of the level of employee competence
- Assessment of the company's overall performance (i.e. customer service level, company innovation level)
- Measurement of employee performance indicators (i.e. remuneration effectiveness, employee value added)
- Assessment of the structure of employees
- Methods of assessing human capital (Navigator Skandia, BSC, HR Scorecard).

Our study's results reveal the use of indicators to measure human capital (Table 4). As for Polish companies, assessment of the employees' attitudes and the level of employee competence are used most often – respectively 80% and 75% (strongly agree or agree). The previously mentioned results showed the engagement and motivation were the most important for these businesses. Thus, it is not surprising that these indicators are measured. Whereas in Belarusian companies, the most commonly used indicator is the company's overall performance – 76%. The methods of assessing human capital such as Navigator Skandia, BSC or HR Scorecard are seldom used in companies of the both countries. Quite a large percentage of respondents - from 11% to even 33.3% - admitted that they had no opinion (neither disagree nor agree).

Table 4. Assessment of selected aspects of employees' work

		employees' attitudes	level of employee competence	company's overall performance	employee performance indicators	structure of employees	methods of assessing human capital
Poland	strongly agree	50.0%	42.9%	33.7%	20.6%	7.1%	0.0%
	agree	29.6%	32.7%	33.7%	39.2%	20.4%	7.2%
	neither disagree nor agree	11.2%	18.4%	20.4%	16.5%	27.6%	15.5%

		employees' attitudes	level of employee competence	company's overall performance	employee performance indicators	structure of employees	methods of assessing human capital
	disagree	5.1%	2.0%	9.2%	9.3%	12.2%	16.5%
	strongly disagree	4.1%	4.1%	3.1%	14.4%	32.7%	60.8%
Belarus	strongly agree	31.0%	21.4%	19.0%	28.6%	9.5%	7.1%
	agree	23.8%	45.2%	57.1%	31.0%	26.2%	11.9%
	neither disagree nor agree	26.2%	21.4%	11.9%	19.0%	33.3%	14.3%
	disagree	11.9%	9.5%	9.5%	14.3%	21.4%	19.0%
	strongly disagree	7.1%	2.4%	2.4%	7.1%	9.5%	47.6%

Source: Own elaboration

A structure of employees is measured by almost one third of company in both countries. The lowest percent are indicated in case of using methods of assessing human capital. It means that these methods are still unknown well in both CEE countries.

6. Conclusions

A brief look at the KIBS shows its role as an innovator and knowledge provider. The analysis of the research trends in these services shows that KIBS are an integral part of the economy and thus are vital to its functioning and development. Moreover, KIBS have been seen and identified at various levels of the economy. Nevertheless, it has been displayed that the main trends in the research of KIBS norrowly cover the issues of the human capital management and the employees' competencies.

The research results show that the competencies of employees play a crucial role in the efficiency of services in both Polish and Belarusian KIBS. As for the most sigificant competencies, they include employee enagagement, their motivation and customer-focused orientation. The research demonstrates the differences in the use of indicators of human capital measurement with regard to the countries' companies. The respondents of Polish companies declare that they use measures which are related to employees' attitude, i.e. engagement, motivation, satisfaction as well as employees' competencies. The respondents of Belarusian companies indicate that the company's overall performance such as remuneration effectiveness or employee value added is the most commonly used aspect. The most advanced methods to evaluate human capital such as HR Scorecard are used neither in Poland nor in Belarus.

The results are interesting becuse of the comparative analysis which shows that the findings are quite similar. Although all factors and competences have had lower levels in Belarusian companies than in Polish ones, these differences are not

much statistical significant. It can be related to the specificity of the economies in these countries.

The contribuition of this research is investigation of the dimension of importance and understanding of the employees' competences in KIBS which is relatively new sector in these particular CEE countries. Poland with a long delay entered the market economy, while in Belarus, economic changes were not made. Most of existing research present the results from developed countries, not developing ones.

This study has certain limitations. One limitation is the number of studied companies, especially from Belarus. However, KIBS is developing sector in this country. The second limitation is that the research results come from only one province from Poland and one from Belarus. This is not the sample of the whole country. Thus, it is difficult to generalize.

There are some suggests for further studies in this area. Generally, the actions concerning personnel management, as well as their motivation and commitment to work, translate into true service company value. Further studies in the field should take into consideration the specific paths of human capital management and measurement.

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