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The contribution of human capital to the performance of Knowledge-Intensive Business Services

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Abstract

Purpose: The purpose of this paper is to investigate the relation between human capital and the performance of the various types of knowledge-intensive business services (KIBS).

Research Methodology: The analysis conducted on business services industry level took into account the role of education in knowledge transfer, a major factor enriching the KIBS industry. A conceptual framework based on cluster analysis (CA) and classification and regression trees (CART) was developed to analyse human capital, the main asset in the KIBS sector (according to the resource-based theory), and its relations with the performance of KIBS providers.

Results: The results pointed to the significant differences between various types of knowledge-based services. Findings suggest that there could be applied additional approach to classifying the KIBS services into three clusters according to the business characteristics (including human capital). Our third cluster closely related to human capital (HC) and information and communication technologies (ICT) demonstrated the best business performance. The results confirmed that KIBS providers with high average remuneration and high wage growth dynamic noted over doubled performance indicator (measured as profit growth). In that group of KIBS providers were (a) Software and IT companies, (b) Temporary employment agency activities and (c) Other human resources provision.

Limitations: Our analysis is based on statistical data gathered by a public entity covered 3125 firms aggregated into twenty service types, which limits the scope of the research questions.

Contribution: This study contributes to the state of knowledge of the performance dynamics of the various business services.

Keywords: *Business Services (BS), Human Capital (HC), Performance, Knowledge, Education*

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1. Introduction

In recent decades the global economy has been dominated by the service industry, which in most developed countries accounts for almost three-quarters of the national economy measured as a percentage of GDP (and 65% of total global GDP; World Bank 2017). A review of the literature on human capital in business service firms brings to light the scarcity of material compared to the volume of works on this topic referencing manufacturing firms (Kaiser et al. 2015). Moreover, although

knowledge transfer between education and business has already been researched (Shinoda et al. 2019; van Winden, Hagemans, and van Hemert 2019), little is known about the role of human capital in knowledge-intensive business services.. Recent studies of Doloreux and Frigon (2020) examined the determinants of innovation in KIBS on the sample of 392 firms indicating the role of human capital in this process, also Chichkanov, Miles, & Belousova (2019) stress the role of human capital in increasing the implementation of technological innovation KIBS on the sample of 519 firms. Although both studies present the role of human capital in KIBS, there were only samples of the industry and missed wider picture of the KIBS industry's performance.

Our study aims to assess the relation between the human capital in KIBS industries and their performance covering whole KIBS industries operating on the market registered in public statistics. The paper provides current empirical evidence on the human capital in KIBS at the national level as a starting point for international comparisons. The main research question is how HC can influence the performance of particular types of KIBS. Classification and regression trees (CART) were applied to explore the relationship between the human capital in these service providers (remuneration level, number of employees) and their performance. Profit and profit dynamics were assumed to be explanatory variables. Although the data obtained for analysis were quantitative the aggregation of them resulted in more qualitative analysis character.

This article has seven sections, the first being this introduction. The second provides a review of the literature on KIBS and Human Capital. The third section outlines the conceptual model designed for this study, and the fourth the methodology used to achieve the study objective. The fifth section contains the results. The sixth comprises the discussion, conclusions, and the managerial implications, and the seventh and final section looks at the limitations of this study and directions for future research.

2. Literature review and hypothesis development

2.1. Knowledge-intensive Business Services

Knowledge-intensive business services (KIBS) are services that are considered important (co-)producers of innovation through the processing, generation, and dissemination of knowledge between enterprises (on the micro-scale) and across the economy (on the macro-scale) (Hertog 2000). Their main role, however, is in building bridges of knowledge and innovation between scientific findings and commercial companies (Miles and Kastrinos 1995; Palte et al. 2011).

KIBS are private enterprises which offer other businesses highly advanced knowledge- or expertise-based services in a specific field. Consumption of these services usually increases the client company's intellectual capital (Borodako et al., 2014a; Kuula et al., 2018; Martínez-Martínez, Cegarra Navarro, García-Pérez, & Moreno-Ponce, 2019). The identification of these characteristics through research into KIBS (Miles et al. 1995; Muller & Doloreux 2009; Borodako et al., 2014a; Borodako et al., 2016) has permitted the extension of existing typologies (Wong & He 2005) to produce the following classification proposal (which includes types and sub-types: (a) market KIBS: Market and public opinion research; Media representation activities; Advertising agency activities; Scientific research in the social sciences and humanities, (b) company KIBS: Legal activities; Accounting and bookkeeping, PR; Management services; Temporary employment agency services; Other human resources provision, (c) technical KIBS: Specialist design activities; Scientific research in the natural and technical sciences; Technical research and analysis; Architectural and engineering activities and related technical consultancy; Software and IT; Data processing and website management, (d) event KIBS: Activities related to the organization of fairs, exhibitions, and congresses; Tour operator activities, Performing arts activities, Organizers of entertainment and recreational attractions (incentive travel).

The above profiling indicates that KIBS are essentially purveyed by companies whose key resources are their employees' knowledge and competences. In the literature such companies are described as 'four high' (Yang & Yan 2010): characterized by a high degree of knowledge, interaction (these two

are connected with human capital), technology, and innovation. It has been observed that in the process of providing services for their clients, KIBS providers have to be constantly introducing innovation, acquiring knowledge, learning new technologies, and creating new knowledge appropriate to those clients' technological and production requirements, thereby at the same time also furthering their own innovative development. More than one title in the literature highlights the importance of companies devoting qualified human capital to interaction with KIBS in order to optimize the integration of their knowledge into the firm (Gianecchini and Gubitta 2012; Simmie and Strambach 2006).

2.2. Human capital and its role in service companies

One of the core factors in the contemporary economy – at both macro and micro level – is human capital (HC). The HC of an organization is the sum of the knowledge, skills, and abilities featured and vested in the individuals it employs (McGuirk, Lenihan and Hart, 2015). HC refers to and includes know-how, education, work-related competencies, and psychometric assessments (Namasivayam and Denizci 2006). In other words, HC is the embodiment of knowledge in appropriately educated people (Storper and Scott 2009). This stresses the role of education in knowledge creation (Maldonado-Guzmán et al. 2016; Wixe 2018). Education, in the sense of higher education, is the first stage of knowledge transfer, which is widely described in the literature (D'Este and Patel, 2007; Jensen *et al.*, 2007; Lockett *et al.*, 2009; Karnani, 2013; Brescia, Colombo and Landoni, 2016). Higher education institutions have an important role to play in teaching entrepreneurial skills to young people, so increasing the pool of those who have the potential to go on to start and successfully grow entrepreneurial ventures (Potter 2008). The most important role of universities is as a conduit for bringing potentially high-quality undergraduate human capital into business, and to educate and produce a highly skilled labour pool; this far outweighs the benefits generated by knowledge spillovers (Comunian, Faggian, and Jewell 2014; Faggian and McCann 2006). This is particularly important in the context of KIBS, whose activity is based on the knowledge at the disposal of their human capital.

A firm's growth depends on the quality of its human capital and its investment in that capital (Santos-Rodrigues, Dorrego, and Jardon 2010). The literature stresses the role played by individuals in innovation and highlights the importance of recognizing what they bring to firms' innovation-based activities (Lundvall 2009). The new business models now being adopted by enterprises focus on a holistic approach to policy interventions for operating in a knowledge economy founded on intangible assets (e.g. technological spillovers, innovation, and linkages) (Lenihan 2011). Schiuma & Lerro (2008) stress the importance of ensuring an appropriate balance of education types within the organization, and Richard (2000) highlights the need for a diverse stock of human capital.

The key research question is how HC influences the business performance of KIBS providers. There is a widespread assumption that human capital, as a key and singular resource, has a positive influence on any venture's performance (Markova et al. 2008; Palacios-Marques, Gil-Pechuán, and Lim 2011; Unger et al. 2011). The results of research into the service sector in Sweden indicate that firms with a higher level of human capital, measured by education, experience, and cognitive skills, perform better in terms of productivity (Backman 2014). In discussions concerning HC, it is vital that the skills of both managers and employees, and even the effects of their mutual relations, be taken into consideration. McGuirk et al. (2015) even suggested the concept of 'Employee – Manager Innovative Human Capital'. Human Resource Management (HRM) is thus a crucial issue. It has been proven that HRM, in conjunction with the proper strategy, can generate synergy in improving a firm's performance (Zhang et al. 2016).

A further research question that arises is whether particular types of firms demonstrate certain outcomes as a result of their human capital. The literature contains examples of empirical results proving the positive impact of human capital on sectoral growth and productivity. Hena et al. (2018) in their article present examples from both the manufacturing and service sectors. However, no investigation of the KIBS sector looking at the impact of HC on the performance of particular types of

KIBS has been conducted to date. This was the reason why we undertook this study with reference to particular types of KIBS suppliers.

2.3. Conceptual model

The conceptual model in this research references the resource-based theory, which focuses on company assets with the potential to generate competitive advantage and enhance company performance (Backman 2014). This theory is well known to scholars because it dominated the study of management last three decades. HC is a crucial resource in all firms (Gossling and Rutten 2007), but particularly in KIBS providers (Gianecchini and Gubitta 2012).

HC depends on many factors (Namasivayam and Denizci 2006), as described above, of which two of the most significant are the knowledge of both managers and employees (which is to some extent a result of their education), and the management processes employed in the company (Janošková, Csikósová, and Culková 2017). There are a number of methods for evaluating HC (McGuirk, Lenihan, and Hart 2015), with one of the possibilities for evaluation of the quality of both knowledge and management in monetary terms being employees' salaries. The analysis is conducted at sectoral level – the level of the various KIBS market sectors. It is believed that within each KIBS type both competition and cooperation can be observed, or a hybrid known as 'coopetition', and its spillover effects create the characteristics of particular KIBS types.

The main research question is how HC can influence the performance of particular types of KIBS. The HC-related assumption underlying the conceptual model adopted here draws on empirical results at the micro level (McGuirk, Lenihan, and Hart 2015) indicating the relation between companies' size and their performance. The research aim in this context was to examine whether the size of a KIBS sub-sector has a moderating effect on its performance. The conceptual model is presented in Figure 1.

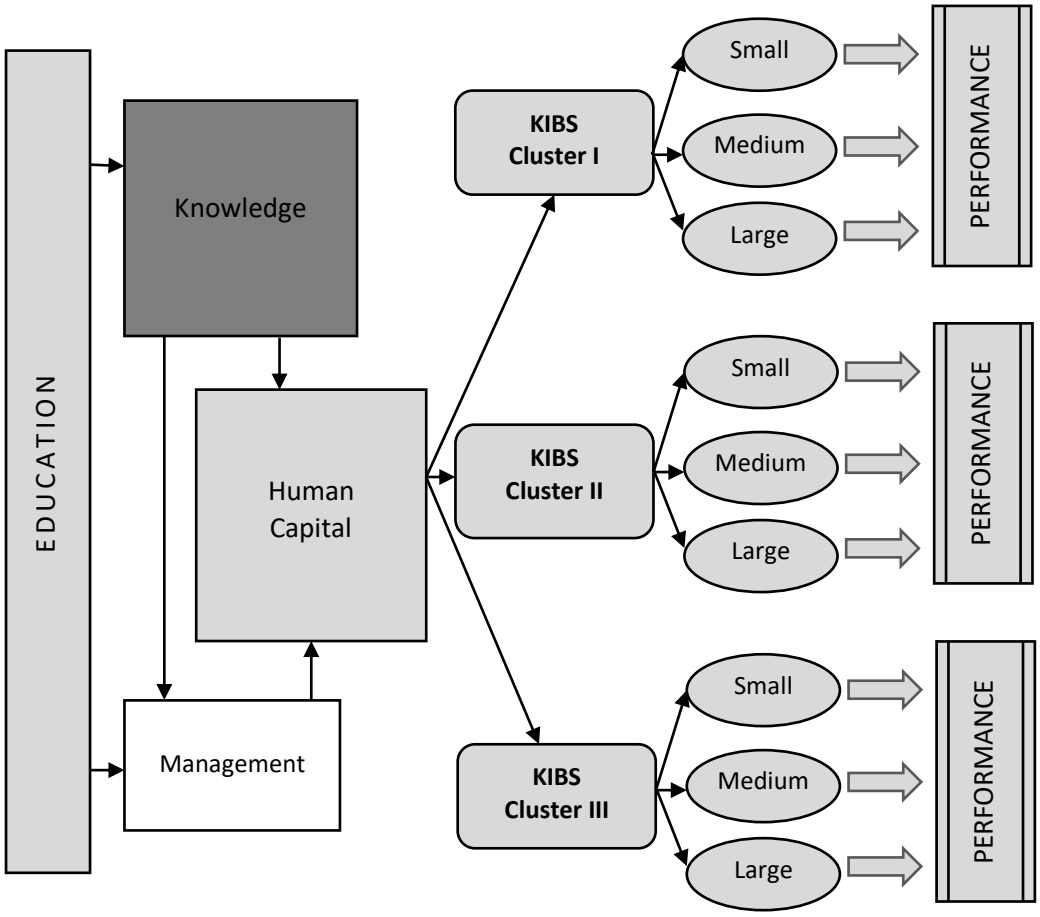

Figure 1. Conceptual model of the HC impact on KIBS performance
Source: Authors' own research.

3. Research methodology

The article presents the results of research based on a data set containing information on the twenty types of business service providers identified in Polish statistics for 2016.

Cluster analysis based on such quite small data sets is not uncommon. In the literature it is easy to find studies in which clusters were built for 15 objects (Konstantakis et. al 2015), 12 objects (Boreiko 2003), and even 8 objects (Ferraro et al. 2016). Since this study encompasses the entire firms population (all the types of KIBS), there is no risk of an anomalous object disrupting the cluster structure.

The k-means algorithm was used to group KIBS providers in Poland and identify differences between them. Companies representing the 20 types of KIBS were divided into three homogeneous clusters, whose characteristics are described below. Clusters are convex in shape and resemble a sphere in three-dimensional space (Gan, Ma, and Wu 2007). Cluster validity measures are used to select the optimum number of clusters, but the large number of such measures and their ambiguous indications make it difficult for researchers to take decisions. Therefore expert knowledge, the researcher's a priori expectations, and the utility of clusters for business applications are often important considerations when choosing numbers of clusters (Berry and Linoff 2004; Everitt et al. 2011).

Classification and regression trees (CART) were applied to explore the relationship between the human capital in these service providers (remuneration level, number of employees) and their performance. Profit and profit dynamics were assumed to be explanatory variables. Finally, a regression tree model was built for the dependent variable: profit dynamics.

4. Results and discussions

4.1. Education as the first source of knowledge influencing business services

In the analysis of data from public statistics regarding the number of graduates in the years 2008–2016, attention was focused only on fields which prepare graduates to work in KIBS companies. These data are presented in Figure 2.

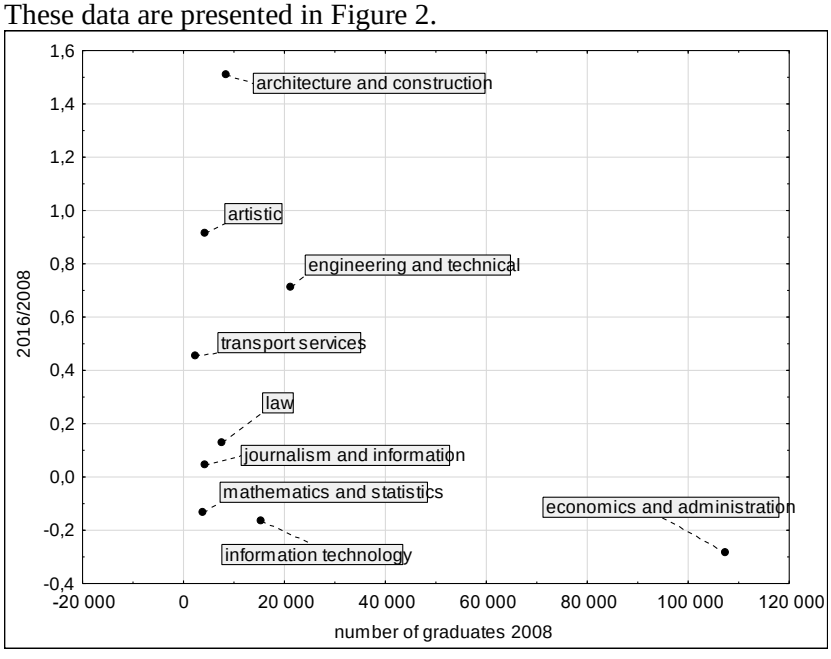

Figure 2. Dynamics and number of graduates in KIBS-related study fields
Source: Authors' own calculations (Statistics Poland 2018).

The analysis showed the highest growth dynamics in numbers of graduates in the fields of architecture and construction (an increase of 150% from the start to the end of the period in question) and

engineering and technical studies (71%). Graduates of these faculties largely go on to provide HC for Technical KIBS. Also within this category a slight decrease was noted in the number of information technology graduates (a decline of 17% over the period under study).

In the Company KIBS category, the number of graduates was relatively stable, with slight increases noted in the fields of law (a rise of 13%), journalism and information studies (up 4%), and a slight downward trend in numbers of mathematics and statistics and economics and administration graduates (decreases of 13% and 29%, respectively). It is worth noting that graduates in the latter category are the main source of human capital in most KIBS industries. Despite this decline, economics and administration graduates constitute the largest group of graduates by subject in 2016 (nearly 80,000). This discipline includes graduates of management, economics, administration, and many other faculties and specialties, providing specialists profiled for work in the Event, Market, Company and Technical KIBS industries.

4.2. K-means clustering of business service providers

The market of KIBS providers is highly diverse, so to diagnose the specificity of business services market an attempt to divide it into meaningful groups was undertaken. Analysis using the k-means algorithm was considered the most suitable method.

The best results of cluster analysis were those obtained using the k-means method with four variables:

1. the number of enterprises providing KIBS services;
2. the number of employees working for enterprises providing KIBS services;
3. remuneration in enterprises providing KIBS services;
4. net profits in enterprises providing KIBS services.

Eventually, three clusters were identified, the content of which is presented in Figure 3.

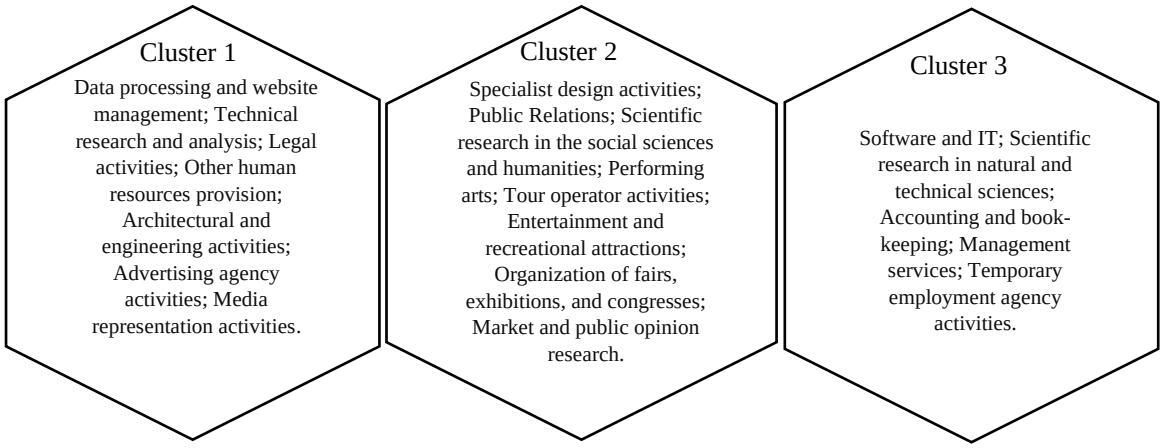

Figure 3. Results of clustering by KIBS types using the k-means method
Source: Authors' own calculations (Statistics Poland, 2018).

The three clusters were profiled in respect of the adopted variables (see Tab. 1).

Table 1. Descriptive statistics of clusters of KIBS types produced using the k-means method

Cluster	No. of businesses, mean average	No. of employees, mean average	Total remuneration (USD), mean average	Total net profits (USD), mean average
1	243	18,256	291,922	129,757
2	36	1,701	3,302	11,452
3	503	66,620	1,171,197	266,396
Mean average for KIBS	225	23,725	408,180	116,595

Source: Authors' own research

The results show that cluster no. 3 was the most numerous, with an average of over 500 companies for the cluster. It comprised enterprises representing five types according to the Polish Classification of Business Activity: Software and IT, Accounting and bookkeeping, Management services, Scientific research in the natural and technical sciences, and Temporary employment agency services. According to the classification of KIBS providers (Authors, 2012) mentioned above, these enterprises were representatives of two groups of KIBS: *Company* and *Technical* services. Enterprises in this cluster employed the highest average numbers of employees in 2016 – over 66,000, which was 2.8 times more than the average for all KIBS. Moreover, it was more than the average for *Company* and *Technical* services groups. This means that the third cluster comprises the biggest types of both mentioned groups. On average companies in cluster no. 3 paid the highest annual salaries: US$ 1,171,197 (the exchange rate was USD 1=PLN 4.1987), which was nearly 2.9 times more than the average for the whole KIBS sector, and more than the average for the *Company* services group as well. The business activities of companies from Software and IT, Accounting and bookkeeping, Management services, Scientific research in the natural and technical sciences, and Temporary employment agency services generated as a cluster the highest average net profit (US $266,396), which was 2.3 times more than the average for all KIBS. The data in Table 1 indicates that these high salaries and net profits were generated by suppliers of *Technical* services.

Cluster no. 1 was represented by KIBS types subclassified as: Data processing and website management, Legal activities, Architectural and engineering activities and related technical consultancy, Media representation activities, Advertising agency activities, Other human resources provision, and Technical research and analysis – seven types in total. This cluster comprised on average fewer entities than cluster no. 3 (see Table 1). The mean average number of employees in cluster no. 1 was over 18,000. Average annual remuneration of US $291,922 was paid in this cluster, and the average profit amounted to US $129,757. It should be noted that while employee numbers and average remunerations in cluster no. 1 were both around 25% of the levels in cluster no. 3, the average profit was half of that in cluster no. 3. Cluster no. 2 was the least numerous, with an average of 36 enterprises in each type. An average of 1,700 employees worked in each of these types of services, and the average annual salary in this cluster was US $33,020. It is important to note, however, that average net profits were significantly lower, at US $11,452.

The results show that the market of KIBS suppliers is quite diverse. Each of the clusters comprises several representatives of the KIBS types. The most homogenous is cluster no. 3, which consists only of *Technical* and *Company* service suppliers. And in fact these types of KIBS are closely related to ICT and human resources, respectively. They also demonstrated the best performance. This supports our thesis that these two assets have a crucial impact on the performance of both individual companies and entire groups of service suppliers. The next task, then, was to assess the impact of Human Capital.

4.3. The influence of Human Capital on KIBS providers' profits

Various methods were considered in the study to explain the dependencies between companies' human capital and the results of their business activities. Profits or profit dynamics were assumed to be one explanatory variable. Remuneration levels and numbers of employees were considered to be variables explaining human capital. An analysis was conducted for each of the KIBS types.

First, the correlations between the variables were examined and those features identified whose values permitted their use in regression analysis. The original plan was to use multiple regression, but in the course of the analysis the assumption regarding the compatibility of the distribution of residuals with normal distribution and the assumptions about homoscedasticity proved false. Ultimately, two models of regression trees were built for two dependent variables: Y1 (profit) and Y2 (profit dynamics) (see Figure 4.).

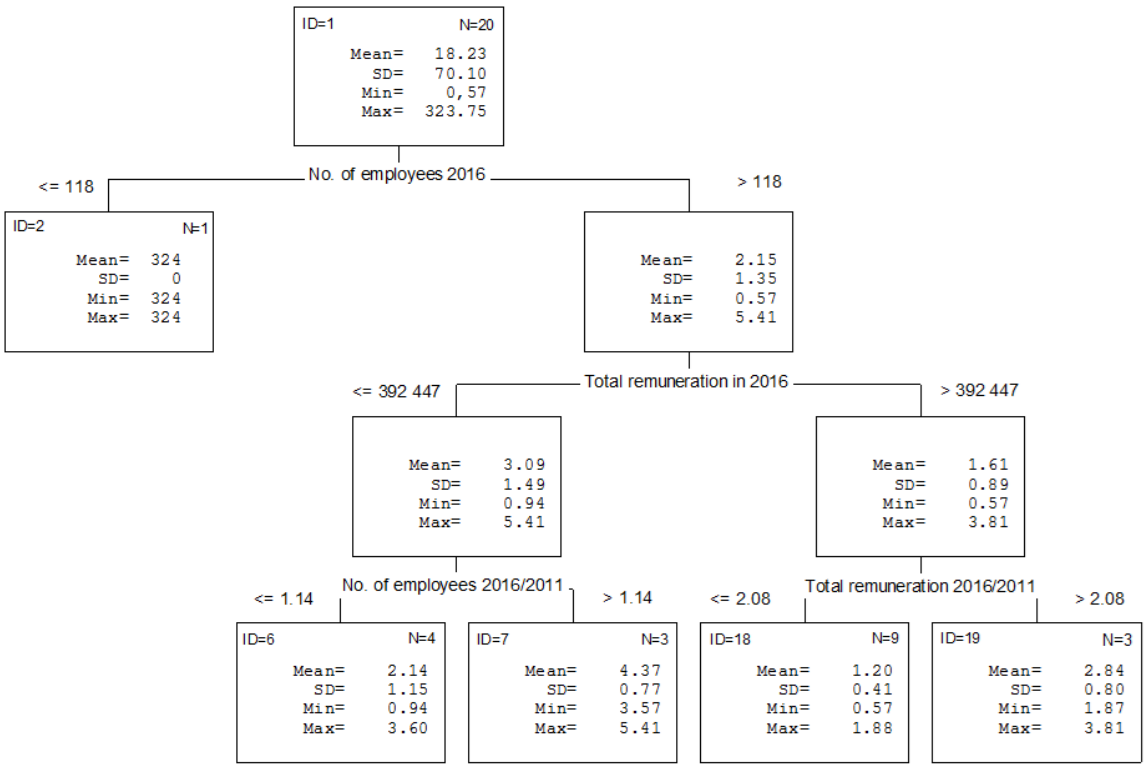

Figure 4. Regression tree for profit dynamics
Source: Authors' own research.

The results show that average profit growth in the KIBS sector in the years 2011–2016 was 18.23%. In fact, the highest profit growth may be observed on leaf no. 2 (324%). For only one KIBS type is there a variance of zero in this node, which means that this leaf is an outlier. Enterprises in this category declare profit dynamics far above the average for the entire population researched; indeed, it would be fair to say that this result raised the mean average considerably. With leaf no. 2 established as an outlier, the highest profit dynamics (4.37%) were characteristic for KIBS types which in 2016 employed over 118 employees, paid average salaries of less than US $93,469 (PLN 392,000), and saw employment growth of over 1.14%. This terminal node (ID7) is represented by three KIBS types: 1. Management consulting; PR and communications, 2. Activities related to media representation, and 3. Specialized design activities. The proportion of variance explained by the model is 0.87. All three of these KIBS types fell into cluster no. 2 in the previous grouping. It is thus possible to conclude that the greatest improvement in performance was seen in a relatively small group of KIBS types (in employment terms), where salaries were above the average for cluster no. 2 but lower than the average in the other two clusters. The growth in employment levels was noticeably higher in this cluster than in other KIBS types.

Attention should be drawn to one more KIBS group (leaf ID=19). In KIBS types where average remuneration was over US $92,885 (PLN 390,000) and the wage growth dynamic in the years 2016–2012 was higher than 2.08, profit growth was 2.84. This leaf comprised three KIBS types: 1. Software and IT, 2. Temporary employment agency activities, and 3. Other human resources provision. This provides an argument supporting the thesis regarding the crucial role of human capital not only in individual companies, but for the sector performance as a whole.

Discussion

The knowledge vested in these companies' human capital, first acquired at the higher education stage (Brescia et al., 2016; Comunian et al., 2015; Fromhold-Eisebith & Werker, 2013; Karnani, 2013), is then supplemented with new knowledge (both codified and tacit) in the process of the provision of KIBS services (Hu et al. 2006; Segal-Horn 2006; Tether 2005) and enriched with experience (that of

the KIBS companies themselves and their clients) (Camacho and Rodriguez 2005; Hertog 2000; Miles 2005; Muller and Doloreux 2009), and thus constitutes the foundation on which KIBS enterprises function. Human capital, as the basic carrier of this knowledge, has a key impact on the performance of these enterprises. The quality of the solutions they offer to their clients, the number of contractors, and other indicators describing their performance all depend on their knowledge and ability to use that capital. The results obtained in this study showed that the highest increases in numbers of graduates are seen in Technical KIBS faculties. Many authors emphasize that technology-driven firms recognize universities as important sources of knowledge that can enhance competitiveness and innovation (Freel, 2003; Eom and Lee, 2010).

The next aspect of the results of our analysis is the insight they offer into the KIBS providers market on the basis of secondary data. These results highlighted the significant differentiation within and between particular types of KIBS. This suggests that this market is in an early phase of development, and that companies offering similar services have a variety of business models (in terms of size, wages), which results in varying performances.

Our next step was to make a detailed analysis of the performance of KIBS suppliers. KIBS providers are knowledge advanced, create and disseminate innovation, and enhance their clients' competitiveness. But the key asset of the KIBS sector – its human resources – is still under-researched. This study aimed to explore the nature of the links between human capital and the business performance of KIBS providers, because these topics have not previously been studied in depth, especially at the business services types.

The literature includes a study of Italian KIBS from three sectors, where performance was measured as a function of growth in employment levels. It should be stressed that the 'growth in employment' indicator has been used by a number of researchers, though at the micro level. According to a review by Achtenhagen, Naldi, and Melin (2010), of 56 articles on entrepreneurship studies of business growth from the period 1997–2008, 27% used employment growth as an indicator. The evidence from Italy proves that the human capital of KIBS companies did have an influence on the rate of the increases in employment levels in these firms, especially in their early stages of development. This study (Gianecchini and Gubitta, 2012) was conducted at the micro (company) level and did not offer any results showing the wider perspective of a comparison of KIBS types.

Another study which examined employment in the KIBS industry was that of Bapna et al. (2013); here the authors investigated investment in human capital and employee performance in the IT services industry. These authors confirmed that investments in HC improve employee performance, which goes slightly beyond the scope of our research, but supports our main assumption that human resources are a critical factor in KIBS development.

Our findings regarding human resources were quite unique. They are broken down into the different types of KIBS. The highest **profit growth rates were observed in three types of services: 1. Management consulting; PR and communications, 2. Activities related to media representation, and 3. Specialized design activities**. In each of these three KIBS type an average of more than 118 people was employed, and in each the employment growth was high (above 14%). Moreover, these were not KIBS types with the highest salaries per employee; the subsectors with the highest remuneration per employee were Advertising, Market research, and IT services. We may assume that market demand in the sectors with the highest profit growth rates forced employment growth and that this resulted in the significant increases in the profits of service providers. These increases may also be attributable at least in part to the rapid adaptation of companies representing these three KIBS types (Management consulting; PR and communications; Activities related to media representation; and Specialized design activities) to the market dynamic and to their demanding environment, as well as to the implementation of agile human capital management in this sector.

The second group of KIBS in which **improved performance was proven by high profit dynamics was that consisting of: Software and IT services, Temporary employment agency activities. and**

Other human resources providers. These are types characterized by high remuneration at both sectoral and individual level, and by a high level of pay growth. This fully supports the thesis that human capital contributes significantly to the improvement of this KIBS sector performance. Furthermore, the findings are in line with the results of the meta-analysis conducted by Unger et al. (2011), which show that human capital has a stronger effect on success in new businesses than in old ones; our KIBS types were relatively new on the market.

5. Conclusion

Our findings have augmented the knowledge about sectoral trends on the market because they reveal the influence of human capital not only at micro level, which had already been empirically proved in the literature, but also at sector level. Moreover, the findings provided details from the business services market to refine the previously mentioned meta-analysis of Unger et al. (2011), which did not identify any differences in the effects of human capital between high- and low-technology industries; we drew our comparison along KIBS sector lines. Our findings also complement the results of Bosma, Thurik, and Wit (2015), who compared the aspect of human capital in knowledge-intensive industries and other industries and found no stronger relationships between human capital and success in knowledge-intensive industries than in other industries.

Our results could not assess the impact on the results of KIBS sectors larger than 118 employees, because the model imposed a threshold of a mean 118 employees per type and the majority of types (with the exception of the one in the outlier) were larger. Thus, the size of a KIBS type within a given market cannot be proved to be a moderating factor in its performance as had been assumed. In summary, then, the research presented in this paper increases our knowledge about the significance of human capital (as reflected in remuneration levels) for improving the performance of various KIBS types on an expanding market.

Limitation and study forward

Although the present study provides new knowledge on the significance of human capital in business services, our research has some limitations. Firstly, our analysis is based on statistical data gathered by a public entity, which on the one hand guarantees a high level of credibility but on the other limits the scope of the research questions (owing to the scope of the data available). Secondly, this study delivers new data about human capital in KIBS providers in one highly developed country, but these results may not be applicable to other countries with different levels of development. Thirdly, cultural factors in other countries may also shape the human capital in KIBS. Furthermore, company size and the type of services provided may determine (or limit) the implementation of certain HC policies and approaches. Another issue is the scope of the higher education degree courses researched, which do not exactly correspond to all types of business services. Some fields of study for which statistics are gathered are so profiled that they correspond directly to individual services (e.g. law, or architecture and construction degrees). However, there are others whose scope is too general to be able to indicate a clear correlation with a particular KIBS industry in which a graduate will find employment and become a link for knowledge transfer. This study could be extended to encompass a sample of KIBS companies of various sizes from a range of countries to enrich our results. As far as analysis of the HC in KIBS themselves is concerned, future studies should take into consideration the evaluation of HC in professional services or HC strategies in so-called low knowledge-intensive services such as tourism.

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