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## Infobrokering services in Poland as an example of professional services in the knowledge-based economy

**Keywords:** knowledge-based economy, professional services, information brokering services

**Słowa kluczowe:** gospodarka oparta na wiedzy, usługi profesjonalne, usługi infobrokerskie

### Introduction

Technological transformations of the 20<sup>th</sup> century have brought extensive socio-economical changes referred to as *third wave* (A. Toffler), *knowledge society* (P. Drucker), *network society* (M. Castells) (Papińska-Kacperek, 2008, p. 16). After the industrial society based on manufacturing, and the post-industrial one, in which a key role has been played by the service sector, time has come for the information society where information has become a special intangible asset, frequently more valuable than material possessions. The present-day economy founded on acquisition, retrieval, distribution, and manipulation of information and consequently on creation of both explicit and tacit knowledge, is universally recognized as giving the footing to the development of new services such as infobrokering services.

The reflections on the topic of this paper are focused on infobrokering services as the professional information services playing a major role in the knowledge-based economy. The article begins with a brief description of the paradigm shifts knowledge-based economy has brought into the modern enterprises and labor market. Additionally, infobrokering services are presented in the context of professional services. Subsequently, their condition in Poland is exemplified through comparison of a leader and a laggard

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from the EU countries aiming towards knowledge-based economy. The paper is based on English and Polish literature studies concerning the knowledge-based economy, professional services, and infobrokering services available both in print and online as well as statistical data from Eurostat and WBI databases.

## Knowledge-based economy and its implementation in Poland

Epistemologically, knowledge as a key resource of today's organizations is created by processing, interpretation and interconnection of information; it is based on data, raw facts, signs and symbols that by categorization, condensation, contextualization and correction become information – purposeful and relevant. Knowledge has always played a major role in the economy. However, due to the technological revolution, the allocation of information and knowledge in the economic processes has risen sharply and it in turn has brought substantial changes in the way modern enterprises are organized and operate.

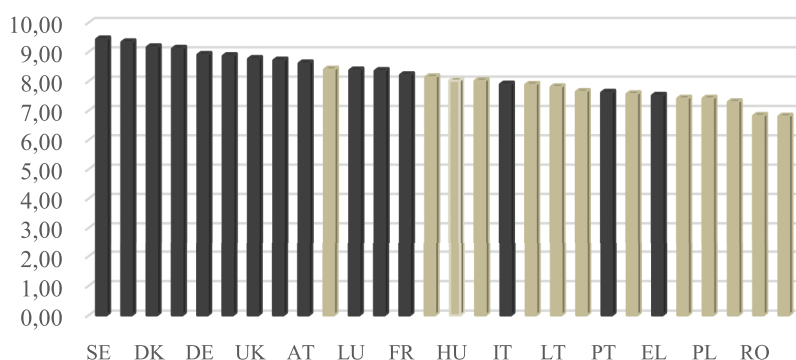
The expanded definition of the knowledge-based economy (KBE) states that “[it] is the economy where knowledge (codified and tacit) is created, acquired, transmitted and used more effectively by enterprises, organizations, individuals and communities for greater economic and social development” (OECD, WBI, 2000, p. 13). The macroeconomic mainstays of KBE are (OECD, WBI, 2000, p. 13–14): an economic and institutional regime; an educated and entrepreneurial population; information and communication technology (ICT); an efficient innovation system. From the microeconomic perspective Oslo Manual underlines the importance of communication ease through effective information channels and a subsequent skills transmission together with the knowledge accumulation within and between organizations in KBE environment. Promoting receptivity and adoption of improved practices and improved technology can raise both organizational and strategic skills within an enterprise and increase its competitive advantage (OECD, Eurostat, 2005, p. 28).

Three primary shifts in understanding the transition into KBE have been identified. Firstly, knowledge has become a commodity and consequently economic principles can be implemented into its production and exchange. Although knowledge stands out from other commodities since it has no physical appearance or it cannot be depleted by use, similarly to other goods it can be used in the production process or become obsolete and valueless. The second shift emphasizes the ICT role in knowledge transfer, particularly by the means of the Internet, which has enabled information to be stored, accessed and interpreted globally. The third shift concerns innovation processes and is based on the concept that combination and reorganization of existing knowledge can lead to extending innovation capacity (Arvanitidis, Petrakos, 2011, pp. 16–17).

Taking the aspects mentioned above into consideration, KBE affects companies' modus operandi, which currently is determined by: decentralization and flattening structures; networking and cooperation in virtual organizations; hiring employees with extensive professional competence; intellectual capital and knowledge management; creation and investment in the information management system; global tendency to outsourcing (Mikuła, Pietruszka-Ortyl, Potocki, 2007, p. 27).

The emergence of KBE can be noticed in Poland. The KEI indicator<sup>1</sup> for Poland in 2012 was 7.41, which put the country among the laggards of EU economies progressing toward KBE (fig. 1). The leaders of the KBE implementation in the EU were the Nordic countries (Sweden: 9.43, Finland: 9.33, Denmark: 9.16), which were also at the forefront of the world – among the 146 countries examined, the first three places were occupied by European leaders. The last place in the EU ranking was taken by Bulgaria (6.80).

Figure 1. KEI Index for EU-28 in 2012



Source: own elaboration based on WBI (2015).

Summarizing reflections on KBE, J. Oleński must be quoted: “the fundamental features of contemporary [KBE], as a viable socio-economic phenomena, are primarily an immense range of processes and information systems and a possibility of a global and total impact on society and the economy through information” (Oleński, 2001, pp. 42–43).

<sup>1</sup> *Knowledge Economy Index (KEI)* – a WBI indicator in the interval from 1 to 10 aiming to help countries identify the challenges in the process of building a KBE and enabling country comparisons. KEI is a part of a comparative methodology *Knowledge Assessment Methodology (KAM)* consisting of 148 structural and qualitative variables calculated for 146 countries to measure their performance on the KBE pillars (WBI, 2015).

<sup>2</sup> Although in 2012 Croatia was not a EU member, it is listed in the presented comparison.

## Professional services in KBE: information brokerage

Progress towards KBE is inextricably linked with the upsurge of professional services in which knowledge is the core product offered. It is directly related to the current global trends, among which an increase in demand for highly specialized expertise, workforce mobility, interdisciplinary occupations, and outsourcing services should be regarded as crucial (Matysiewicz, Babińska, Smyczek, 2014, p. 35).

Due to the heterogeneity of professional services, their definitions tend to be enumerative. Based on his literature studies on professional services, A. von Nordenflycht lists: accounting, law, consulting, marketing, physician practices, insurance brokerage, software development, research services, and education. In Polish literature studies professional services are equated with *liberal professions*<sup>3</sup> (Marie, 2014, p. 233; Rogoziński, 2001, p. 14); or *business services* (Chłodnicki, 2004, p. 11; Ilnicki, 2009, p. 55; Matysiewicz, Babińska, Smyczek, 2014, p. 17). Although being multifarious, the professional services are determined by following conjoint features: high qualifications and expertise of a service provider supplemented by their interpersonal skills; linkage with the field of science; high degree of intangibility with process rather than product orientation; a significant level of customization and interaction; uniqueness and low degree of standardization (Matysiewicz, Babińska, Smyczek, 2014, pp. 27–29; Netland, Alfnes, 2007; Rogoziński, 2002, p. 85; Silvestro, 1999, p. 401).

Owing to the inseparability of a professional service from the service provider, the contractor must be regarded as a crucial factor. In the context of KBE, a 21<sup>st</sup> century professional should excel not only in the professional knowledge, but also should have remarkable mental and personality traits (empathy, integrity, ability to foresee the consequences of their own actions in the context of the service provided, constant self-development and long-life learning) and should be guided by ethical standards. Namely a person who respects the dignity of others and progresses in accordance with the code of professional ethics can be recognized as fully professional (Bartkowiak, 2001, p. 39; Bennion, 1969, p. 9; Śpiewak, 2014, pp. 33–34).

Infobrokering services are a contemporary demonstration of professional services in KBE since special knowledge about information and ICT together with unique searching strategies needs to be applied in the service providing process – an information broker is a mediator between information sources and the customer. R.O. Manson (1990, pp. 125) states: “[an infobroker] should have one basic purpose in mind: to get the right information from the right source to the right client at the right time in the form most suitable for the use to which it is to be put and at a cost that is justified by its use”.

<sup>3</sup> Under Polish law *liberal professions* are regulated by The Act of 20 November 1998 on flat-rate income tax from some revenues earned by natural persons (Ustawa, 1998).

E.P. Nowak (2006, p. 53) underlines the problem of information relevance, its assessment and accreditation in view of the digital forms of information dissemination via the Internet. Therefore, information intuition based on experience is crucial (Hrabiec-Hojda, 2013, p. 92). Supplementary to possessing technical knowledge and searching skills, an infobroker must take a stance in unique, uncertain, ambiguous situations involving value conflict. Accordingly, knowledge, experience, and skills should be joined by professional ethics. Additional requirements for practicing the infobrokering profession are: foreign languages, speed reading, computer fluency, and interpersonal skills helping to identify customers information needs and facilitate positive relationships (Kowalska, 2015, p. 171).

Under the *International Standard Classification of Occupations* (ISCO-08) the infobrokering profession is put in the major group 2: *Professionals*, the sub-major group 26: *Legal, social and cultural professionals*, the minor group 262: *Librarians, archivists and curators*, the unit group 2622: *Librarians and related information professionals* (ILO, 2015). *Polish Standard Classification of Occupations* (KZiS 2010)<sup>4</sup> lists an information broker (researcher) under a 262204 code. According to *Statistical Classification of Economic Activities in the European Community* (NACE, Rev. 2) infobrokering services are noted in section J: *Information and communication*, division 63: *Information service activities*, group 63.9: *Other information service activities*, class 63.99: *Other information service activities n.e.c.* (Eurostat, 2008).

The unique features of information brokerage together with its classifications, both for the profession and services, confirm that infobrokering is the exemplification of professional information services in modern KBE.

## Infobrokering services in Poland in contrast to the Leader and the Laggard of KB in EU

According to data gathered by Eurostat, the number of enterprises identifying their activity with NACE Rev. 2 code J63.99 steadily rose in Poland from 579 in 2008 to 1.057 in 2012. In comparison with the Leader (Sweden: 220 enterprises in 2012) and the Laggard (Bulgaria: 603 enterprises in the same year) KBE implementation among EU countries situates Poland at the forefront of the ranking (fig. 2). Surprisingly, in each analyzed year between 2008 and 2012 Sweden had the lowest number of enterprises providing infobrokering services (tab. 1).

<sup>4</sup> Minister of Labor and Social Policy's Regulation of 7 August 2014 on occupation classification for the purpose of labour market and its scope of application (Rozporządzenie, 2014).

Table 1. Number of enterprises identified by NACE Rev. 2 code J63.99

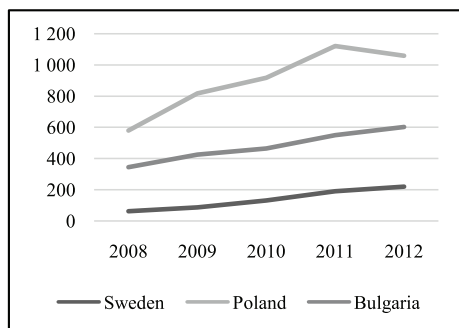
Countries	2008	2009	2010	2011	2012
Sweden	63	88	131	190	220
Poland	579	817	916	1 120	1 057
Bulgaria	345	426	465	550	603

Source: Eurostat (2015).

Simultaneously, the number of employees in enterprises encoded J63.99 was the highest in Poland in 2012 compared to Sweden and Bulgaria. Although there was a sudden decline in 2010, two years later the number of employees in infobrokering services in Poland went back to the 2008 level of around 1.800. Despite being the KBE Leader, the lowest number of workforce in Sweden's information services shows its underdevelopment in this sector (fig. 3).

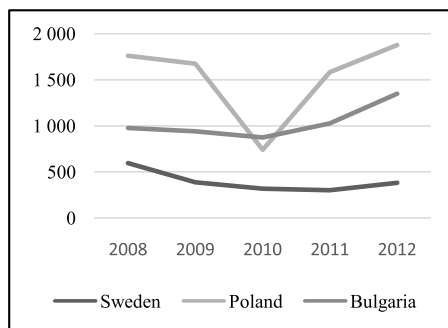
Furthermore, Poland leads the statistics regarding the turnover as well as value added at factor cost (fig. 4 and 5) in infobrokering services. With both indicators the same trend showing the decrease in 2010 can be noticed, nevertheless the numbers for Poland in 2012 reached 106.3 and 43.5 million euros respectively and doubled those for Sweden (tab. 2 and 3).

Figure 2. Number of enterprises identified by NACE Rev. 2 code J63.99



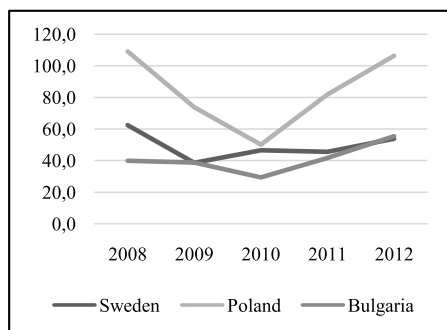
Source: Eurostat (2015).

Figure 3. Number of employees in enterprises identified by NACE Rev. 2 code J63.99



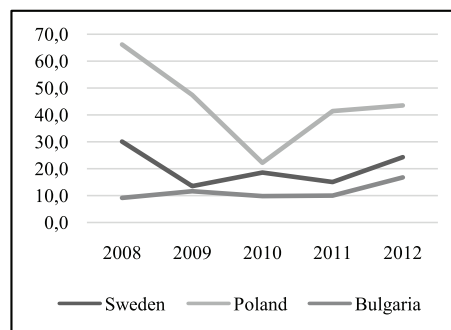
Source: Eurostat (2015).

Figure 4. Turnover of enterprises identified by NACE Rev. 2 code J63.99 in millions EUR



Source: Eurostat (2015).

Figure 5. Value added at factor cost for enterprises identified by NACE Rev. 2 code J63.99 in millions EUR



Source: Eurostat (2015).

Table 2. Turnover of enterprises identified by NACE Rev. 2 code J63.99 in millions EUR

Countries	2008	2009	2010	2011	2012
Sweden	62,4	38,6	46,6	45,6	53,8
Poland	109,1	73,8	50,1	81,9	106,3
Bulgaria	39,8	38,8	29,3	41,6	55,5

Source: Eurostat (2015).

Table 3. Value added at factor cost for enterprises identified by NACE Rev. 2 code J63.99 in millions EUR

Countries	2008	2009	2010	2011	2012
Sweden	30,1	13,5	18,6	15,0	24,3
Poland	66,2	47,4	22,2	41,4	43,5
Bulgaria	9,1	11,6	9,8	10,0	16,7

Source: Eurostat (2015).

The obtained data highlights that although Poland is not a frontrunner of EU countries implementing KBE, its performance in information professional services such as infobrokering services could be given as a good example of the KBE principles execution.

## Conclusions

The development of ICT in the 20<sup>th</sup> century has revolutionized the transmission of information and facilitated the effective communication, distribution, assimilation, and development of ideas and knowledge. Global trends such as increasing demand for syndicated, aggregated, and verified information together with transformations of workforce

and labor relations have led to the development of infobrokering services exemplifying modern professional services in the KBE environment. Information brokerage is highly customized and requires not only professional knowledge on information acquisition and processing but also special personality features and ethical conduct of an information broker.

Poland is not a leader in implementing KBE, nevertheless statistical data on information services encoded J63.99, including infobrokering services, prove its progress and improvement compared both to the Leader and the Laggard of KBE rankings among EU countries. In dynamically changing and knowledge-dependent conditions shaped by digitalization, globalization, and innovation, the development and position of information brokerage services in Poland undoubtedly should stimulate other sectors towards KBE.

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## Abstract

The reflections on the topic of this paper are focused on infobrokering services which are considered as professional services from the perspective of the knowledge-based economy. The article describes key macro and microeconomic transformations associated with a new paradigm of knowledge-based economy. Simultaneously, the description of infobrokering services is accomplished in the context of professional services. Finally, the infobrokering services' condition in Poland is exemplified by comparison of a leader and a laggard from the EU countries aiming towards knowledge-based economy between 2008 and 2012.

## Usługi infobrokerskie w Polsce jako przykład usług profesjonalnych w gospodarce opartej na wiedzy

Rozważania będące przedmiotem niniejszego artykułu koncentrują się wokół usług infobrokerskich, które mogą być uznane za przykład usług profesjonalnych w gospodarce opartej na wiedzy. Opracowanie przedstawia kluczowe zmiany makro- i mikroekonomiczne, związane z nowym paradygmatem gospodarki. Równocześnie dokonano deskrypcji usług infobrokerskich w odniesieniu do usług profesjonalnych, a zaprezentowane dane statystyczne obrazują ich stan w Polsce w porównaniu z liderem (Szwecja) i maruderem (Bułgaria) rankingu państw UE wdrażających gospodarkę opartą na wiedzy w latach 2008–2012.