VILNIUS GEDIMINAS TECHNICAL UNIVERSITY

FACULTY OF BUSINESS MANAGEMENT

DEPARTMENT OF BUSINESS TECHNOLOGIES AND ENTREPRENEURSHIP

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MODEL OF KNOWLEDGE TRANSFER FOR THE DEVELOPMENT OF INTERNATIONAL ACTIVITIES IN KNOWLEDGE-INTENSIVE BUSINESS SERVICE SECTOR

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Antrosios pakopos studijų **Verslo vadybos** programos magistro baigiamasis darbas
Pavadinimas **Žinių perdavimo modelis plėtojant tarptautinę veiklą žinioms imlių verslo paslaugų sektoriuje**
Autorius **Rasa Misiūnaitė**
Vadovas **Eigirdas Žemaitis**

Kalba: anglų

Anotacija

Mokslininkai ir verslo profesionalai pripažįsta žinias kaip vieną esminių organizacijų išteklių, užtikrinančių tvarų konkurencinį pranašumą. Tačiau žinios skiriasi nuo žmogiškųjų ar finansinių išteklių, energijos ar iškastinio kuro. Žinios yra neapčiuopiamas, neturintis aiškių ribų ir dinamiškas išteklius (Nonaka ir Konno, 1998). Kyla klausimas ar toks fundamentalus skirtumas suteikia teisę žinias naudoti neatsakingai, ar dar blogiau – švaistyti? Autorė identifikuoja problemą, jog organizacijoms vis dar stinga praktinių įrankių, padedančių efektyviai perduoti žinias. Organizacijos nestebi žinių kiekio skirtinguose žinių vadybos etapuose, todėl nekontroliuojamas žinių įsisavinimas, net ir žinant, kad naujos žinios reikalauja laiko, finansinių ir žmogiškųjų išteklių. Toks kontekstas žinių vadybos procesus traukia į akląją zoną ir užkerta kelią tvariam žinių naudojimui, kuris ypač svarbus tarptautinę veiklą vykdančioms organizacijoms. Šiame darbe nagrinėjamas žinioms imlus verslo paslaugų sektorius, kuris pasirinktas dėl galimai ryškiau išreikštų žinių vadybos procesų ir su žiniomis susijusių iššūkių. Pagrindinis darbo tikslas – sukurti konceptualų žinių perdavimo modelį plėtojant tarptautinę veiklą žinioms imlių verslo paslaugų sektoriuje. Modelio tikslas – pagerinti žinių įsisavinimą organizacijoje ir pasiūlyti priemones jų matavimui. Šešių etapų modelis veikia kaip daugiapakopės gairės ir jungia tarptautinio, nacionalinio bei organizacinio lygmens įžvalgas. Modelis sukurtas remiantis kompleksiška tyrimo metodika, apimančia mokslinės literatūros analizę, tendencijų analizę, sektoriaus ekspertų klausimyną, daugiakriterį sprendimų priėmimo metodą TOPSIS. Šis darbas prisideda prie žinių vadybos teorijos ir kuria praktinę vertę žinioms imlių verslo paslaugų sektoriaus profesionalams. Darbo apimtis – 77 puslapiai teksto be priedų, 12 iliustracijų, 12 lentelių, 76 bibliografiniai šaltiniai. Atskirai pridedami darbo priedai.

Prasminiai žodžiai: Žinių perdavimas, žinių įsisavinimas, žinioms imlios verslo paslaugos, žinių perdavimo modelis, tvarus žinių naudojimas, žinių švaistymas, žinių vadyba, su žiniomis susiję iššūkiai, žinių matavimas

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Master Degree Studies **Business Management** study programme Master Graduation Thesis

Title	**Model of Knowledge Transfer for the Development of International Activities in Knowledge-Intensive Business Service Sector**
Author	**Rasa Misiūnaitė**
Academic supervisor	**Eigirdas Žemaitis**

Thesis language: English

Annotation

As recognized by the scientist and agreed by the business professionals, knowledge is an essential resource, ensuring an organisation's sustainable competitive advantage. However, knowledge differs from human and financial resources, energy, or fossil fuel. It is an intangible, dynamic, and boundaryless resource (Nonaka and Konno, 1998). The question is, does this fundamental difference give a right to use knowledge carelessly or, even worse – waste it? The author identifies the problem: organisations lack practical and systemised tools for effective knowledge transfer, they do not track the amount of knowledge at different knowledge management stages, so there is no control over the absorption of knowledge, although the acquisition of new knowledge requires time, financial and human resources. This context puts organisations in a blind spot regarding the essential organisational resource and prevents sustainable knowledge usage, which is an even more significant challenge for organisations implementing international activities. Due to the potentially more expressed knowledge management processes and knowledge-related challenges, the paper is based on the knowledge-intensive business services (KIBS) sector. The work's main aim is to create a conceptual model of knowledge transfer for the development of international activities in KIBS. The model's goal is to improve organizations' absorption of knowledge and suggest knowledge measurement and tracking activities. The six-stage model works as multi-level guidance and embodies the insights from a global context, state- and organisational-level. It is based on a complex research methodology, including scientific literature analysis, macrotrend analysis, industry experts' questionnaire, and a multi-criteria decision-making method TOPSIS. The work contributes to knowledge management theory and creates practical value for knowledge-intensive business services professionals. The thesis consists of 77 p. text without appendixes, 12 figures, 12 tables, 76 bibliographical entries.

Keywords: Knowledge transfer, knowledge absorption, knowledge-intensive business services, KIBS, knowledge transfer model, sustainable use of knowledge, knowledge waste, knowledge management, knowledge-related challenges, knowledge measurement

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INTRODUCTION

The business landscape faces a significant transformation and phenomena, which was only a theoretical prediction a few decades ago. New context disrupts traditional business models and encourages new industries to emerge, followed by an increasing number of micro and small enterprises. Technologies are developing exponentially, and internationalisation became a "new normal", which helps to fight hyper-competition and facilitates it simultaneously. These and other factors force companies to look for sustainable competitive advantage. As recognised by scholars and business professionals, one of them is knowledge (Levallet & Chan, 2019; Rupčić, 2017; Salunke, Weerawardena & McColl-Kennedy, 2019; Zieba, Bolisani, Paiola & Scarso, 2017). According to Nonaka and Konno (1998), knowledge is an intangible, boundaryless, and dynamic resource with no value if not used when needed. Knowledge differs from human or financial resources, energy, or fossil fuel. The question is, does this fundamental difference of the resource give a right to use it irresponsibly or, even worse – waste it? Growth of knowledge's importance encourages the need for employees' new skillset and a better understanding of knowledge management. This study focuses on knowledge transfer, identified as one most often analysed knowledge management processes (Raudeliuniene & Szarucki, 2019), and knowledge absorption.

Problem. The author identifies the problem that organisations lack practical and systemised tools for effective knowledge transfer. They do not track the amount of knowledge at different knowledge management stages, so there is no control over the absorption of knowledge, although the acquisition of new knowledge requires time, financial and human resources. This context puts organisations in a blind spot regarding the essential organisational resource and prevents sustainable knowledge usage, which is an even more significant challenge for organisations implementing international activities. Due to the potentially more expressed knowledge management processes and knowledge-related challenges, the paper is based on the knowledge-intensive business services (KIBS) sector, which receives an increasing interest in academia (Doloreux & Laperrie`re, 2014).

Topicality. Numerous authors recognize knowledge as a resource. However, as a resource, knowledge is affected by growing consumerism, which means an increasing amount is consumed but not used. It is also too complicated for companies to measure the actual value created by new knowledge, preventing conscious knowledge usage. This side of the knowledge-related issues still gets too little attention in the scientific field. The author suggests knowledge loss and waste risks can be reduced if knowledge is transferred more effectively and knowledge absorption improved. Author hypothesize:

H1: Knowledge absorption in KIBS organisations is insufficient due to the inefficient knowledge transfer process.

H2: Knowledge is an intangible and unlimited resource, thus encouraging irresponsible use and waste of knowledge in organisations.

Research object: knowledge absorption in the KIBS sector.

The main aim: to create a conceptual model of knowledge transfer for the development of international activities in KIBS that improves organizations' absorption of knowledge and suggests knowledge tracking activities.

Tasks set for achieving the main aim:

1. To investigate scientific literature on knowledge management, identify classic and modern approaches to the main stages and attributes of knowledge transfer and knowledge absorption measurement.
2. To analyse the peculiarities of the KIBS sector and knowledge management related challenges identified in the scientific literature.
3. To perform macrotrends analysis and identify the best state-level practices that can influence knowledge transfer processes in KIBS.
4. To carry out the qualitative survey with experts from the KIBS sector for more profound knowledge of knowledge management's organisational practices.
5. To develop a knowledge transfer model for the development of international activities in KIBS, which would ultimately reduce the negative impact of identified knowledge related challenges in the KIBS organisation.

Methods or research. The research combines multiple research methods, including scientific literature analysis, macro trends analysis, pre-coded expert's questionnaire, multi-criteria decision-making method TOPSIS.

Practical value: study contributes to existing theoretical knowledge of knowledge management. It creates practical value for the practitioners since the developed model can be used as a practically applicable set of guidelines to increase knowledge absorption.

Limitations. Conclusions and recommendations provided in the study need additional empirical testing and validation.

The structure of the thesis. The study is structured into three chapters – theoretical framework, research methodology, and research results. Conclusions, reference list, and appendices are presented at the end of the study.

1. THEORETICAL FRAMEWORK OF KNOWLEDGE TRANSFER IN KIBS

This chapter aims to investigate a theory in the field of knowledge management, which will become a backbone for further research. The chapter is organised into four sub-chapters: knowledge management, knowledge-intensive business services, internationalisation, and other challenges of KIBS and knowledge transfer measurement.

1.1. Classic and modern approaches to knowledge management

The importance of knowledge as a critical resource and a key to the competitive advantage of a modern company (Levallet & Chan, 2019; Rupčić, 2017; Salunke et al., 2019; Zieba et al., 2017) is growing exponentially. Nevertheless, while knowledge is such a trending term nowadays, the fundamental concept of knowledge might sometimes get out of the picture. The term *knowledge* itself is a broad concept and primarily covers the classification of tacit and explicit knowledge. However, there few more angles on how to look at it. According to professor Spender (1996), knowledge can be classified into four types and accompanied by a different mechanism of transferring it:

- *Conscious knowledge:* this is primarily personal knowledge that is explicit and ready to be shared with others. There might be various methods to capture knowledge, i.e., emails, notes, paper or digital files, and other forms.

- *Automatic knowledge:* this is also personal knowledge, mostly suited for less creative activities, for example, routine activities. Examples of automatic knowledge transfer are documentation of specific processes, job shadowing, instant messaging, email conversations, video calls, other forms.

- *Objectified knowledge:* this is the knowledge that was captured at the social level of the organisation. Examples of such knowledge are standardised operational procedures, formal group training sessions, databases, and various software systems to improve knowledge management.

- *Collective knowledge:* this type of knowledge is embedded in organisations' social norms, culture, and values. Collective knowledge is a so-called "social capital", knowledge rooted in relationships among employees. Collaborations and social activities usually facilitate the transfer of knowledge among groups and individuals inside the organisation.

While going further into this study, the reader will face a repetitive statement that knowledge and knowledge related management processes are highly complex. Knowledge

management is an excellent example of this complexity. Knowledge management, as a discipline is emerging in the scientific landscape (Raudeliūnienė, Davidavičienė & Jakubavičius, 2018). Knowledge management consists of multiple stages and attributes analysed in this study, including knowledge absorption and knowledge transfer. Knowledge transfer is a term broadly and differently described by scientists, and it is perceived as one of the most often studied knowledge management processes (Raudeliuniene & Szarucki, 2019). This study identifies and later compares scientific approaches to knowledge management stages, attributes, and knowledge transfer components.

The pragmatic way to describe knowledge transfer is the transmission of messages or information from the source, interchangeably identified as a "sender" or "supplier", to the recipient, interchangeably called "knowledge receiver" or "knowledge user" (Szulanski, Cappetta & Jensen, 2004, Tangaraja, Mohd Rasdi, Abu Samah & Ismail, 2016). Although knowledge transfer is a frequent research object, some authors suggest, there is still some confusion in the knowledge management theory (Tangaraja et al. 2016). Knowledge transfer is sometimes labeled differently, and scientists should pay attention not to use the terms "knowledge transfer" and "knowledge sharing" interchangeably to avoid misunderstanding. Tangaraja et al. (2016) analyses knowledge transfer and knowledge sharing differences (see table 1) and suggests that knowledge transfer is a more complicated process that occurs at multiple levels.

Table 1. Differences between knowledge sharing and knowledge transfer.

Concept	Characteristics
Knowledge sharing (KS)	It is a critical stage in KT (using personalised strategy). Occurs at an individual level (unidirectional sharing)—people-to-people process.
Knowledge transfer (KT)	Involves significant participation of source (sender who shares the knowledge) (using personalization strategy). It can occur at an individual and higher level, such as group, product line, department, or division and organisation. More complicated than KS.

Source: Tangaraja et al. (2016)

Further focus on this study is dedicated only to knowledge transfer, including tacit and explicit knowledge types. Knowledge transfer, despite the primary goal of information or message transition to another actor, is described differently by different authors, highlighting different aspects of KT (see table 2).

Table 2. Knowledge transfer definitions in perspective.

Author	Year	Definition
Nobeoka; Nobeoka & Cusumano	1995; 1997	*Exchange* of knowledge through simultaneous and integrated management.
Argote	1999	*The process* by which knowledge is deliberately moved across organisational boundaries to increase or leverage a firm's knowledge base.
Szulanski	2003	*A dyadic (direct) exchange* between a source and a receiving unit involved in a transfer event.
Szulanski et al.	2004	*Transmission* of a message from a source to the recipient in a given context.
Joshi et al.	2007	*Activities* of exchanging explicit or tacit knowledge between two agents, during which one agent receives and applies the other agent's knowledge.
Peng et al.	2014	*The process* through which the knowledge state of one actor is affected by another and the outcome is, knowledge is passed from the source to the destination.
Bagheri et al.	2015	*The process* by which actors share knowledge among themselves through ongoing interactions.

Based on multiple authors.

At the end of the XX century, KT was described as an *exchange* of knowledge (Nobeoka, 1995; Naboeka & Cusumano, 1997). The word itself suggests, KT was perceived as a two-way process, where each participating party could do both functions - send and receive knowledge. Within time the definition of knowledge transfer has changed, the role of the receiving party as well: from the previously suggested idea of double role of each party, the receiver later or is perceived only as a recipient of transferred knowledge, without the need to transfer some information in return (Szulanski et al., 2004; Joshi & Sarker, 2007). Recent scientific sources suggest that KT is a "process" (Bagheri, Kusters & Trienekens, 2015) that consists of continuous interactions between two or more actors.

Within time, knowledge transfer role and level of integration in the organisation is changing. It is becoming a more integrated, seamless, and natural process in different sectors. Knowledge transfer is changing from a fragmented, "on-off" to "always-on" process. The process of knowledge transfer consists of a set of actions (also called "stages"). The same set of actions is often combined into a model to provide a visual structure. These models vary by scientists and their interpretations, context, or sector. Frank and Duarte Ribeiro (2014) conducted a theoretical analysis to compare 14 knowledge transfer models. The authors classified the stages of these models into 5 phases. In addition to classical approaches to knowledge transfer, models of this study are systematised in table 3.

Table 3. Knowledge transfer phases and matching stages.

Phase 0: knowledge generation in the source	
Stages	Authors and dates
Knowledge production; Individual's knowledge production; Intra-project learning; Enlargement of an individual's knowledge; Sharing tacit knowledge; Storage	Markus, 2001; Alavi & Leidner, 2001; Bartezzaghi et al., 1997, Boer et al., 2001; Nonaka, 1994; Cartile & Rebentish, 2003
Phase 1: knowledge identification	
Stages	Authors and dates
Awareness; Association; Acquisition; Capturing and documenting; Storage; Abstraction; Acquiring; Initiation; Retrieval; Generative variation	Trott et al., 1995, Major & Cordey-Hayes, 2000, Liyanage et al., 2009; Marsh & Stock, 2003; Gilbert & Cordey-Hayes, 1996; Markus, 2001; Alavi & Leidner, 2001; Bartezzaghi et al., 1997; Boer et al., 2001; Szulanski, 2000; Abou-Zeid, 2005; Carlile & Rebentisch, 2003; Zollo & Winter, 2002
Phase 2: knowledge processing	
Stages	Authors and dates
Collection; Summarisation / Association; Translation / Interpretation; Packaging knowledge; Acquisition; Transformation; Association; Organisation and retrieval; Embodiment; Conceptualisation; Implementation; Transformation; Internal selection; Interrelation	Major & Cordey-Hayes, 2000; Markus, 2001; Liyanage et al., 2009; Alavi & Leidner, 2001; Bartezzaghi et al., 1997; Nonaka, 1994; Szulanski, 2000; Carlile & Rebentisch, 2003; Zollo & Winter, 2002; Abou-Zeid, 2005
Phase 3: knowledge dissemination	
Stages	Authors and dates
Communication; Distribution; Distributing knowledge; Transfer, transferring; Dissemination; Replication	Trott et al., 199; Gilbert and Cordey-Hayes, 1996; Marsh & Stock, 2003; Markus, 2001; Alavi & Leidner, 2001; Boer et al., 2001; Bartezzaghi et al., 1997; Zollo & Winter, 2002
Phase 4: knowledge applying in the recipient	
Stages	Authors and dates
Assimilation; Interpretation; Retention; Application; Commitment; Reusing knowledge; Crystallization and justification; Networking knowledge; Ramp-up (being using); Integration; Acceptance; Retention; Implementation; Internalization	Trott et al., 1995; Major & Cordey-Hayes, 2000; Marsh & Stock, 2003; Liyanage et al., 2009, Alavi & Leidner, 2001, Bartezzaghi et al., 1997, Gilbert and Cordey-Hayes, 1996, Boer et al., 2001; Markus, 2001; Nonaka, 1994; Szulanski, 2000; Gilbert and Cordey-Hayes, 1996; Zollo & Winter, 2002; Abou-Zeid, 2005

Source: Frank, Duarte Ribeiro (2014).

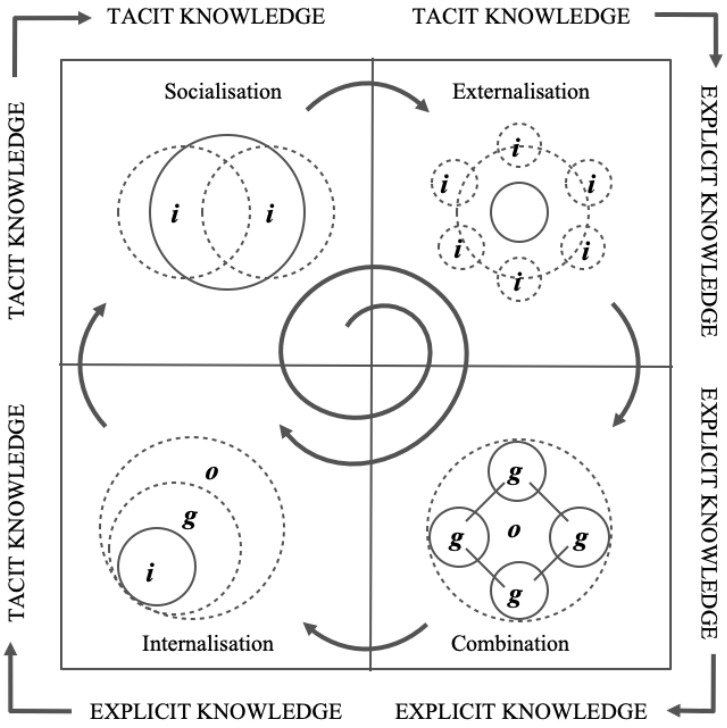
This significant analysis of Frank and Duarte Ribeiro (2014) proves there are multiple approaches to knowledge transfer stages. There are also a few very commonly identified stages of knowledge transfer:

- knowledge awareness and acquisition.
- communication or transfer.
- knowledge application.

Analysis of multiple scientific perspectives towards knowledge transfer concludes that knowledge management is a highly complex process with multiple stages in different contexts and times. Each stage of knowledge transfer has a unique function and can be affected by various internal and external factors. What is more, each stage can be measured in different ways. However, knowledge transfer measurement is perceived as one of the most complicated knowledge management activities due to its intangible nature (Chen & Blanchard, 2009 in Ragab & Arisha, 2013). Further analysis of the knowledge transfer and knowledge absorption measurement is presented in chapter 1.4.

In the field of knowledge management and other knowledge related disciplines, Japan and its scientists played an influential role. During the end of the XX century, East Asia was facing political and economic transformations, the spirit of reforms, and more active economic collaboration with other countries (Shin, Kehm & Jones, 2018). This context encouraged the concept of "knowledge society", raising the knowledge as a vital asset for participation in a global economy. Knowledge was perceived as a crucial, priority skill in most East Asia countries and influenced higher education priorities by the time (Shin et al., 2018).

Influential Japanese scholars Ikujiro Nonaka and Noboru Konno in 1998 introduced the concept of "ba", "a shared space that serves as a foundation for knowledge creation", and a famous SECI model (see figure 1). SECI model, as a framework, proposes the idea that knowledge can be created in various "places" or levels – individual, group, or organisational level. The model suggests and explains how tacit knowledge, emphasised in Japan, can be turned into explicit knowledge, preferred in the West, and how explicit knowledge can be absorbed and become material for a new tacit knowledge, which leads knowledge creation and sharing to become a self-transcendental, spiral, on-going process ultimately.



i: individual; ***g***: group; ***o***: organisation

Figure 1. Spiral Evolution of Knowledge Conversion and Self-transcending Process

Source: Nonaka and Noboru Konno (1998).

The model consists of four stages of "ba":

1. *Socialization:* stage, where individual tacit knowledge, through social activities or working together, is shared among individuals, be it employees, interactions with supplies, or communication with clients.
2. *Externalization:* stage, meant for expressing tacit knowledge into forms, understandable for others, like words, visuals, texts.
3. *Combination:* this stage is oriented into turning already explicit knowledge into more systemised knowledge, structuring it into the understandable, shareable, and acceptable format, and ideally already suggesting practical steps for new knowledge application.
4. *Internalization:* the main goal in this stage is to turn new explicit knowledge into organisational tacit knowledge – new habits, new values, and beliefs.

Despite the fact, SECI model was introduced twenty years ago in a rapidly changing business and organisational context, it is still relevant and can be used as a guideline for more effective knowledge transfer and sharing in international organisations.

Ikujiro Nonaka and Hirotaka Takeuchi (1995) contributed to existing theoretical knowledge with one more knowledge related concept - a knowledge creating-company.

Knowledge creating company can overcome obstacles like hyper-competition, shifts of markets, product, and service parity by continuously creating new knowledge and effectively applying it in existing technologies and products. However, practice in real life might sometimes be far from theory, and despite all benefits of a knowledge-creating company, it is still a complicated task for managers to run it effectively. The main reason is a misunderstanding of the very concept of knowledge and uncertainty about using it.

Companies whose management approaches are rooted in Western culture often understand knowledge as explicit knowledge only, meaning systematic data, formal procedures, and identifiable value (for example, increase in sales, decrease in costs). In opposition to such a view, a Japanese approach is applied in numerous global Japanese companies such as Honda, Matsushita, Canon, Sharp, and others. The Japanese way to approach knowledge is much more delicate, highly focused on tacit knowledge, personal and subjective insights, and even intuition. Such an approach leads to the understanding organisation as a living organism supported by a collective sense rather than a machine, which is common in the Western world. In a successful knowledge-creating company, employees are driven by a company's shared vision and idea; they are inspired and motivated to create new knowledge, support colleagues in doing go, and feel like entrepreneurs. As the main take away is the idea that companies with the Western world point of view to management would learn from the Japanese, it is not enough simply to copy their manufacturing techniques. It is very much based on knowing how to create knowledge in an organisation.

Investigated theoretical sources suggest that the importance of knowledge is growing dramatically and puts it in the strategical spotlight among numerous companies and business sectors. However, knowledge is not an *ordinary* resource - it is highly complex, sometimes even intangible, and hardly measurable. Companies need to improve their skills and performance of knowledge management continuously. In the following part of the study, the author will analyze the sector primarily driven by knowledge – Knowledge-Intensive Business Services. The author will introduce the reader to the specifics of the sector, its peculiarities, and the knowledge related challenges it is facing.

1.2. The empirical analysis of knowledge-intensive business services

KIBS became a topic of increasing attention over the past few decades (Doloreux & Laperrie`re, 2014). This interest was influenced by the changing business environment and shifted towards services from manufacturing. More advanced economies are continuously shifting towards services simultaneously; their attention to the manufacturing sector is

decreasing (Berardino & Onesti, 2018). The transition towards a service-oriented economy is broadly recognised as a gradual turn to a developed economy from a developing one (Cheng & Blanchard, 2009). Service driven economies are not only growing the employment rate and added value to a country, yet they naturally increase the role and importance of services in non-service-oriented sectors, like manufacturing (Berardino & Onesti, 2018). The Baltic States, Estonia, Latvia, and Lithuania are an excellent example of transition towards services. During the Soviet Union times, economies in these particular countries were based on central planning and manufacturing. After 1990 the Baltic States started to gradually move towards a market economy, attract foreign direct investment, and reshape themselves. However, there is still a substantial gap between the Baltic States and the European Union's larger economies regarding KIBS integration and its role in manufacturing (Berardino & Onesti, 2018).

KIBS refers to a business service sector, where knowledge is the primary recourse and competitive advantage (Zieba et al., 2017). In scientific theoretical literature, KIBS are also interchangeably referred to as professional services or integrated solutions (Santos, 2019). KIBS sector covers a broad scope of business sectors such as software design, computer services, external research and development services, consulting, various legal services and accountancy, advertising services as well as architecture and other sectors (Miles, 2011; Zieba et al., 2017; Santos, 2019). Common in these sectors is that their competitive advantage is based on organisational knowledge, creativity skills, and innovation (den Hertog, 2000; Grant, 1996; Kogut & Zander, 1992 in Miles, 2011). Naturally, KIBS is often related to innovation and applies multiple innovation management processes and trends analysed by scientists (Zieba et al., 2017). As KIBS, by its nature, is expected to innovate, the level of innovation in KIBS depends on knowledge management activities' effectiveness.

These activities are as follows (based in Scarso & Bolisani, 2009 and Dıaz-Dıaz & De Saa-Perez, 2014 in Zieba et al., 2017):

- *Access* to knowledge from external sources: this activity is essential when reducing the gap of internally available knowledge and innovation relevant knowledge available in the environment.
- *Absorption* of knowledge acquired externally and its merge with existing knowledge, which leads to new knowledge.
- *Storage* of knowledge: this activity is vital in order not to lose knowledge; find it use it again when it is needed.
- *Retrieval* and use of the stored knowledge.
- *Delivery* of new knowledge to customers.

KIBS sector is continuously growing. According to Eurostat, the employment rate in high- and medium-high technology manufacturing and knowledge-intensive services grows each year steadily and in 2018 reached 46 % of total employment. Drivers that influence the growth of KIBS are numerous, including (according to Eurofound):

- Service outsourced from clients.
- Growth of demand for various technological knowledge.
- Growth of demand for specialised knowledge, for example, social, administrative, or regulatory related issues.
- Globalization and internationalisation and its related issues.
- Increasing focus on a knowledge-based economy, its services, and production.
- New challenges related to knowledge workers and labor markets.

KIBS, as a business sector based on knowledge, is required and expected to innovate. To do so, such companies relate to internal and external knowledge sources (Zieba et al., 2017). Internal knowledge sources in KIBS companies could be employees and their knowledge; research and development (R&D) departments; internal training or education programs; in-house documents of explicit knowledge.

As was already emphasised while analyzing Japan's influence and approach on knowledge-creating companies, employees of KIBS are critical. The skills of employees and their professionalism are what KIBS companies rely on (Doloreux & Shearmur, 2010), so companies improve their employees' skill sets. Interestingly, there is a proven link between a company's R&D employees' qualification and innovation Caloghirou et al. (2004). Regarding the external knowledge sources relevant for KIBS, these are few examples (based on Zieba et al., 2017): various consultants, suppliers, other supply chain members, company's clients, competitors, education organisations, universities, research institutes, conferences, fairs, exhibitions, meetings, external ideas, if to consider an open innovation concept. KIBS companies gather new knowledge might vary on their specifics, since KIBS as a sector, covers a broad scope of services. In order to provide some more clarity, a more in-depth, more specific classification of KIBS exists in order to get narrow down such a broad sector of services. A narrower classification identifies a specific sector by the first letter, for example, t-KIBS for technology-based KIBS, p-KIBS for professional KIBS, c-KIBS for creativity based KIBS. The latest c-KIBS category includes the advertising agencies sector. Advertising agencies as KIBS might be specified in such a way due to its additional classification as a creative industry. Miles (2011) suggests that advertising agencies in KIBS can be classified as creativity-intensive business services, or CIBS, suggested by Masiello, Marasco, Izzo, & Amato in 2014). However,

KIBS remains the dominant term for knowledge-intensive business services, and alternatives are not widely applicable yet, even though this approach would highlight advertising agencies as services, requiring more creativity and cultural knowledge (Miles, 2011).

Worldwide, spending on advertising keeps growing. According to Statista, at the end of 2019, it reached 560 billion US dollars. The largest advertising market is the US, which in 2018 spend more than 229 billion US dollars in advertising. On average, annual spending on advertising grows 5 % a year. In Lithuania, advertising market growth is around 4,3 % a year (in 2018) and corresponds to 116 million euros a year (according to Kantar).

Be it advertising agencies, research institutes, architecture companies, or any other knowledge-driven service company, knowledge as a key to competitive advantage and the critical resource also brings challenges (Asrar-ul-Haq & Anwar, 2016). Further analysis will be based on international knowledge related challenges and megatrends, shaping how the KIBS sector operates now and might operate shortly.

Challenge – constant increasing need for new knowledge. The business landscape nowadays forces companies to invest a considerable amount of budget into activities related to new knowledge and skills. One of such activities is employee training programs and training services, which is a rapidly growing industry worldwide. Training Industry Magazine in 2019 published some training industry statistics:

- Total spending on training activities in 2019 reached 370,3 billion USD.
- On average, in 2019, investment in one learner was 1,289 USD.
- On average, an employee had 42,1 hours of training in 2019.
- Modern learning systems encourage continuous global spending, which is increasing rapidly from 2009 to 2017.

Why is there such a strong need for training? Nowadays, companies are challenged to attract young talents and ensure retention since job positions supply in some industries (mostly IT oriented) is higher than demand. This leads companies to develop strategies to improve employee satisfaction. According to “PR Newshire” (2019), 39% of employees in the USA consider the potential of future growth in an organisation essential to their job satisfaction. In addition to this fact, in 2018, the Workplace Learning Trends report by LinkedIn highlighted - 94% of employees say they would remain longer in companies that are investing in their professional development. Managers are forced by their employees to provide training possibilities since there is no other option to remain competitive in the job industry. Talent and their knowledge related issues dominate in the list of the most critical challenges faced by talent development experts and practitioners (see table 4).

Table 4. Top challengers of talent developers worldwide in 2020.

Challenge	Importance (%)
Getting managers to make learning a priority for their teams	49
Creating a culture of learning	42
Increasing employee engagement in learning	36
Teaching their employees to use technology more effectively	31
Scaling learning across the organisation	26
Understanding what skills to build or courses to recommend	22
Making sure that learners know where to find learning resources	22
Demonstrating the value of learning	21
Identifying skills gaps	21
Getting executive buy-in	17

Source: LinkedIn (2020).

As indicated in table 4, the most common global challenge is to get managers to encourage and support learning initiatives among their teams and create a learning-friendly environment, which would ultimately motivate employees to learn. The training industry's growth indicates an emerging need for new knowledge and new skills. However, while companies face an internal (by its employees) and external (by the new standard of a modern company) need for new knowledge, it is not only enough to provide tools of resources for it. It is vital to ensure new knowledge will find its place within the organisation.

Challenge – the human role in knowledge management. Knowledge and information are resources created and used by people. In order to meet modern company image, to have more of different perspectives, more diverse knowledge and fruitful new knowledge development process, numerous companies are encouraged to have employees of different generations – X (also called *baby boomers*), Y (also called *millennials*), Z. (Rupčić, 2017). This approach is highly beneficial because of the mentioned reasons, yet it also brings challenges. Members of different generations differ not only in their age but also, they have different value systems, perceptions, and attitudes towards learning and the communication process (Ebrahimi, Saives & Holford, 2008). Generalised differences between X and Y generations are presented in table 5 (based on Rupčić, 2017).

Table 5. Aspects of intergenerational differences.

Parameter	Generation X	Generation Y
Focus	Job content (job description)	Job context (connectivity and relations)
Behavior	Predominantly grounded	Predominantly scattered
Approach	Long-term, systems approach and emphasis on details	Short-term, fragmented approach and multitasking
Communication style	Predominantly formal and respectful	Predominantly informal and careless of hierarchy and authority

Source: Rupčić (2017).

As suggested in table 5, belonging to a particular generation suggests how willingly employees share knowledge. While some, by tendency younger, employees might see through the lens of individualism and perceive as a risk to reduce personal role and importance in the company while others perceived knowledge sharing with a great sense of purpose – shared knowledge is beneficial for a company. Belonging to a particular generation might also suggest what tools will be used to share the knowledge – while youngers employees are perfectly comfortable using social networks, their elder colleagues might prefer a face-to-face meeting and so on. Companies should pay attention to the age differences among their employees and develop the best practices, mutual mentoring for various age groups to ensure efficient knowledge sharing in the organisation and ensure "intergenerational diversity". Members of Generation Y can be beneficial in teaching their elder co-workers how to use new platforms, share new knowledge, while members of generation X can provide youngers with organisational knowledge and focus (Rupčić, 2017).

Challenge – knowledge transfer in global enterprise. As already mentioned, the human factor and different generations might cause both opportunities and threats. However, if KIBS company is operating globally, employees might be faced with way more challenges. Zahedi, Shahin & Babar (2016), in their study, provided a systematic review of 61 studies (2000 – 2014), which were focused on analysis knowledge sharing challenges in Global Software Development (GSD). Authors identified that analysed challenges could be systemised into 16 challenges can be classified into six themes (see table 6). These findings illustrate how such complex and sometimes intangible resources as knowledge can fail to be shared due to rational and emotional reasons – starting from the cost of knowledge sharing to the lack of openness of employees. The presented list of challenges proves the complexity of knowledge management again. During the analysis of studies on knowledge sharing challenges in GSD, Zahedi et al. (2016) also systemised used practices and strategies to support knowledge sharing. These practices are systemised into 16 examples and also classified by the same six themes.

Table 6. Knowledge sharing challenges and supporting motivational practices in GSD.

Theme	Challenge	Practice
Management	Ch1: Cost of knowledge sharing Ch2: Employee turnover Ch3: Low priority perception	Pr1: Temporary collocation Pr2: Incentives and motivations
Team Structure	Ch4: Vague role definitions between sites Ch5: Hierarchical structures	Pr3: Flexible communication structure Pr4: Clarifying work structure Pr5: Using boundary spanning roles Pr6: Forming virtual communities
Work Processes / Practices	Ch6: Documentation problems (missing, poor, outdated) Ch7: Shortcoming in maintaining group awareness Ch8: Communication challenge due to distance	Pr7: Frequent communication Pr8: Documentation Pr9: Joint work between sites
Team Cognition	Ch9: Contextual difference Ch10: Gap in Education and technical knowledge	Pr10: Fostering transactive memory (TM) Pr11: Identifying gaps and verifying understanding Pr12: Improving team qualification and expertise
Social Attributes	Ch11: Lack of trust and rapport Ch12: Fear Ch13: Lack of openness Ch14: Linguistic distance	Pr13: Social ties (trust and rapport) Pr14: Team cohesion
Tools	Ch15: Limitations of tools for knowledge sharing Ch16: Shortcomings in utilizing existing tools	Pr15: Providing Groupware Pr16: Novel techniques

Source: Zahedi et al. (2016).

This detailed analysis done by Zahedi et al. (2016) is significant evidence of how complex and challenging task is to manage knowledge sharing activities in a global company. Asrar-ul-Haq and Anwar (2016) developed a meta-review of 64 studies (from 2010 to 2015) published in "Journal of Knowledge Management" to analyse and systemize trends, issues, and challenges of knowledge management and knowledge sharing. Authors analysed more new sources than a study of Zahedi et al. (2016), which enables to compare if the identified issues and challenges were similar or not. Unlike Zahedi et al. (2016), Asrar-ul-Haq and Anwar (2016) did not systemize analysed scientific material into a more generalised structure, but presented each source by the authors, analysed issues, and trends. Based on this particular meta-review, systemised year-by-year knowledge related issues will be presented in appendix 1. Meta-review and presented systemization of knowledge sharing and transfer-related issues and challenges again prove how complex resource knowledge is. Issues with knowledge sharing and

transferring are highly different: organisational culture, team culture, personal motivation to share or, on the contrary – hide the knowledge, belonging to a particular generation, the relationship between employees and authorities, the relationship between headquarters and subsidiaries. This multi-context nature of knowledge-related issues suggests there is room for further research and investigations on managing knowledge in the most efficient and culturally acceptable manner. However, analysed meta-review and identified numerous trends and directions for future research indicates there might be no universal model to ensure the most efficient knowledge flow inside the organisation since each case is unique and influenced by different factors.

Challenge – knowledge internationalisation Companies are crossing their initial geographical borders more often – a process of internationalisation is becoming a natural part of a company's growth strategy. Multinational enterprises focus on using the local resources and coordinating activities across the countries of operation (Bathelt, Cantwell & Mudambi, 2018). As already identified, international companies face even more knowledge related challenges since new dimensions of knowledge management are being taken into account – relationship and communication between subsidiaries and subsidiaries relationship and communication with the parent company. As stated in numerous studies, particular frictions, barriers, and issues exist, ultimately reducing the impact of knowledge sharing. These barriers are formal (different work language, different systems, and tools) and informal (differences in beliefs, values, and traditions of doing things) as suggested by Bathelt et al., 2018). Authors developed a conceptual framework that suggests a structure of knowledge-driven relationships among international subsidiaries. Scholars suggest, these relationships depend on three phases: connecting, sense-making, and integration of knowledge (see figure 2). As illustrated, two regions/countries operate in different contexts, use different systems of innovation and production, are surrounded and influenced by different "knowledge ecologies" (Bathelt et al., 2018). These differences can create unwanted barriers, which can be overcome by three stages:

1. *Connecting* various channels, tools and practices used for knowledge flow activities.
2. *Sense-making*: a process of absorbing externally gained knowledge, its usage and adaptation in new knowledge creation.
3. *Integrating:* interactions among involved agents operating in different locations.

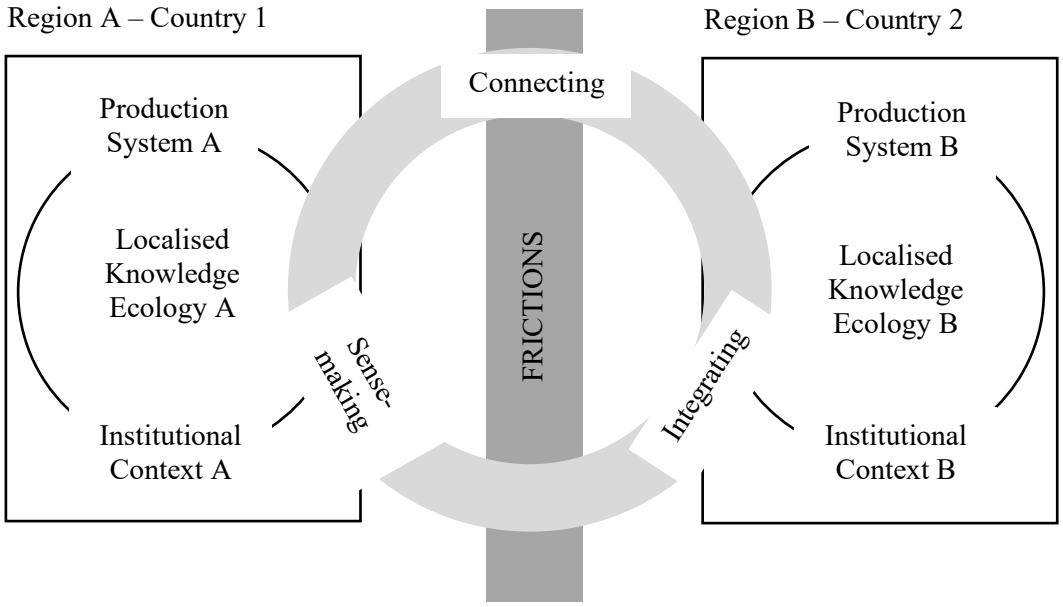


Figure 2. Overcoming frictions in transnational knowledge networks from the perspective of a multinational enterprise: connecting, sense-making and integrating

Source: Bathelt., Cantwell & Mudambi (2018).

It is clear that knowledge sharing among subsidiaries is crucial; however, it is crucial to admit that not all shared knowledge will be equally relevant in different countries. Despite this fact, multinational enterprises should encourage themselves to develop a knowledge-sharing culture.

Challenge - knowledge loss, waste, and retention. New and not yet broadly discussed among scholars is a challenge of knowledge loss, which appears when knowledge is not managed well, not transferred effectively, and can decrease effectiveness and decision making within an organisation (DeLong, 2004). While the concept of knowledge waste highlights a somewhat different risk – not using existing knowledge to its full capacity (Ferenhof, Durst & Selig, 2016). There are a few different approaches to think about knowledge waste, as suggested by Ferenhof et al. (2016):

- Not using existing knowledge: this means an organisation or its employers already own knowledge, yet it is not applied in daily practices, not used for solving complex problems. As will be discussed further, there can be numerous reasons owned knowledge is not being used within an organisation.
- Any failure in the process of knowledge conversion: this approach describes the situation when there are intentions and even an act of transfer of owned knowledge, yet it fails because of reasons on the sender or receiver side.

The risk of knowledge loss or waste is especially relevant for tacit knowledge (Asrar-ul-Haq & Anwar, 2016). Companies are facing the need for understandable guidelines in order to improve knowledge sharing.

One more knowledge related challenge in knowledge-driven organisations and companies is knowledge retention. This is a concept of knowledge absorption and continuous usage of it. Due to the workforce dynamics and socio-demographic trends, conscious or unconscious resistance to acquire new knowledge, technological crisis (IT systems breakdowns or so), and another unexpectedness (Levallet & Chan, 2019). In order to improve knowledge retention and its negative impact, companies should update their knowledge management practices. Companies should enrich them with knowledge transfer plans which are on-going and should include several aspects (Levy, 2011; Massingham, 2014, 2018):

- Prioritization: what are the focus areas in knowledge transfer, which knowledge assets are the primary and the most important ones.
- Planning: knowledge transfer procedures planned in advance.
- Implementation: the actual act of knowledge transfer.
- Monitoring: tracking of knowledge transfer activities.

Led by Human Resources (HR) and knowledge management departments (if any), companies are continuously trying various initiatives like sharing of the best practices, storytelling, job position shadowing. However, as Levy (2011) suggested, more specific approaches are needed to ensure more effective knowledge retention and reduce the effect of knowledge loss.

Analysis of the KIBS sector, its peculiarities, and knowledge related challenges highlight the highly complex side of knowledge as a resource. While knowledge is a modern company's key to success against the competition, it is also a burden requiring constant effort, new skills, and investment. Despite the organisational knowledge management related challenges rooted in culture, systems, and processes, external forces and trends affect the future of KIBS. Increasing demand for new knowledge accompanied with the risk of losing knowledge or, even worse, knowledge waste are two contradicting forces, which puts companies in a constant need to improve knowledge management.

Nevertheless, while treating knowledge as a resource, organisations need to evaluate what value it creates, if it is worth investing in new knowledge, or how beneficial existing organisation knowledge is. The next chapter will analyse different scientific approaches and knowledge measurement methods, focusing on the measurement of knowledge transfer and knowledge absorption.

1.3. Internationalisation theory for knowledge transfer in KIBS

Business internationalisation is a noticeable scientific topic since early 1970 (Knight & Liesch, 2016). The topic itself is broad and versatile, covering topics such as internationalisation process management, stages, incremental internationalisation theories, early stages of internationalisation, rapid internationalisation process at born global companies, which participate in an international market almost since the foundation and many more (Knight & Liesch, 2016). The relevance of the topic is continuing to grow due to the transformations happening in the business landscape. In 2001, as indicated by R. Fletcher, the number of companies acting on an international and global basis was increasing dramatically. The current business context challenged by hyper-competition shows how internationalisation became a universally relevant topic for most businesses, despite their size. Businesses are increasingly interested in serving the global market, and for this purpose, different forms of internationalisation strategies and modes are applied (Ribau, Moreira & Raposo, 2015).

KIBS is not an exception – internationalisation is crucial for companies to remain competitive. By its definition, the value created by KIBS organisations is based on knowledge. While KIBS organisations can apply numerous internationalisation activities like inward (i.e., buying office abroad with an ultimate goal to turn it into a subsidiary), outward (i.e., service export overseas), or linked (i.e., strategic alliances in the foreign market), it is always a question of how to transfer knowledge most effectively. For this purpose, KIBS organisations tend to apply network theory and establish international networks to maximize knowledge potential in different markets (Borgatti, Mehra, Brass & Labianca, 2009).

By definition, a business network is characterised as a group of interdependent business organisations linked together by non-hierarchical relationships (Anderson, Håkansson & Johanson, 1994; Möller & Rajala, 2007). Network theory analyses industrial structures by three parameters (Ribau et al., 2015):

- Actors (in a scientific context also referred to as nodes) can be individuals, groups, organisations.
- Activities.
- Resources (physical, financial, or intangible resources, which include knowledge).

The network theory is closely related to the Uppsala internationalisation model (see figure 3) and is perceived as expanding since it is based on a resource dependence theory (Ribau et al., 2015).

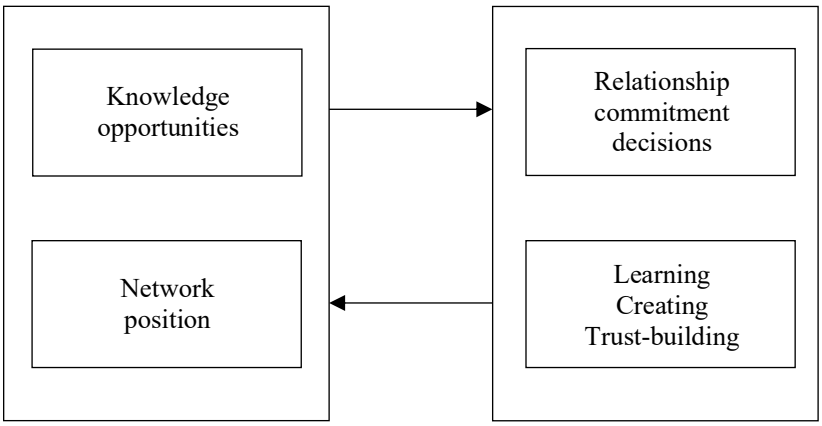


Figure 3. Uppsala revisited

Source: Johanson, Vahlne (2009).

Uppsala model might have its limitations for KIBS organisations internationalisation since it is relatively slow and network position plays only a partial role in its internationalisation process. Despite this fact, Uppsala depicts resource flow as necessary in network theory. Resource dependence theory highlights the idea that actors in the network structure are dependent on physical, financial, intangible resources controlled by other parties of the network. Access to these recourses and development of the relationship is concentrated on the resource consumption process, which is primarily oriented to firms' goal to survive (Ribau et al., 2015).

Network theory analyses not the individual actors of the structure but rather their relationship, structure, and ties. Ties in a network, as suggested by Borgatti et al. (2009), can be structured into four types – social relations, similarities, interactions, and flows. In the context of KIBS, ties among subsidiaries might have features of all four ties: organisations are united by their similar (or identical) attitudes, their active interactions, and collaborations, resulting in flows of knowledge and organisational relationships. Another feature describing a network is its structure (Borgatti et al., 2009). Depending on the connectedness of individual nodes in a network structure, the created value might differ.

Network activities for KIBS organisations can be a springboard to internationalisation while providing access to foreign markets. This role is by tendency played by actors of networks as a source of knowledge crucial for other network members to develop a competitive advantage. The network is a source for KIBS organisations to additional information, new knowledge, and other supportive activities (Ribau et al., 2015).

Network theory analyses relationships and activities happening between actors of the networks. In the case of KIBS, the activity of knowledge transfer is of high importance. The effectiveness of knowledge transfer and knowledge absorption is essential for KIBS

organisation's success acting within an international network. Following chapter in detail analyses theoretical approaches to knowledge transfer and knowledge absorption measurement.

1.4. Theory on knowledge transfer and knowledge absorption measurement

Knowledge transfer is a complex object to measure, and there are no specific ways to do it, according to Nor Aziati, Juhana & Nor Hazana (2014). Authors identify that scholars tend to measure knowledge transfer by the outcome of its process or the input to the process (for example, dedicated budget, investment) but ignore its complexity. Authors classified three approaches to knowledge transfer measurement:

1. Changes at the recipient side: changes in the recipient's performance, changes in an existing knowledge base of the recipient, changes in knowledge that is collective.

2. Outcome and process dimensions: outcome dimension analyses KT from both financial (project cost reduction, stakeholder's equity, number of patents, intellectual property) and non-financial (amount of successful knowledge transfer engagements during a particular period, change in the level of learning-by-doing knowledge, frequency of contact with the source of knowledge) point of view.

3. Learning performance or learning capabilities perspective: extent, speed, type, and nature of knowledge perceived as "learned".

Authors discuss knowledge measurement and often relate knowledge measurement with another concept – Intellectual Capital (Galbraith, 1969 in Ragab and Arisha, 2013). This term is described as a "knowledge, information, intellectual property, and experience that can be put to use to create wealth" (Stewart & Ruckdeschel, 1998 in Ragab & Arisha, 2013). This perspective to knowledge measurement suggests a broader spectrum of approaches to its measurement. Ragab and Arisha (2013) present two organisational points of views to Intellectual Capital measurement:

1. *Internal*: this perspective is described as efforts to identify not yet realised knowledge assets inside the company to be utilised more effectively.

2. *External*: this perspective reflects the idea that a company's value consists of tangible and intangible assets, inspired by the gap between a company's book and market values. The authors identify three main approaches to measure Intellectual Capital (IC) while taking into account tangible and intangible assets: 1) financial methods; 2) IC methods; and 3) performance methods.

Wong, Tan, Lee and Wong (2015) analyze tools and techniques for knowledge management within two decades. Authors structured theoretical knowledge into eight

knowledge management performance measurement tools, and four measurement techniques are presented in table 7.

Table 7. Knowledge management performance measurement tools and techniques.

Measurement tools	Measurement techniques
Intangible Assets Monitor (Sveiby, 1997): measure three categories of intangible assets: individual competence, external structure, and internal structure.	*Analytical Network Process or ANP* (Saaty, 1996): is a more general form of the Analytical Hierarchy Process (AHP), which is a popular method for multi-criteria decision making (MCDM). ANP allows the ability to model more complex and dynamic environments that are more evident at strategic planning levels.
Skandia Navigator (Edvinsson, 1997): evaluates soft assets of an organisation and focuses on five areas – financial, human aspect, renewal and development, customer, and process.	
Tobin's q Ratio (Tobin, 1998): defined as the firm's capital market value divided by the replacement value of its assets.	
Human Resource Accounting (Flamholtz and Main, 1999): attempts to calculate the contribution that human assets make to firms by capitalizing salary expenditures.	*Principal Component Analysis or PCA* (Person, 1901): examines the correlations between the evaluation indicators, groups them into fewer indicators, and makes these fewer indicators reflect the original target information. The result is a greatly simplified original index structure of the indicators.
Balanced Scorecard (Kaplan and Norton, 1992): measures an organisation based on four key areas: financial, learning and growth, internal business processes, and customers.	
KP^3 methodology assesses the contribution of each knowledge entity to business performance through product and process.	
Knowledge Management Performance Index (Lee et al., 2005): it considers the dynamic nature of knowledge, and it possesses the ability to help managers make decisions on investment and improvement of their KM processes.	*Fuzzy Logic* (Zadeh, 1965) can provide a simple way to arrive at a definite conclusion based upon incomplete or missing input information.
User-Satisfaction-Based System (Chin et al., 2010): model is divided into two segments - knowledge management enabler and knowledge management result. The first focus is on measuring KM processes, factors, and of course, the knowledge users' orientation. The second focus - its purpose is to measure the differences between what was planned and what was carried out.	*Data Envelopment Analysis (DEA) (Kuah et al., 2012) can* consolidate multiple performance measures into an efficiency score, with minimum subjective judgment from the evaluators.

Source: Wong, Tan, Lee, Wong (2015).

Wong et al. (2015) analysis shows the broad scope of ways to measure knowledge management performance. It can be perceived as scientific evidence that knowledge management performance is challenging and complex to measure. Measurement of knowledge absorption proves this to be true.

Knowledge absorption is a vital stage in the knowledge management process (Yao, Yang, Fisher, Ma & Fang, 2013; Descotes, 2013; Radovanić & Matović, 2016; Sulistyo & Ayuni, 2018). Knowledge absorption is an organisation skill "to transfer, integrate and utilize"

knowledge that is gained from external sources in different ways, for example, from experts (humans), scientific literature, various databases, systems (Sulistyo & Ayuni, 2018). Authors suggest that knowledge absorption is an act of knowledge gain and turning it into recourses based on knowledge (Radovanić and Matović, 2016). Knowledge absorption enables the transfer of knowledge resources inside the firm and its units to foster learning. Employees' skill to absorb external knowledge is valuable in an organisation since it fosters exchange and dynamics (interaction) of knowledge (Sulistyo & Ayuni, 2018). Knowledge absorption can be either formal or informal, free will (voluntary), or forced by authorities (Seliger, 2017).

Knowledge absorption can be measured, and the *amount* of absorbed knowledge in scientific literature is described as knowledge absorption capacity (or absorptive capacity). In other words, it is an ability to effectively use (explore, learn, create new knowledge) external knowledge inside the organisation and create value (Sulistyo & Ayuni, 2018). Numerous researches (Zhao, Dong & Xi, 2019, Sulistyo & Ayuni, 2018, Mogos Descotes & Walliser, 2013) indicate the relationships between the value of knowledge absorption capacity and necessary organisation capabilities, such as innovation or performance. To prove the importance of knowledge absorption Sulistyo and Ayuni (2018) developed research based on few hypotheses, including knowledge sharing significant effect on innovation capability; knowledge absorption significantly affects innovation capability; knowledge sharing significantly affects performance; knowledge absorption significantly affects the performance. In order to prove these hypotheses, the authors developed a research model (see figure 4).

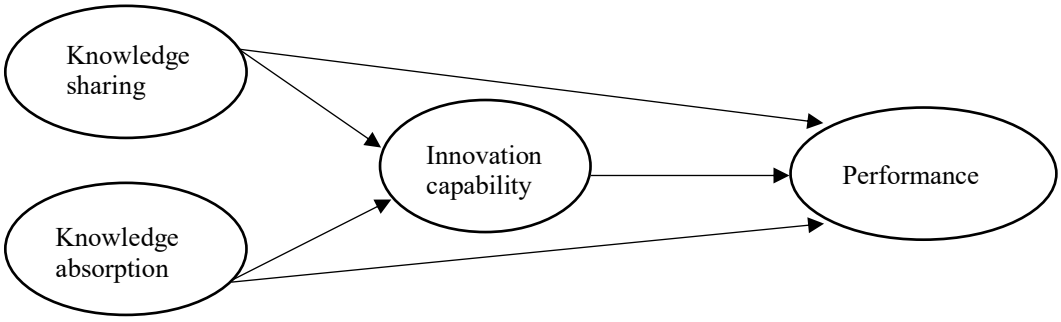


Figure 4. Research Model.

Source: Sulistyo and Ayuni, 2018.

The research was run in the banking sector, using an interview and questionnaire form to collect the data. Results proved the effect of knowledge sharing and knowledge ab o innovation capability and performance in the banking sector.

Another research run by Zhao, Dong, and Xi (2019) also analysed similar problematics and the relationship between knowledge absorption capacity and innovation. In this research,

the authors also raised a hypothesis related to knowledge transfer capacity, its impact on innovation systems evolution, and its relationship with knowledge absorption capacity. In order to measure knowledge absorption capacity and knowledge transfer capacity, the authors used the following measurement elements, based on scientific literature analysis:

- *Knowledge transfer capacity:* 1) tacit knowledge analytical capacity; 2) explicit knowledge analytical capacity; 3) knowledge production capacity; 4) knowledge transmit intention. These measurement elements are based on Bouncken and Fredrich (2016) and Szulanksi (2000).
- *Knowledge absorption capacity:* 1) potential knowledge absorption capacity; 2) realistic knowledge absorption capacity; 3) knowledge absorption willingness. These measurement elements are based on findings of Jansen, Van de Bosch & Volberda, (2005) and Jantunen (2005).

Based on these measurement elements authors developed a questionnaire in order to collect the data. Despite other valuable findings and prove that knowledge absorption and its capacity play a vital role in innovation development, this research also indicates a relationship between knowledge absorption capacity and knowledge transfer capacity. These findings suggest *the better and more effective knowledge transfer is, the higher is knowledge absorption*. Although the fact knowledge absorption capacity is an often-analysed topic in scientific literature, it is a complex object to measure. Authors design their research in a context-relevant manner, often combining qualitative and quantitative methods. In some cases, when questionnaires are being used, respondents are openly asked about their perceptions of knowledge absorption related matters. Yao et al. (2013) analysed knowledge absorption effectiveness in international joint ventures (IJV) by including the following statements into their research and asked respondents to evaluate them. Yao et al. (2013) used quite a challenging method to ask about knowledge absorption effectiveness since it is a complicated topic with specific terminology.

The last sub-chapter of this study's theoretical framework provided an analysis of scientific approaches to knowledge transfer and knowledge absorption measurement. The analysis revealed that there is no one universal method to measure any of these questions so far. Organisations must develop the most appropriate and accurate method themselves.

The first part of this study, the theoretical framework, proposed modern and classic approaches to knowledge management, terminology, and stages. Analysis suggests, while the approach towards knowledge as a resource and knowledge transfer did change within a time, one thing remains constant – opinion about the subject's high complexity.

Identified knowledge related challenges in KIBS proves there are numerous struggles within the multinational enterprises to manage knowledge effectively. Potential problems might lurk in personnel preparation and willingness to transfer the knowledge in the workplace environment, which does not support encouraging and motivating environment to transfer the knowledge. Potential challenges also might be coded in technological skills and tools (or usually – lack of tools) to enable successful knowledge transfer and reinforce knowledge absorption. While it is complicated to manage knowledge related activities, measuring knowledge-related outcomes or incomes is even more complicated.

Analysis of knowledge transfer and knowledge absorption measurement methods brought multiple perspectives to the light – one and universal knowledge transfer and knowledge absorption measurement method simply do not exist. Each situation requires a dedicated and specific solution.

The author discusses that the complexity of the knowledge as a resource and the lack of simple tools to measure knowledge transfer and absorption might ultimately lead to an absence of any measurement of value gained from knowledge. While investment into new knowledge via personnel training increases, the question remains – how much new knowledge is being used to create tangible value for the organisation.

Theoretical knowledge presented and analysed in the first chapter of this study served as a backbone for the rest of the study and the upcoming chapter – research methodology.

2. METHODOLOGY OF THE KNOWLEDGE TRANSFER MODEL DEVELOPMENT

The goal of this chapter is to present the methodology used in order to achieve research goals and to examine the hypothesis. Research is organised into the following stages.

1. *Analysis of scientific literature in the field of knowledge management:* the goal of this stage is to acquire more profound knowledge on theoretical approaches to knowledge management, knowledge transfer, and knowledge absorption measurement, as well as to investigate external and internal challenges faced by KIBS.
2. *Analysis of global macrotrends analysis affecting knowledge transfer in the future:* the stage is meant to investigate and identify macrotrends, which will affect knowledge related organisational processes now and will affect in the upcoming future.
3. *Key areas for data collection of knowledge transfer in EU:* identification of knowledge transfer criteria and features, based on areas of input, output, and learning performance and/or learning capabilities.
4. *TOPSIS methodology used for ranking of the EU countries: the* stage is dedicated to rank European Union countries by the level of knowledge transfer. The aim is to gain state-level insights about the best knowledge transfer practices from the most knowledge transfer advanced countries and later adapt them to an organisational level.
5. *Pre-coded questionnaire for experts of KIBS:* the questionnaire is meant to get profound insights about the KIBS sector, knowledge management practices, and the main challenges organisations are facing. The questionnaire will be filled in by top-level experts from the advertising industry, as a chosen narrower KIBS sector.

2.1. Analysis of scientific literature in the field of knowledge management

This stage and its findings are already presented in the very first chapter of the study. The stage serves as a crucial theoretical backbone for the study providing the author with in-depth knowledge to develop the following research stages. Scientific literature was analysed in the following structure (see figure 5).

The first step was the broadest one and focused on classical and modern approaches to knowledge as a resource, knowledge management, and more precise knowledge transfer and knowledge absorption. This part set the base for the second step - an analysis focusing on narrower approaches and peculiarities of KIBS and its challenges in the sector. The third step followed the narrative of some challenges identified in step 2 and went even deeper into KIBS

internationalisation theory. The fourth step of the analysis was dedicated to scientific approaches to knowledge transfer and knowledge absorption measurement, which might be applicable in KIBS. It suggests, the third step was related to knowledge management.

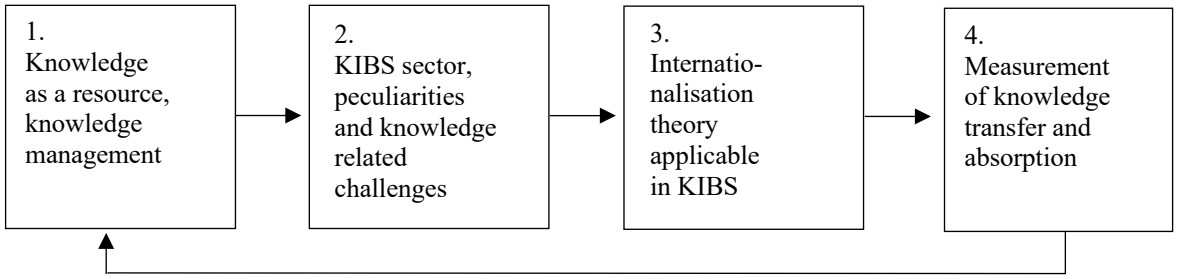


Figure 5. Structure and stages of scientific analysis.

Source: by author.

This unpretentious structure helped to develop a sequential investigation of theoretical sources that served as a theoretical framework for the knowledge transfer model for the development of international activities in the knowledge-intensive business service sector.

2.2. Analysis of global macrotrends affecting knowledge transfer in future

In order to gain a broader and future-oriented knowledge base, macro trends analysis was developed. By its very definition, a trend is a direction, proposing certain economic, social, cultural, technological changes in the future. There are different types of trends, *megatrends, macrotrends and microtrends*, categorised by their relevance in time (see figure 6).

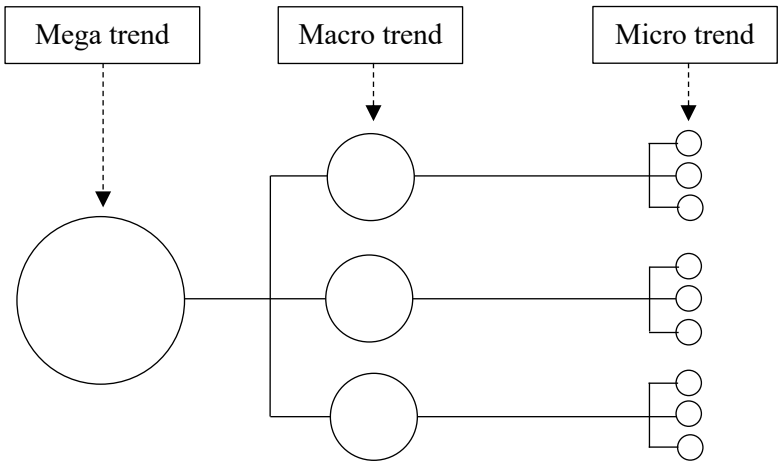


Figure 6. General classification of different type of trends

Source: Global Trendspotting, 2017.

As portrayed in figure 6, the most significant and relevant for 10-30 years (Kongsholm & Frederiksen, 2018) are megatrends (or gigatrends). These trends last long and have an impact on multiple aspects of life. Megatrends might be influenced by actions or behaviors which occurred even a century ago (Global Trendspotting, 2017). Examples of megatrends are demographic changes, technological progress, or climate change. These trends are too overwhelming to be stopped in any way, yet it is advised to react to them since they simply cannot be ignored.

Smaller in scale are macrotrends. While megatrends portray a broad picture, macrotrends are usually narrower and cover only a particular aspect of a megatrend. There are many macrotrends, they are of shorter relevance time than megatrends and shaping only a particular area. While climate change is a megatrend, it is followed by numerous macrotrends like the disappearance of flora and fauna species, melting glaciers and so on (Global Trendspotting, 2017). Macrotrends last for 3 to 7 years (Kongsholm & Frederiksen, 2018).

The smallest scale of trends is microtrends. Microtrends appear fast, so the conceptual "list" of microtrends would be very long and diverse. Microtrends are close to the consumer and affect people's lives in real-time. While there are so many microtrends, they can be classified into segments for the sake of clarity: new technologies, marketing, media innovations, international start-ups and others (Global Trendspotting, 2017). Microtrends last from 6 months to 3 years (Kongsholm & Frederiksen, 2018).

This study focuses on megatrends due to their relevance in a considerable period and their narrower scope compared to megatrends. Megatrends will be analysed based on potential behavioural changes in organisations they might cause, potentially linking knowledge management and knowledge as a resource. For this purpose, several data sources were used:

- "Bain and Company": global consulting company, operating since 1973 and providing numerous business clients with sector-related insights, tools, and knowledge.
- "TrendWatching": recognised as one of the world's leading consumer trends firms, operating since 2002 and providing business and private clients' trends services.
- "Gartner": research and advisory company, operating since 1979, providing business leaders with insights, tools, research and analysis.

These sources were chosen due to their worldwide recognition among business leaders and international organisations, the international profile of service, credibility and reliability and the amount of publicly available macro trends related data.

Macrotrends analysis was done by investigating publicly available data from previously presented and additional statistics sources. Although macrotrends are deeply related

to worldwide statistical data, additional statistics were not analysed as a primary source to identify macrotrends since trends identified in chosen sources were already based on this data. Analysis principle was based on broad recognition of macrotrends, meaning if a particular macrotrend was identified in one source, later it was double-checked in following sources. It was done to be sure that a particular macrotrend is recognised by the industry-leading sources and analyze different perspectives to the same macrotrend.

A more in-depth analysis was dedicated to macrotrends, which have a higher potential to influence knowledge management processes in the future.

2.3. Key areas for data collection of knowledge transfer in the EU

Investigation of theoretical approaches to knowledge transfer measurement led to identifying three main areas for data collection meant for further research. These areas are:

1. *Knowledge transfer input:* all the activities meant to empower, improve, and motivate knowledge transfer.
2. *Knowledge transfer outcome:* result influenced by the knowledge transfer activities and transferred knowledge application.
3. *Learning performance or/and learning capabilities:* level of a diverse set of skills, which might influence higher individual knowledge and willingness to transfer it.

Identified three areas are aligned with their best, representing data from the Global Competitiveness Report of 2019 (further GCR2019). By the time this paper is being developed, a report for 2020 is still not published yet. The year 2020 was also affected by the global pandemic of COVID-19, which could have also affected knowledge transfer activities. The year 2019 represents relatively more stable and settled knowledge transfer related routines in countries. GCR2019 is chosen over a few other considered alternatives, such as a report of the "Global Innovation Index" and the "Global Knowledge Index" report due to its complexity, credibility, and extensive scope of used information. Besides, analysis of other considered indexes revealed that information overlaps with GCR2019. The report is a long-term global survey organised and conducted by the World Economic Forum. The result of this report is a Global Competitiveness Index, calculated for each of the analysed countries. It is a globally recognised tool, which enables countries to track country-level performance in a global context. GCR2019 identifies fundamental forces responsible for the long-term competitiveness of countries and works as navigation meant to help country leaders perform more effectively in the light of the fourth industrial revolution.

The report combines well-established criteria with the new ones, empowering country-level productivity and growth. One hundred forty-one countries are analysed through four perspectives – Enabling Environment, Human Capital, Markets, and Innovation Ecosystem. These perspectives are divided into twelve pillars: 1) institutions; 2) infrastructure; 3) ICT adoption; 4) macroeconomic stability; 5) health; 6) skills; 7) product market; 8) labour market; 9) financial system; 10) market size; 11) business dynamism; 12) innovation capability. These aspects combine 98 indicators, derived from the World Economic Forum's Executive Opinion Survey and data from multiple international organisations.

The author matched previously identified three data collection areas reflecting nine criteria from the GCR2019 (see table 8).

Table 8. Areas of knowledge transfer measurement and representing criteria

Area for knowledge transfer measurement	Criteria that reflect a particular area, based on GCR2019
Knowledge transfer outcome	The future orientation of government (1–7 (best) rank)
	International co-inventions (applications/million pop.)
	State of cluster development (1–7 (best) rank)
Knowledge transfer input	Quality of vocational training (1–7 (best) rank)
	Intellectual property protection (1–7 (best) rank)
Learning performance or/and learning capabilities	Internet users (% of pop.)
	The skillset of graduates (1–7 (best) rank)
	Digital skills among the population (1–7 (best) rank)
	Multi-stakeholder collaboration (1–7 (best) rank)

Source: developed by the author.

A further step is to collect data from GCR2019 for each of 27 European Union countries. Despite the fact, back in 2019, there were 28 European Union countries, after the United Kingdom's withdrawal from the European Union in 2020 January, it will not be taken into the final ranking.

2.4. TOPSIS methodology used for ranking of the EU countries

Knowledge transfer and knowledge management related activities are by tendency more developed at a governmental level of European Union countries than in the business sector. There are dedicated institutions or ministries to provide insights on knowledge management at a country level. However, the best practices at a governmental level can and should be adopted by businesses. To get valuable insights on knowledge transfer and knowledge management practices, it is essential to follow the best example. For this reason, countries of the European Union will be ranked by their level of knowledge transfer. The TOP countries from the ranking will later be analysed in more detail.

Knowledge transfer is a question of multi-criteria nature itself since it is highly influenced by multiple internal and external factors. This context suggested a multi-criteria decision making method as a suitable method. This study uses the TOPSIS method (a technique of order preference by similarity to ideal solution). TOPSIS methodology, invented and developed by Hwang and Yoon (1981), is commonly used for problems, which involve multiple criteria in decision making (Hanine et al., 2016; Kumar et al., 2017). This method compares a given set of alternatives by their geometric distance between ideal and negative alternatives. The ideal alternative is the one that has the highest level of all considered attributes, and the negative ideal alternative - the lowest values of attributes. TOPSIS method helps identify the best alternative - with the smallest geometrical distance to an ideal alternative and the longest distance to the negative alternative. TOPSIS method consists of six steps.

Step 1: calculation of normalised ratings by using Euclidean normalization:

$$x_{norm} = x/\sqrt{\Sigma x^2}, \tag{1}$$

where: x – primary value; x_{norm} – normalised value.

Step 2: calculation of weighted normalised ratings:

$$v_{ij} = w_j * r_{ij}; \quad \text{i= 1, 2, …, m; and j=1, 2, …, n,} \tag{2}$$

where: v_{ij} – weighted normalised rating; w_j – weight of criteria, r_{ij} – primary value.

Step 3: identification of positive-ideal and negative-ideal solutions:

$$a^* = \{v_1^*, v_2^*, \dots, v_j^*, \dots, v_n^*\} = \{(maks_i v_{ij} | j \in J_1), (min_i v_{ij} | j \in J_2) | i = 1, \dots, m\}, \tag{3}$$

$$a^- = \{v_1^-, v_2^-, \dots, v_j^-, \dots, v_n^-\} = \{(maks_i v_{ij} | j \in J_1), (min_i v_{ij} | j \in J_2) | i = 1, \dots, m\}, \tag{4}$$

where: a^* – positive-ideal solution; a^- – positive-negative solution.

Step 4: calculation of Euclidean distance (separation) of each alternative from the ideal solutions are measured:

$$S_i^- = \sqrt{\sum_j (v_{ij} - v_j^-)^2}\,, \tag{5}$$

$$S_i^* = \sqrt{\sum_j (v_{ij} - v_j^*)^2}\,, \tag{6}$$

where: S_i^- – distance to positive-negative solution; S_i^* – distance to a positive-ideal solution.

Step 5: calculation of similarities to positive-ideal solution:

$$C_i^* = S_i^- / (S_i^* + S_i^-). \tag{7}$$

Step 6: the rank of preference order. All alternatives are ranked from best to worst or vice versa.

TOPSIS method will be used to rank European Union countries by their knowledge transfer level, based on data from GCR2019.

2.4. Pre-coded questionnaire for experts of KIBS

In order to avoid too generic research and the risk of losing its relevance due to the high level of abstraction, the author decided to analyze a sub-sector of KIBS. For further in-depth research advertising sector was chosen. As presented in chapter 1.2, the advertising sector classifies as KIBS, or c-KIBS if to follow more complex classification. This sector was chosen for in-depth investigation due to its rapid growth, increasing advertising relevance in the hyper-competitive business landscape, and global advertising agencies' expansion into new functions.

Nowadays, there are no more strict boundaries among advertising, media, digital, public relations, or consulting agencies – driven by the need to overcome hyper-competition. Thus, agencies expand their service scope and intervene in territories traditionally led by another type of agencies. Such context is accompanied by the already presented trend of the internal need for continuous training and skills expansion. Advertising agencies are facing challenging times and knowledge management processes daily.

To get a piece of in-depth knowledge and insights about the knowledge management processes and knowledge related challenges in KIBS pre-coded questionnaire was developed. This type of method was chosen due to the ability to guide respondents through complicated terminology, structure information in a more consistent manner and at the same time leave

space for interpretations and more profound insights in open-ended questions. Part of the questions and answers options were constructed to achieve statement evaluation expressed in number instead of free interpretation. However, the questionnaire itself is qualitative and can ultimately lead to more in-depth insight, not quantitative conclusions.

The questionnaire starts with an introduction, explaining the goal and the role of experts and providing experts with the necessary terminology. The questionnaire consists of 21 questions: four open questions, nine questions with pre-coded answers, three questions with pre-coded answers, and the option to fill in other answers, five questions with an evaluation of statement. Questions were developed while following criteria:

- Clarity and simplicity: questions must be understandable and straightforward; they should be focused on one thing at a time.
- No bias or ambiguity: questions should not suggest the answer or leave space for unnecessary interpretations or double meanings.
- Sequence: questions must be organised logically, starting from more straightforward questions as a warm-up. Questions of the same topic follow each other, not jumping from one topic to another after each question.

The survey was organised using the online tool “SurveyMonkey”. This tool was chosen due to its flexibility to formulate different types of questions, the possibility to analyze and visualize results, and accessibility on different devices, which was an essential function in order to make it as simple as possible for experts to participate in a questionnaire. Pre-coded online questionnaire method was chosen over the structured live interview due to several reasons:

- The covid-19 context in 2020 autumn, respondents and researcher safety: the end of the 2020-year society was affected by the worldwide pandemic, which shaped the way people work, study, or socializes. The goal was to minimize all the potential health threats and use as little as possible live contact.
- Timesaving of the experts: top-level experts are highly occupied with their daily duties; their time is a precious company resource. Keeping in mind, experts did not get any rational incentives to participate in this research and were motivated only by the educational purposes of the survey. It was only fair to limit the research time from approximately an hour meant for a live interview to approximately 15 minutes needed to fill in the questionnaire.
- Higher flexibility: experts could freely choose the appropriate time and pace for their contribution to the questionnaire.

In total, eight experts were invited to participate in the survey. This number is based on theoretical recommendations (see figure 7) by Libby and Blashfield (1978), followed by a contemporary scientist.

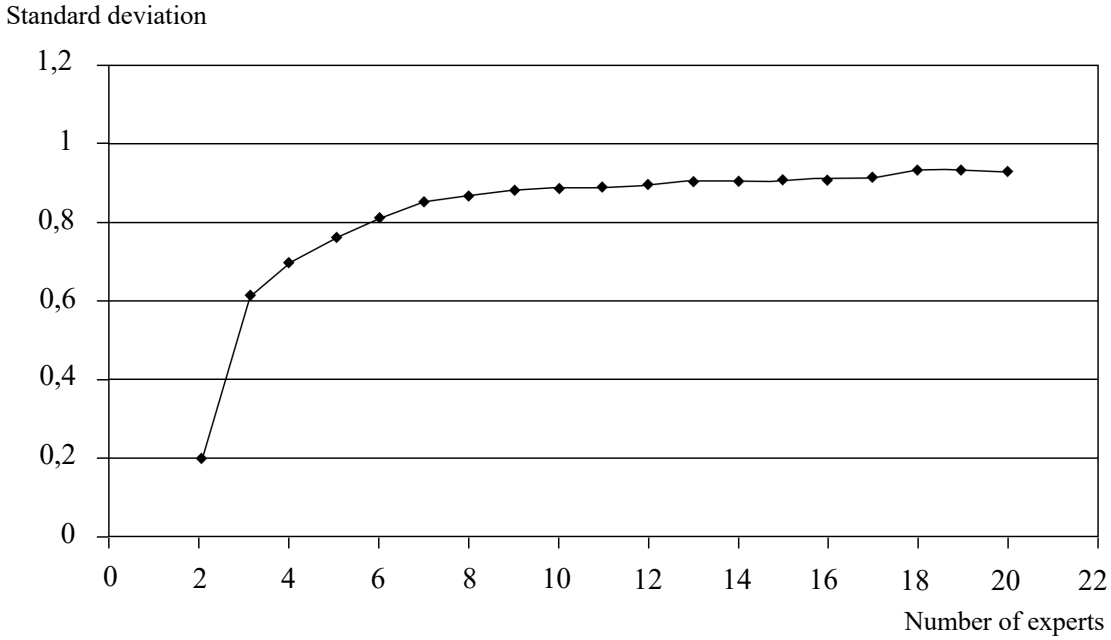


Figure 7. Dependence of the standard deviation of expert judgment on the number of experts

Source: Libby and Blashfield (1978).

As portrayed in figure 7, from eight and further, the standard deviation is minimal, so there is no significant difference in results if more experts are involved in the research. Experts were chosen based on the following criteria:

- Expert must currently work or have considerable work experience in an advertising agency, or work in an agency which covers particular functions of an advertising agency. This criterion was considered public relations, social media, and digital advertising agencies, branding agencies if this criterion was matched.
- Expert must be from top-level management or a top-level expert in a particular department and have direct subordinates.
- Level of internationalisation of a particular agency: an expert should work in an agency that either has subsidiaries abroad or is a member of an international network of agencies and works with an international clientele.

Selected experts represent seven agencies (see table 9) of various sizes, internationalisation, and personnel: two creative agencies headquartered in London and New York City; two subsidiaries of global networks; four independent creative agencies

headquartered in Lithuania and some with foreign subsidiaries. Due to the General Data Protection Regulation (GDPR), experts' names are not presented in this study. However, they are known by the author and can be provided if needed, with the agreement of experts.

Table 9. Experts' roles and representative agencies.

Job title	Representative agency	Short description of the agency
Director of Strategy	Droga5	One of the leading and the most globally awarded international creative agencies in the world. Headquartered in New York City with a subsidiary in London. Founded in 2006 by David Droga. Website: https://droga5.com/
Head of digital marketing	WFMA	Omnichannel marketing and advertising agency headquartered in London, UK. Website: https://wfma.agency/
Creative director	DDB Vilnius	A subsidiary of "DDB Worldwide" in Lithuania. "DDB" is international marketing, communications, and advertising network, headquartered in New York and founded by Ned Doyle, Mac Dane, and Bill Bernbach in 1949. Website of the parent company: www.ddb.com/. Website of the subsidiary: https://www.ddb.lt/
Art director	Adell Taivas Ogilvy	A subsidiary of "Ogilvy" agency in Lithuania. "Ogilvy" is an international advertising, marketing, and PR agency, headquartered in New York City, called after one of the founders and advertising icon David Ogilvy and founded in 1948. Website of the parent company: https://www.ogilvy.com/. Website of the subsidiary: https://www.ogilvy.lt/
Creative director	Milk	One of the leading creative agencies in Lithuania, founded in 2007. Working with clients in Baltics, North, and East Europe. Website: http://www.themilk.lt/
Account director		
Account director	NEW	One of the most awarded creative agencies in Lithuania, working with numerous international and local clients. Website: https://www.newisnew.lt/
Executive creative director	Clinic 212	Creative advertising agency headquartered in Lithuania. Website: https://www.clinic212.lt/

Source: by author.

Experts were contacted by e-mail, phone, or via publicly available profiles on professional social networks profiles (mostly LinkedIn). Each expert was planned to be directly contacted two times:

- First contact: introduction and acquittance in advance, pre-approval of expert participation in the survey. During the first contact, experts were not yet given the questionnaire link not to leave the image of rushing and forcing.

- Second contact: if the expert agreed to participate in a survey, he (she) was then contacted with the questionnaire's link.

There was an option for the third contact dedicated to remind experts to fill in the survey. However, it was not needed since experts filled in the survey without hesitations, just after they received the active link to the questionnaire.

The five-step methodology presented in chapter 2 led to comprehensive research. Its results in detail are presented in the following chapter by following the same order of methodology stages.

The only exception is the very first stage, “Analysis of scientific literature in the field of knowledge management”, which results will be presented in the conclusions chapter.

3. RESEARCH RESULTS

This chapter presents research results based on scientific literature analysis and previously presented methodology. The chapter is divided into four sub-chapters: macrotrends analysis, experts survey, and international knowledge transfer model.

3.1. Macrotrends analysis

This chapter is dedicated to the outcome of macrotrends analysis. In-depth analysis of publicly available recent research from "Gartner", "TrendWatching", and "Bain and Company". Despite the fact, quite a few macrotrends exist, this study will focus on the ones with the higher potential to affect knowledge management processes, especially transfer and absorption in the future. Five macrotrends were identified as meeting the requirements.

Macrotrend of an *aging society.* The global macrotrend of an aging society will have a substantial impact on the labor force's future. Due to the more advanced healthcare, people are now living longer and healthier. It means two things: 1) older adults will be more capable of remaining a considerable part of the workforce for a more extended time; 2) there will be more workforce leaving than coming. As projected by "Bain and Company" (2018), the workforce growth will be slow, 0,3-0,5 percent annually, for the upcoming future. Baby boomers (the generation born between 1946–1964) entering the workforce started transforming workforce age. This generation was the one who faced the benefits of medicine, antibiotics, and a reduction in baby mortality. Growth in birth rates later on affected a workforce supply.

What will the trend of an aging society mean for KIBS in the future? There will be a need to improve productivity. Productivity will be affected either by older personnel and their slower adaptation to continually changing context and work routines or by the lack of personnel, which will need to be compensated by increasing the value created by each employer. In terms of knowledge management processes, an aging society will force KIBS companies to increase efficiency in knowledge transfer and absorption. Besides, an aging society will increase workplace diversity, personnel will be formed from people of different generations, with different beliefs and backgrounds. Such diversity should be managed and used for the purpose of the company – the more diverse team, the more innovative ideas they can develop together. Such scenario can only happen if employees will be willing to share their experiences, ideas and transfer them to colleagues. Organisation management should encourage knowledge transfer activities in order to avoid disunity.

Macrotrend of *connectivity.* People are now connected more than ever due to the internet. Not all countries might have such an amount of internet users as Qatar (99,7 % of the adult population, according to the World Economic Forum, 2019). However, the fact is that the society of developed countries is transforming into an always-connected mode. This transformation is also affected by the increasing penetration of smartphones, with the United Kingdom with the highest 82,9 % of the population using the smartphone (according to Statista). Despite the online communication attempts to become a substitute for live communication, the 2020 pandemic context proved it provides unprecedented ability to remain in contact and work remotely. Macrotrend of connectivity is changing the way people communicate and blurring the lines between work and personal life. It is encouraged by the growth of social networks, which became tools not only for personal communication but also for business-related matters.

What does this trend mean for KIBS organisations in the near future? Living an always-connected life for some will become torture and lead to a need for internet detox, yet for others, it will help to transfer and absorb the knowledge in a simple way. While the absolute majority of employees will be connected, it will be more comfortable and more efficient to transfer organisational, group, or individual knowledge in a seamless way.

Macrotrend of *automatization and 4.0 industrial revolution.* First mentioned in 2016 by professor Klaus Schwab, founder of Work Economic Forum, 4.0 industrial revolution is described as „technological revolution", which will ultimately blur the boundaries between three worlds – psychical, digital, and biological. "Bain and Company" (2018) predicted that the new wave of investment into automation in the United States is emerging and is about to bring around $8 trillion of investment into the market. On the less positive side, at the end of 2020, automation of work processes might eliminate 20 to 25 percent of current job positions. This is the equivalent of 40 million workers, who will be replaced by technology and will lose their jobs. Automatization will ultimately strengthen the income inequality since less skilled workers will be replaced by machines and face a significant drop in income, while a highly skilled workforce will have an opportunity even to raise their importance in companies' ecosystems. People will be forced to look for other jobs, reskill, and adapt to a new context. However, the adaptation time is predicted to be shorter and more dramatic in comparison with the previous industrial transformations, according to "Bain and Company" forecast (2018):

- Agriculture to industry (1900-1940): around 40 percent of the labor force (the equivalent of 1,2 million workers annually) moved from agriculture to industry for nearly 40 years.

- Manufacturing (1970-1990): this transformation affected around 13 percent of the workforce (the equivalent of 0,8 million workers annually) for approximately 20 years.
- Construction (2007-2010): around 0,5 percent of the workforce (the equivalent of 0,6 million workers annually) was displaced over approximately four years.
- The Great transformation (automatization, demographics, and inequality) (2020 and onward): it is predicted that 20-25 percent of the labor force (the equivalent of 2,5 million workers per year) will be displaced during 10 to 20 years.

Automatization will not only affect a workforce. It raises challenges for business enterprises and forces them to adapt fast and effectively, which having in mind an exponential growth of technologies, might not be an easy task.

What does this macrotrend mean for KIBS in the near future? Ultimately KIBS organisations will adapt to new technological solutions and start to use them daily. AI solutions will be applied more often and help to transfer and measure knowledge more effectively without much effort. It will help organisation management to track the application of new knowledge, time spends on knowledge transfer, and absorption with more precision than it is now.

Macrotrend of *life-long learning*. As mentioned earlier, organisations now face increasing demand to support and enable personnel professional development (according to LinkedIn research). Nevertheless, it is not only about personnel training as a motivational program that forces companies to rethink their human resources activities. For a considerable amount of time already, it noticeable that people are more willing to invest in themselves and their skills. New skills and upskilling are some of the biggest concerns among employees due to digitalization. According to a “Digitalisation Survey” done by CEB in 2017, a subsidiary of “Gartner”, the need for better upskilling is a top concern for employees, mentioned by 52% of respondents (out of 5997 population). These statistics highlight the challenge that employees are lacking behind technological progress and causing organisations to reduce productivity. According to CEB “Shifting Skills Research” conducted in 2018, 36 % of managers agreed to the statement that employees are missing required skill sets. Also, new job positions are emerging. This context leads to the need not only to up-skill but also to re-skill. As mentioned before, the Great transformation will reshape the workforce's demand, and people will be forced to either adapt or lose their jobs.

What does this macrotrend mean for the future of KIBS? Companies will be forced to invest in upskilling employees or to face a deficiency of workforce. It is not a question of choice anymore; it is a question of who (in terms of organisation and individual) will be the faster to adapt to a new context and remain competitive advantage.

Macrotrend of *conscious consumerism*. According to "TrendWatching" (2020), conscious consumerism is a trend that will transform the social, cultural, and business landscape for at least ten upcoming years. According to "TrendWatching", this trend is an antidote for carefree consumerism and will ultimately lead to more sustainable, inclusive, and meaningful people's behaviour. This trend will affect people, companies, and brands. Encouraged by global climate change, dramatic food waste, animal welfare, financial inequality, people will be encouraged and motivated to be more conscious about their shopping and consumption habits. The trend will gradually enter the organisation's culture as well. More and more decisions will be filtered through relevance and potential to create value sustainably.

What will this trend mean for KIBS in the near future? KIBS organisations will be inspired or encouraged by employees inspired by this trend to be more conscious about organisational decisions for new knowledge acquisition. According to "Gartner" (2019), 87 % of employees expect a company's management to stand on issues that are in-line with company business. Organisation management will be encouraged to make conscious decisions about their investments into new knowledge related activities such as vocational training, courses, and the new IT system. It does not mean that organisations will refuse new knowledge, but on the contrary, choose sources with care and try to maximize the potential of newly gained knowledge. Employees will be more willing to transfer their knowledge and absorb it from colleagues since organisational knowledge will be more valued.

These five macrotrends will shape the knowledge management processes shortly. Some of them, like connectivity, life-long learning, automation, will stimulate the processes, yet the macrotrend of an aging society will potentially decelerate knowledge transfer and knowledge absorption. Macrotrends' role in knowledge transfer and knowledge absorption processes is portrayed in sub-chapter 3.4, figure 12.

3.2. Ranking of EU countries by the level of knowledge transfer

Knowledge and knowledge related activities are the subjects of a state-level. There are numerous policies and recommendations for countries to ensure that knowledge is effectively transferred inside the country. This is important to encourage the growth of innovations, inventions, more efficient organisational and governmental activities, and ultimately contribute to a gross domestic product. Also, the United Nations in Sustainable Development Goals (SDG)

program recommends countries to pay attention to knowledge transfer in order to contribute to the greater good. Goal 9 and goal 17 emphasize this need in particular:

- Goal 9: "Build resilient infrastructure, promote inclusive and sustainable industrializations and foster innovation".
- Goal 17: "Strengthen the means of implementation and revitalize the global partnership for sustainable development".

Countries are motivated to contribute to SDG for numerous reasons, so the idea is to identify countries with the highest knowledge transfer level and adapt their best practices to KIBS oriented knowledge transfer model. The fact is, not all countries are equally advanced in terms of knowledge transfer practices. It was necessary to rank EU countries (see table 10). For this purpose, TOPSIS multicriteria decision making method was applied.

Table 10. Ranking of EU countries by the level of knowledge transfer

Rank	Country	Value	Rank (cont.)	Country	Value
1	Luxembourg	0,92439	15	Malta	0,18102
2	Austria	0,70600	16	Cyprus	0,17990
3	Sweden	0,64956	17	Portugal	0,17466
4	Finland	0,54351	18	Spain	0,17451
5	Denmark	0,52523	19	Latvia	0,16531
6	Belgium	0,49862	20	Lithuania	0,16507
7	Netherlands	0,49346	21	Bulgaria	0,14538
8	Germany	0,48173	22	Slovakia	0,14526
9	Ireland	0,43249	23	Hungary	0,12615
10	France	0,29709	24	Romania	0,10722
11	Estonia	0,24114	25	Poland	0,10312
12	Slovenia	0,20266	26	Greece	0,07038
13	Italy	0,20106	27	Croatia	0,03188
14	Czech Republic	0,20052			

Source: developed by the author.

The country with the highest value in this rank is Luxembourg. Knowledge related practices in this country are investigated in more detail.

Luxembourg, as a small country in terms of area and population (only slightly more than 600.000 in 2020, according to the Statistics Department of Luxembourg), is a useful example

of future oriented government, progressive thinking, and knowledge transfer practices at a state level. Luxembourg dedicates 1,24 % of its GDP (according to 2018 Word Bank data) to research and development, which is nearly twice as small as in Sweden (3,34%), Switzerland (3,37%) or Austria (3,07%). Despite that, a small country has big ambitions. In 2019, Luxembourg published "Artificial Intelligence: a strategic vision for Luxembourg", a national artificial intelligence (AI) strategy. This strategy is a part of a broader "Digital Luxembourg" program, which aims to transform Luxembourg into a digital society. AI strategy describes the vision and policy recommendations in critical areas:

- Skills - improving AI knowledge, competencies, and skills, encourage and support lifelong learning.
- R&D – support for AI development, test, and application.
- Investment for AI technologies from the private and public sectors.
- AI in the public sector – encouragement to adapt and use AI.
- Networks – national and international collaborations and strategic alliances.
- Regulatory framework – attention to security, transparency, and AI development ethics.
- Data economy – use the potential of it as one of the strategic AI development pillars.

As highlighted, networking plays an essential role in a national strategy for country digitalization. The government is providing funding for private-public sector collaboration in research in digital manufacturing and advanced robotics fields. Also, multidisciplinary research is prioritised by the government as crucial for networking. Luxembourg government also has active plans to contribute to programs like Copernicus, a space program, and Claire, a confederation of AI-oriented research laboratories in Europe. What is essential is that the government is not only publishing a declarative vision but also provides knowledge transfer friendly environment, funding and support national and international collaboration.

In 2014, Hansen, Mulhall and Zils published a study „Luxembourg as a knowledge capital and testing ground for the circular economy. National Roadmap for Positive Impacts. Tradition, Transition, Transformation". As a small country, Luxembourg is historically familiar with the idea of re-use due to the shortage of resources such as steel, aluminium, glass, or other industries. These industries are already an example of the circular economy, yet the goal back then was to accumulate the circular economy's growth and enhance its practices in a broader scope of industries unleashing its best potential. The study analyses the potential and structures the plan to transform Luxembourg to a higher level of circularity, necessary for such a small market and economy, to remain competitive. The government created educational circularity-skills training platforms, initiated needed research, allocated funding, start tracking the

progress, identified business opportunities naming particular sectors and enterprises. Knowledge transfer activities played an important role in implementing the transition towards a circular economy, and estimated benefits are reaching 7 000 – 15 000 job positions and 1 billion of annual economic activities. Imagine Luxembourg as an enterprise. This study is a great example of the "organisation" role as a catalyst, providing tangible support for the private sector for higher value and innovation creation.

Luxembourg is also an example of knowledge transfer activities fostered in clusters. "Luxinnovation" is a national agency of innovation in Luxembourg, which aims to help companies innovate and grow through collaboration with public research organisations. "Luxinnovation" fosters a cross-sectoral collaboration and manages clusters in seven fields: automobility, health tech, creative industries, cleantech, ICT, wood, materials, and manufacturing cluster. The public-private collaboration enabled by the knowledge transfer is a driving force for the small country – common challenges and unified efforts to solve them.

What can we learn from the Luxembourg example? If a country has a clear goal, its people should collaborate in solving them and form strong, diverse teams to create innovation, not try to fight and compete with each other. The country should develop a knowledge transfer-friendly environment and provided the necessary tools for it to happen – training and education options, R&D funding, clusters and networks, and other forms of collaboration. These insights can be applied in KIBS organisations as a valuable lesson.

3.3. Results of qualitative experts' survey

Implementation of experts' survey served as a source for more profound sectoral knowledge in KIBS. Results of the questionnaire are presented and analysed in the same sequence as in the questionnaire. Since the "SurveyMonkey" tool provides the possibility to analyze answers of selected respondents, the author will provide additional perspective – the difference (if any) of view among Lithuania capital ("Milk", "New", "Clinic212") and foreign capital advertising agencies ("Droga5", "DDB Vilnius", "Ogilvy Vilnius", "WMFA"). The full questionnaire is presented in appendix 2.

Importance of knowledge as a resource. Experts evaluated the importance of knowledge as a resource in a representative organisation. Knowledge was recognised as the significant recourse, the evaluation revealed. In percentage, where the maximum value of importance could have been 100 %, an average evaluation was 91 %.

Link of knowledge and the value created by an organisation. The following question was dedicated to a more in-depth understanding of the relationship between knowledge and value created by an organisation. Out of three possible options ("not related", "related" and "strongly related"), two types of answers were chosen: "related" (two respondents) and "strongly related" (six respondents). What it tells us that a link between knowledge and value creation of an organisation exists. Just the strength of this connection is a question of individual perspective. Both experts who identified knowledge to be related (not "strongly related") to the creation of value are from Lithuania based agencies.

Perception of the amount of organisational knowledge. The following question was meant to understand better the amount of knowledge in representing organisations than the perceived amount of knowledge in competitive agencies. While knowledge is such a dynamic and intangible resource, this question was somewhat based on one expert's perceptions. Experts were invited to choose the answer of three given options: "less knowledge than competitors," "similar amount of knowledge like competitors," "more knowledge than competitors." The most often option was "more knowledge than competitors", indicating experts' confidence regarding organisational knowledge. Out of four experts who have chosen this answer, three represented agencies of foreign capital ("Droga5", "DDB Vilnius", "Ogilvy Vilnius"). This result can indicate more vital knowledge-related tools and techniques in these agencies, which local agencies lack. Expert who perceives the amount of organisational knowledge to be lower than competitors represents an independent and newly established Lithuania-based agency.

The importance of new knowledge and dynamics of importance during the last five years. Experts evaluated the importance of new knowledge in an organisation, where the maximum level of importance was 100 %, and the average of all answers was 86 %. What is worth mentioning is that the importance of new knowledge was a bit lower than the importance of knowledge in general (on average 91 %). Most experts (7 out of 8) believe the need for new knowledge increased during the last five years. This result suggests that agencies feel pressured to keep pace with the latest knowledge emerging in the market.

An interesting finding is that experts who think that the level of new knowledge remains the same during the last five years represent the leading and most awarded creative advertising agency in the world, "Droga5". This can indicate "Droga5", in general, has a higher need for new knowledge and sets the pace for the advertising industry, where smaller agencies tend to feel they need to follow up.

Comparison of the importance of existing and new knowledge. Experts were invited to compare the importance of new and existing knowledge. Most experts (7 out of 8) believe there should be a balance between new and current knowledge since they are equally important. This

result indicates that new knowledge is not the only thing that matters and suggests quite conscious consumerism perception towards representative agencies' knowledge.

Indicators of the need for new knowledge. It was essential to realize what factors encourage agencies to look for new knowledge. Experts could choose multiple answers from suggested options or share other thoughts in a free form. The most common pre-coded answer was "pressure from the industry and hyper-competition," selected by six experts (see figure 8), followed by the other pre-coded response of "fear of lacking behind" chosen by four experts. These results prove that agencies are faced with high competition. If they stop updating their current knowledge, they might instantly start lacking behind.

Further reasons to keep up the new knowledge pace were "employees' proactive need for new skills" and "clients from unfamiliar industries", three experts chose both answers. There were two free-form answers to this question: "Constantly changing and evolving digital marketing and e-commerce landscape"; "The pace of work, which is getting faster every year, indicates that we need new methods how to manage our work and how to keep the same quality levels with fewer resources." These two answers indicated two new challenges that agencies are forced to cope with: digitalization and productivity. New knowledge is no longer an option for KIBS. It is a must to create value and remain relevant in a highly competitive and rapidly changing landscape.

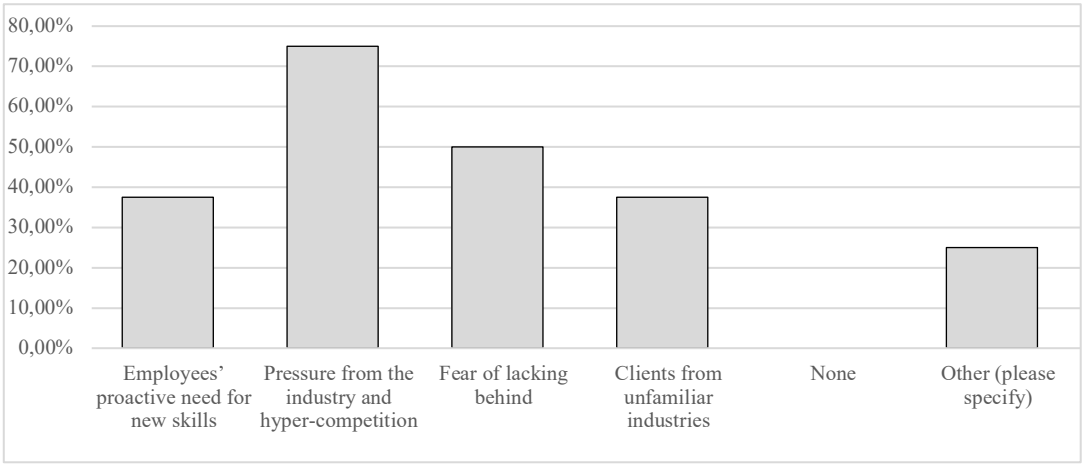


Figure 8. Indicators for the new knowledge

Source: based on experts' questionnaire developed by the author.

The interest of employees of different levels in the acquisition of new knowledge. Despite the fact most of the experts agreed with the fact new knowledge is essential, it was essential to understand if employees of different levels of seniority are equally interested in getting new knowledge (see figure 9). Five seniority levels were suggested (top-level management, senior-

lever, middle-level, junior-level, and interns). Experts evaluated each level of interest for the new knowledge. Results indicated such differences exist. According to responses, the most interested in new knowledge are top-management level employees, followed by junior-level employees. This is an exciting finding since these two segments have a very different motivation. Employees of top-management are leading the organisation, so it is only natural their interest in new knowledge is high for the organisation's sake. Regarding the junior-level employees, their motivation is rather personal – to keep with the organisation's pace. The term "new knowledge" can have few junior-level employees' interpretations: existing organisational knowledge, which they do not have yet, and knowledge new to all organisations.

Results indicate that the least interested in new knowledge are middle-level employees, who are not yet in a senior-level, but also not in a junior-level anymore. Behind such a result, some deeper motivation problems can be hidden – interest in new knowledge can indicate a personal motivation to know more and improve seniority. It also can be the result of proactive senior-level employees who are willing to transfer their knowledge to middle-level employees, so the need for new knowledge is fulfilled in this way. According to experts, senior-level employees and interns have a moderate interest in new knowledge. Again, a similar interest in new knowledge can indicate a very different context. Senior-level employees already have a high level of knowledge and personal routines for getting new knowledge. Interns' interest in new knowledge, on the other hand, might be an indication of lack of knowledge and the personal need to absorb as more as possible during the internship.

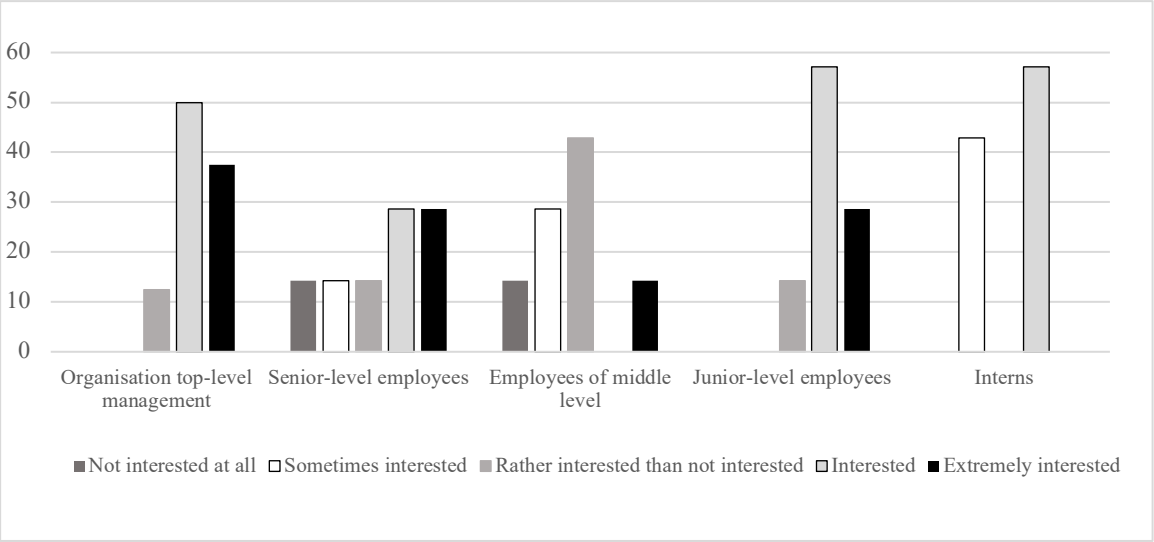


Figure 9. The interest in the acquisition of new knowledge

Source: based on experts' questionnaire developed by the author.

The split of interest in new knowledge is a challenge for organisation management. It is not enough to provide tools or suggest routines for getting new knowledge. It also a question of motivation of employees.

New knowledge related routines. Experts were asked if such routines exist in their organisation regarding the previously mentioned routines for new knowledge. The majority of experts (five out of eight) indicate "some" new knowledge-related routines in the organisation. Experts with the highest level of new knowledge related routines (response "there are many new knowledge related routines in an organisation") represent "Droga5" and "Ogilvy Vilnius" – worldwide famous foreign capital agencies. This result could indicate that the bigger the organisation ("Droga5" has more than 500 employees, while "Ogilvy" network worldwide has nearly 25 thousand employees). The size and complexity of a company require more standardised new knowledge related routines.

Routines of new knowledge absorption evaluation. Although new knowledge routines exist, it is essential to realize whether new knowledge absorption is measured or tracked in agencies. The majority of experts (five out of eight) replied there is no knowledge absorption evaluation related rules or routines in the representative organisation. Even though the need for new knowledge is present in agencies, and dedicated routines exist to acquire knowledge, the actual value of new knowledge is not clear since its absorption remains in the blind spot. This question highlights that knowledge consumption is high and increasing, yet its value is unclear. It means multiple resources (time, money, and human) can be wasted without even knowing.

Level of new knowledge absorption in an organisation. Although knowledge absorption is not measured in selected agencies, experts were asked to evaluate how much knowledge is absorbed. Results are presented in figure 10.

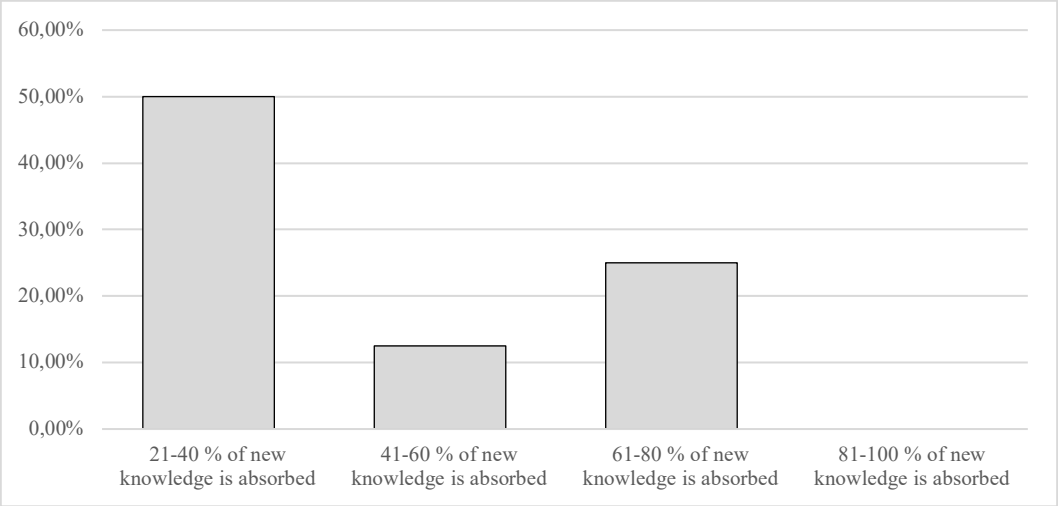


Figure 10. Level of new knowledge absorption.

Source: based on experts' questionnaire developed by the author.

Experts shared different evaluations regarding the new knowledge absorption level, and only two experts from "Droga5" and "WMFA" believe 60-80 % of new knowledge is absorbed in their organisations. The rest of the experts think the new knowledge absorption level is way lower. How can this result be interpreted? At first, agencies should be more aware of the level of knowledge absorption in an organisation, and if needed, take additional steps towards improving the results.

Ideas on new knowledge absorption improvement. Experts shared their thoughts on how the level of new knowledge absorption can be improved in an organisation. These were their ideas (original language):

- *Expert 1*: "To make it less ad-hoc and more systematic implementation of knowledge absorption".
- *Expert 2*: "By engaging employees in new knowledge discovery and encouraging them, then new knowledge is used. A solution might be to set rules for top management to use new knowledge more often and emphasize to the team; then this knowledge is used".
- *Expert 3*: "There should be a specific person who is responsible for the knowledge absorption and transfer".
- *Expert 4*: "Taking new knowledge for test runs on actual projects, as a must criterion, in brief, having test runs of different work-flow styles, to see which fits best for the testing of new knowledge in projects".
- *Expert 5*: "By fear of losing your job. Kidding. Internal competition. Personal curiosity. Informal knowledge-sharing routines".
- *Expert 6*: "The level of knowledge absorption could be improved if information sources were sorted through and presented in a curated feed, saving time on searching for trustable information sources. It could also be improved by sharing information with teams, discussing as well as testing new knowledge".
- *Expert 7*: "It depends on the type of knowledge in question. A craft-based vocational knowledge, i.e., how to do one's job, is best absorbed through apprenticing a master practitioner. So, one way to improve the absorption of that type of knowledge could be for more senior employees to spend time with juniors unpacking the thought process that goes into finding solutions and making decisions".
- *Expert 8*: "By making it monthly routine to present it (a new knowledge) for each other".

Experts' ideas regarding improving the level of new knowledge absorption in an organisation are quite different. They can be classified as soft recommendations and strict rules. Soft recommendations encourage employees to be more engaged and curious about new

knowledge or by apprenticing senior-level colleagues. In the group of strict rules are ideas like establishment of knowledge "coordinator" role, requirements to use new knowledge in daily projects, new monthly routines, new knowledge feed filtering in order to pre-select only relevant information. These ideas prove the fact that new knowledge absorption related routines are needed. What is more, organisations from the creative industries sector might be willing to try rather bureaucratical routines to improve knowledge absorption.

The value gained from new knowledge. This question seemed to be a complicated task since half of the experts admitted it is hard to tell whether value gained from new knowledge is measured. The rest of the experts admitted this parameter is not measured in their organisation. If to summarise the questionnaire results so far, new knowledge is fundamental, the need for it is increasing. However, there is a lack of organisational routines for new knowledge acquisition, absorption level measurement, and gained value evaluation. What does it tell? Agencies are lacking practical tools and frameworks to measure the value gained from new knowledge. Despite the fact, new knowledge-related activities and tools (employee training, subscriptions to international databases, publications, IT tools) often require substantial financial resources, agencies simply do not know if this investment brings any value at all.

The importance of new knowledge for improving the value creation in an organisation. Continuing the topic of value created by new knowledge, experts were asked to share their opinion about whether new knowledge is necessary to improve the value created by an organisation. Most experts think new knowledge is crucial for such a goal. Two experts answer this question differently and believe new knowledge can improve value creation in an organisation, but it is not the only factor affecting it.

Encouragement of knowledge transfer among organisational units. The questionnaire further was focused on knowledge transfer. Experts were invited to select from pre-coded answers or share their opinions in a free form about knowledge transfer encouragement practices. The most common response was that knowledge is transferred informally, spontaneously. Answers suggest more strict rules or routines (incentives, dedicated time to transfer knowledge to each other) of knowledge transfer were not chosen often. So again, one more knowledge management process is implemented in a relatively informal manner.

Level of knowledge transfer in an organisation. Experts were asked to evaluate the organisation's knowledge transfer level based on similar logic to the knowledge absorption topic. Half of the experts believe 41-60 % of knowledge is transferred in an organisation. More experts believe more knowledge is transferred than it is absorbed if to compare the level of new knowledge absorption and the level of knowledge transfer. Also, answers to the question about

the level of new knowledge absorption were more fragmented, indicating it is complicated to evaluate such activities.

Knowledge transfer efficiency differences between organisational units. Continuing knowledge transfer topic, experts were asked about knowledge transfer level among different organisational units and levels: individual level, top-management level, group level, department level, and subsidiary level. Experts believe the most intensive knowledge transfer is happening among individuals and top-management level employees. Experts believe the lowest level of knowledge transfer is among departments and subsidiaries of the organisation. This is not surprising because functional differences between different departments and knowledge applicable to one department might be irrelevant for another.

Ideas on new knowledge transfer improvement in an organisation. Experts were invited to share their thoughts on how knowledge transfer could be improved in an organisation. These are their answers (original language; one expert skipped the question):

- *Expert 1*: “Creating the right incentives. But it is hard to tell in the abstract”.
- *Expert 2*: “By working with more employees vs. freelancers”.
- *Expert 3*: “Dedicated time slots for both knowledge absorption and transfer is crucial. As for now, the daily workload is too high, and there is no motivation to deepen your knowledge after working hours”.
- *Expert 4*: “By having workshops one department with another in an informal manner”.
- *Expert 5*: “There should be specific resources, practices, and routines for that”.
- *Expert 6*: “By encouraging more collaboration between departments as well as formalizing transfer process (creating regular meetings for knowledge transfers)”.
- *Expert 7*: “As I mentioned before - the only way to sustain the knowledge transfer is to make it very systematic. Shelled meetings, digital tools, etc. It leads to the culture of knowledge-sharing”.

Proposed ideas can be divided into two groups: related to motivation and new procedures, both formal and informal. Regarding the motivation, both intrinsic (bonuses, allocated time during working hours) and extrinsic motivation (perception of knowledge transfer as satisfying, meaningful, and essential activity) are crucial. Besides motivational challenges, organisation management should think of more formalised rules and routines for knowledge transfer improvement – systematic approach and dedicated tools, time, and financial resources. This context suggests that organisation management plays an essential role in motivating, encouraging, and providing the needed knowledge transfer resources.

Interpretation of "knowledge waste". Experts were asked to share their free interpretations on the "knowledge waste" term at the near end of the questionnaire. These are the experts' reactions and thoughts:

- *Expert 1*: "Information about the new things that will be forgotten eventually".
- *Expert 2*: "Unrealised potential resulting from not taking advantage of the knowledge existing within an organisation".
- *Expert 3*: "Time and money spent on training someone who does not use it (knowledge) or transfer it (knowledge)".
- *Expert 4*: "When knowledge sits in one person's head. It is not transferred to anyone who could use it to create value for the organisation. As the saying goes: "when the dog sleeps on the haystack".
- *Expert 5*: "Having employees who have certain knowledge that could benefit the company but not using it because of the old and narrow systems by which all the company is managed".
- *Expert 6*: "Not sharing the knowledge inside the organisation between colleagues".
- *Expert 7*: "When knowledge is kept by one person and not only not transferred to others, but not used at all".
- *Expert 8*: "Some people have the knowledge and do not share it in a meaningful way".

In general, all experts share a similar understanding of the term "knowledge waste". In most thoughts, it is understood that knowledge waste appears when due to the lack of willingness, resources, or low appreciation of gained knowledge, it is neither used by the knowledge owner nor transferred to others. In other words, it is the unsustainable usage of knowledge and the result of consumerism. This proves again, the problem exists. It is recognised not only in academia but by practitioners as well.

Knowledge related challenges. The very last question was to identify the most common knowledge related challenges in the organisation. Experts were invited to choose the most relevant answer out of seven pre-coded answer options, which were developed based on empirical research: knowledge overload, a constant need for new knowledge, overlap of knowledge (hard to get genuinely new knowledge), the knowledge getting out-dated too fast, organisational culture does not support new knowledge related initiatives, too expensive high-quality knowledge sources, there are not tools to evaluate value gained from new knowledge. Experts were invited to evaluate challenges by their relevance (see figure 11). According to experts, they are often faced with challenges such as lack of tools to measure the value gained from knowledge, too expensive high-quality knowledge sources, a constant need for new

knowledge, lack of organisational support for knowledge related activities, and the overlap of knowledge.

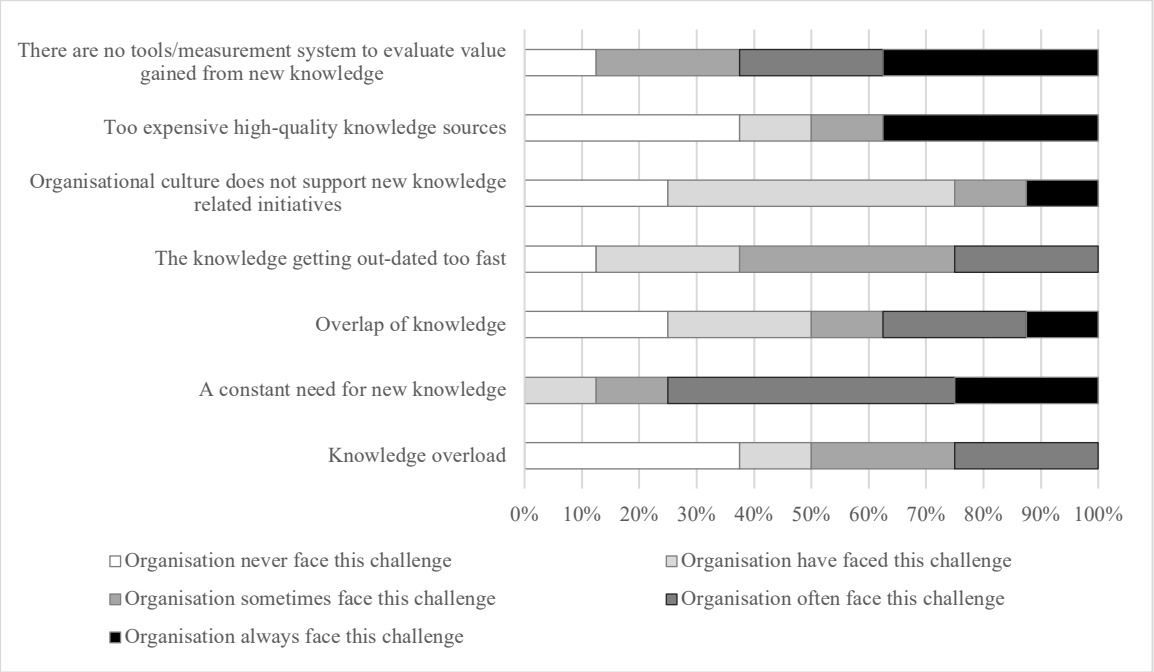


Figure 11. Knowledge related challenges and their importance

Source: based on experts' questionnaire developed by the author.

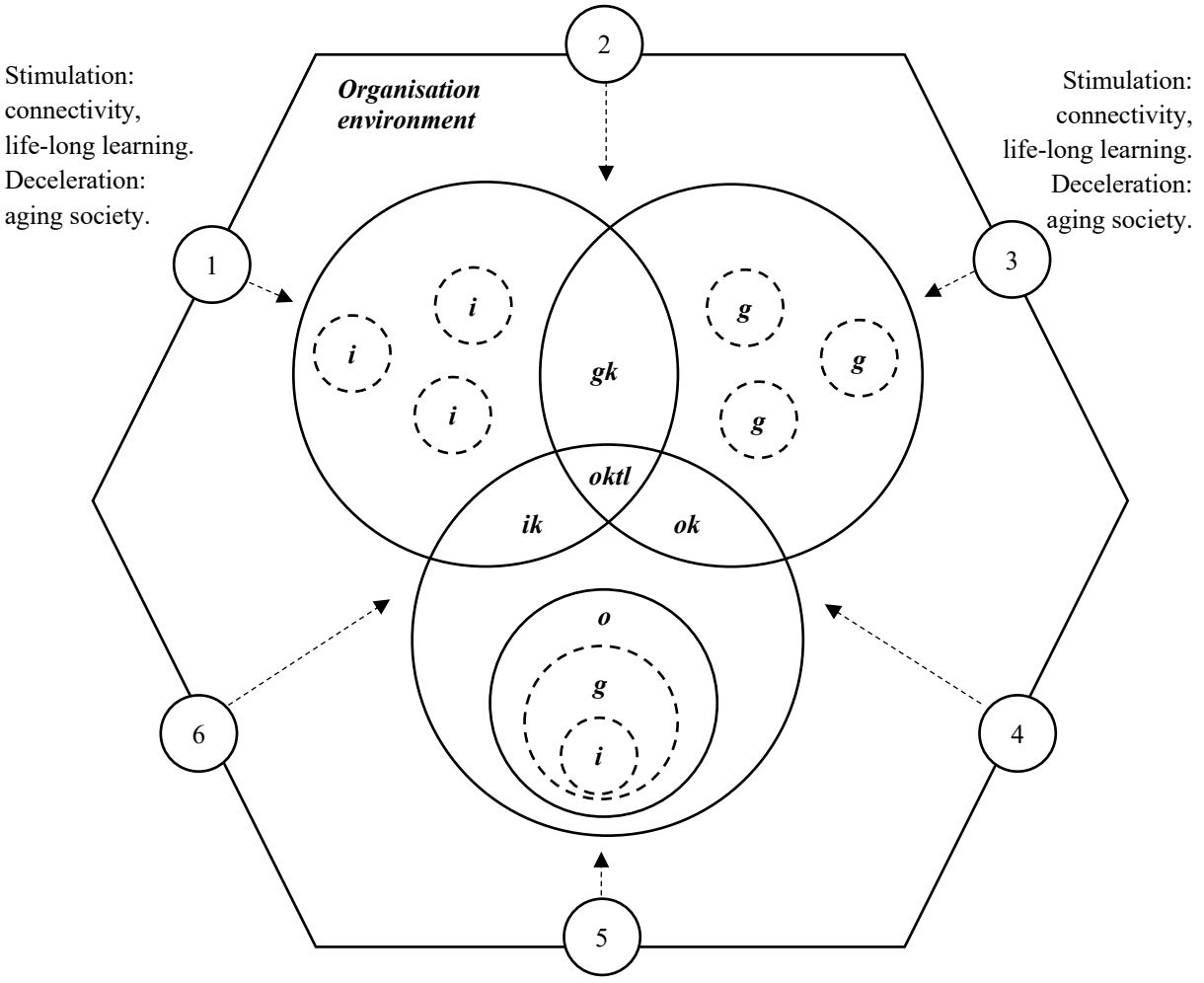
Experts identified the least relevant challenges are the high price of new knowledge sources and knowledge overload. Interestingly, knowledge sources' high price is a contradicting challenge since it is very relevant for some experts. The different backgrounds of agencies might cause such a result: international agencies with highly developed networks see this challenge least relevant than independent Lithuania based agencies.

Research conducted with experts of KIBS organisations gave valuable insights to the final result of this paper. Knowledge, new and existing, is crucial for these companies and is a genuinely vital resource; however, so far, it is still a very complicated task to manage knowledge related process effectively. The research highlighted the challenges of knowledge transfer and knowledge absorption and the lack of tools to solve them effectively.

3.4. Model of knowledge transfer in KIBS

This paper's ultimate result is a model of knowledge transfer for the development of international activities in KIBS (see figure 12). The main challenges this model helps to overcome are knowledge transfer efficiency and increased knowledge absorption in KIBS. For this purpose, the model has the following structure:

- *Focus on the organisational environment* as a vital setting for further stages to succeed.
- *Stage 1:* knowledge transfer at an individual level.
- *Stage 2:* control stage for improved group knowledge.
- *Stage 3*: knowledge transfer at a group level.
- *Stage 4:* control stage for improved organisational knowledge.
- *Stage 5:* knowledge transfer at an organisational level to groups and individuals.
- *Stage 6:* control stage for improved individual knowledge.
- *Organisational knowledge transfer level:* indication of knowledge transfer level.



Stimulation: automation, life-long learning, connectivity, conscious consumerism
Deceleration: aging society

Explanation of abbreviations: ***i***: individual; ***g***: group; ***o***: organisation; ***gk***: group knowledge; ***ik***: individual knowledge; ***ok***: organisational knowledge; ***oktl***: organisation knowledge transfer level; - - - penetrability to knowledge movement; —- organisational environment.

Figure 12. Six-stage knowledge transfer model for the development of international activities in KIBS

Source: developed by the author.

The six-stage knowledge transfer model is inspired by Nonaka and Konno (1998) SECI model. SECI visualize the "ba", the idea of knowledge creation in various "places". As proposed in SECI, knowledge can be created in three levels – individual, group, or organisational. Following the concept, the author suggests knowledge can be not only created but also transfer and absorbed in the same three levels:

- *Individual-level:* formal and informal knowledge transfer among individuals. This type of knowledge transfer is used to transfer tacit and explicit knowledge using verbal communication, physical or digital tools. At this level, knowledge absorption is also at the individual level. At the individual level of knowledge, transfer, and absorption of group knowledge is enhanced.
- *Group-level:* this level unites knowledge transfer activities in various structural units of an organisation – formal and informal groups, departments, subsidiaries. Knowledge transfer at the group level can happen by one individual (management of the group) transferring knowledge to the rest of the group members or transferring knowledge to another group. Knowledge transfer activities at a group level require more tools, psychical, and mostly digital to transfer knowledge for units located elsewhere. Group-level knowledge transfer is more complex and usually more formal than informal, requires more preparation and planning in advance. At this level, knowledge is absorbed by the group. The level of its absorption depends on the willingness of individuals to absorbed it and used it in daily practices. In the level of group knowledge transfer and absorption, organisational knowledge is enhanced.
- *Organisational-level:* while being the broadest level of knowledge transfer, it is also the most formal one. Organisational knowledge transfer is meant to transfer existing knowledge to groups and individuals of the company. By tendency, this process is organised and led by organisation management. Physical and digital tools are a must at this level since considerable knowledge "recipients" are involved. At this level, organisational knowledge is transferred to groups (structural units) and individuals forming these groups - the goal of this stage to enhance personal knowledge.

These three levels are highly interlinked and create a self-sustaining mechanism of knowledge flow in the organisation. Individuals are enhancing group knowledge; groups are enhancing organisational knowledge, and organisation transfer knowledge to individuals. The more knowledge is transferred and absorbed at each level, the more effective the whole mechanism is. An efficient knowledge transfer and absorption process, at all levels, requires a

particular organisational environment. As the macrotrends analysis and experts' questionnaire indicates, there is a list of factors that might stimulate or decelerate knowledge transfer and absorption processes within an organisation. Organisation environment should help to manage obstacles and barriers like:

- Aging-society, causing a decrease in productivity, generational differences, increased tension, slower adaptation to changing organisational environment and tools.
- Lack of dedicated time, budget, technological, and other relevant resources, crucial for the knowledge transfer process to happen effectively. As indicated previously, these can be rational reasons employees simply cannot perform knowledge transfer.
- Lack of rules and routines. Experts' questionnaire highlighted the potential lack of organisational routines and practices to perform knowledge transfer activities. When knowledge transfer is not supported and encouraged at the organisational level, the process's result remains at the individual level. Numerous scientific sources and empirical research showed that in such conditions, personal motivation plays an important role.
- Lack of motivation. Employees can be motivated both intrinsically and extrinsically. While extrinsic motivation is more comfortable to boost with reward and incentives, it leads to a relatively short-term result. Intrinsic motivation, on the other hand, is a long-term achievement when employees do a particular task because it is naturally satisfying, enjoyable, meaningful, and engaging. Organisations should develop a motivational system that would cover both types of motivation.

The organisation environment should work as a setting, encouraging and supporting knowledge transfer activities in all three levels. However, while some stages identified in the knowledge transfer model require organisational support, other stages require organisational control. There are two types of stages:

- *Dynamic* knowledge transfer stages: these are stages 1, 3, and 5. Dynamic stages are meant to actual knowledge transfer activity at the individual, group, or organisational levels. What is essential is not only the fact of this process but also the result of it. As experts of KIBS companies identified, there is almost no control over knowledge transfer efficiency and knowledge absorption. For this purpose, three control stages are dedicated. Dynamic stages are affected by macrotrends, which either stimulate knowledge transfer or decelerate it.
- *Control* stages: these are stages 2, 4, and 6. To ensure that knowledge was transferred and absorbed, Key Performance Indicators (KPIs) must be established. KPIs vary from

the level – individual, group, or organisation. Although each company should develop the set of KPIs that suites its activity best, the author recommended a set of KPIs. Recommendation for soft and hard KPIs is presented in table 11.

Table 11. Recommendation for KPIs for three control stages.

Control stage	Recommended KPIs
Stage 2: group knowledge	Soft KPIs: - personal evaluation of willingness to transfer knowledge to a colleague (scale from 1 to 10, where 1 is no willingness to transfer knowledge and 10 extremely high willingness to transfer knowledge). - personal evaluation of knowledge absorbed from colleagues per day/week/month (scale from 1 to 10, where 1 is no knowledge was absorbed and 10 high amounts of knowledge were absorbed). - personal evaluation of the application of new knowledge gained from a colleague in daily practices per week/month (scale from 1 to 10, where 1 is no new knowledge was applied in daily work and 10 high amounts of new knowledge were applied in daily work). Hard KPIs: - time spend on knowledge transfer to colleagues per day/week/month. - time spend while receiving knowledge from colleagues per day/week/month. - number of colleagues to whom knowledge was transferred per day/week/month. - number of colleagues who transferred their knowledge per day/week/month.
Stage 4: organisational knowledge	Soft KPIs: - personal evaluation of willingness to transfer knowledge to group (also department, subsidiary or other structural units) of colleagues (scale from 1 to 10, where 1 is no willingness to transfer knowledge and 10 extremely high willingness to transfer knowledge). - personal evaluation of knowledge absorbed from a group of colleagues per week/month (scale from 1 to 10, where 1 is no knowledge was absorbed and 10 high amounts of knowledge were absorbed). - personal evaluation of the application of new knowledge gained from a group of colleagues in daily practices per week/month (scale from 1 to 10, where 1 is no new knowledge was applied in daily work and 10 high amounts of new knowledge were applied for daily work). Hard KPIs: - time spend on knowledge transfer to a group of colleagues per week/month. - time spend while receiving knowledge from groups of colleagues per week/month. - the number of groups of colleagues to whom knowledge was transferred per week/month. - number of groups of colleagues who transferred knowledge per week/month.
Stage 6: individual knowledge	Soft KPIs: - personal evaluation of top organisation management willingness to transfer knowledge to groups and individuals (scale from 1 to 10, where 1 is no

	willingness to transfer knowledge and 10 extremely high willingness to transfer knowledge). - personal evaluation of knowledge absorbed from top organisation management per week/month (scale from 1 to 10, where 1 is no knowledge was absorbed and 10 high amounts of knowledge were absorbed). - personal evaluation of the application of new knowledge gained from top organisation management in daily practices per week/month (scale from 1 to 10, where 1 is no new knowledge was applied in daily work and 10 high amounts of new knowledge were applied for daily work). Hard KPI: - time spend while receiving knowledge from the organisation's top management per day/week/month.

Source: developed by the author.

Recommended KPIs can be applied by an organisation or adapted, taking into consideration structural or organisational specifics. A simple digital form to fill the questionnaire should be developed; employees should be reminded to fill it in periodically. Proposed KPIs could help track the progress and efficiency of knowledge transfer and knowledge absorption in three levels of an organisation. In addition to a proposed KPIs set, it is vital to evaluate a holistic knowledge transfer level in an organisation. For this purpose, it is recommended to use questions and pre-coded answers, proposed in table 12.

Table 12. Recommendation for a level of organisational knowledge transfer evaluation.

No.	Question	Answer options
Q1	In your opinion, how much knowledge is transferred to an organisation? Please, try to evaluate.	- 0-20 % of the knowledge is transferred. - 21-40 % of the knowledge is transferred. - 41-60 % of the knowledge is transferred. - 61-80 % of the knowledge is transferred. - 81-100 % of the knowledge is transferred.
Q2	In your opinion, did the level of knowledge transfer in an organisation changed during a (specified) period?	- increased. - decreased. - remain the same.
Q3	In your opinion, how much knowledge is absorbed in an organisation? Please, try to evaluate.	- 0-20 % of knowledge is absorbed. - 21-40 % of knowledge is absorbed. - 41-60 % of knowledge is absorbed. - 61-80 % of knowledge is absorbed. - 81-100 % of the knowledge is absorbed.
Q4	In your opinion, did the level of knowledge absorption in an organisation changed during the (specified) period?	- increased. - decreased. - remain the same.

Source: developed by the author.

Organisation management should run this survey regularly and track the performance. The questionnaire must be filled both by employees of junior, middle, and senior levels and organisation top management. This segmentation would help to look for any discrepancies (for example, organisation management evaluates the level of knowledge transfer in the organisation two times higher than employees of middle level) and identify problematic areas.

The proposed model of knowledge transfer for the development of international activities in KIBS. It is a set of useful and practically applicable guidance, contributing to more effective knowledge absorption in an organisation.

The developed model is the ultimate result of this study. It was done gradually, based on analysed scientific literature, macrotrends analysis, best state-level practices inspired by Luxembourg example, and insights from KIBS sector experts. Implemented research led to an educated assessment of the raised hypothesis.

The first hypothesis, "Knowledge absorption in KIBS organisations is insufficient due to the inefficient knowledge transfer process," is approved. Although KIBS organisations are frontrunners in the knowledge management field, they lack systemised tools and processes to transfer knowledge. What is more, neither knowledge transfer nor knowledge absorption effectiveness is measured. As identified in scientific literature and highlighted in experts' questionnaire results, knowledge transfer is often an informal activity, which happens irregularly and with no control. However, KIBS experts agree that a more systemised approach, routines, and administrative regulations are needed to implement effective knowledge transfer and measure its effectiveness.

The second hypothesis, "Knowledge is an intangible and unlimited resource, thus encouraging irresponsible use and waste of knowledge in organisations," is approved. The very nature of knowledge makes it a unique resource – it is intangible and boundaryless, so the fear of a shortage of knowledge does not exist. This context does not motivate organisations to use knowledge sustainably, meaning to maximize the potential of current organisational knowledge before dedicating time and financial resources for the acquisition of new knowledge. New knowledge and the very process of its acquisition somehow is more attractive for employees and organisations. New knowledge related activities are perceived as a motivational tool, the way to manage the retention of the workforce. However, in some cases, it happens to be a prove of irresponsible management of organisational resources.

In conclusion, despite the fact of the current shortage of knowledge management tools, KIBS organisations will be the ones who apply these tools and routines first. It is only a question of time. When it is done, other industries will have clear and practical guidance.

CONCLUSIONS

Profound analysis of scientific literature and implemented complex research led to the following conclusions.

1. Insufficient knowledge management activities in KIBS organisations contradict the declared importance of knowledge as a vital resource. A current blind spot in knowledge management and lack of data on its processes diminishes the potential value knowledge can make. Although knowledge is fundamentally different from tangible and measurable resources, like human or financial, it must be approached similarly. It should be managed with attention, tracked, measured and evaluated periodically because knowledge costs the organisation precious time and money. The new approach is needed – from an intangible resource to an organisational asset. An organisation's top management should perceive knowledge similarly to other business assets like employees, financial capital, real estate, or even a brand. Knowledge should become a valuable organisational asset and be treated appropriately.

2. The KIBS sector's growth encourages competition, the need to adapt to a knowledge-intensive environment high-speed and manage new knowledge-related challenges effectively. The study highlights five key challenges: the increasing demand for new knowledge, the human role in knowledge management, knowledge internationalisation, knowledge transfer in a global enterprise, and knowledge loss, waste, and retention. These challenges show how broad the scope of potential knowledge management risks is. Knowledge management professionals should be equipped with social, technological, and international management skills to avoid knowledge loss and waste, which is the most severe challenge.

3. In-depth analysis of knowledge transfer and absorption measurement methods brought the absence of one universal approach to the light. Such a method simply does not exist, and each situation requires a tailor-made solution. The complex nature of knowledge and lack of practical tools to measure knowledge transfer and absorption might be why companies lack this type of data. KIBS organisations remain unaware of how much knowledge they absorb or how much value they get from new knowledge.

4. Knowledge management and transfer are subjects of national and international importance, included even in the UN Sustainable Development Goals program. In some cases, state-level policies are more developed and structured than ones used in a business context. The ranking of EU countries helped to identify Luxembourg as the country with the highest knowledge transfer level. Luxembourg is an excellent example of the circular economy, digitalization, progressive government thinking, and a favourable environment for clusters to

thrive. The country's size can influence knowledge transfer – small size is advantageous for more effective knowledge transfer and collaboration among public and private sectors.

5. Identified five macrotrends of aging-society, connectivity, life-long learning, automation, and conscious consumerism will soon affect knowledge transfer processes. Four of them will stimulate the process, and especially the 4.0 industrial revolution will unlock the unknown potential of AI-based knowledge management tools. On a less positive note, an aging-society will decelerate the knowledge transfer process. It will force the bidirectional adaptation – employees' adaptation to new ways of working, and organisations management adaptation to the workforce's transformation.

6. Insights gathered from experts from c-KIBS organisations, advertising agencies "Droga5", "DDB Vilnius", "Ogilvy Vilnius", "WMFA", "New", "Clinic212", and "MILK" led to a conclusion about the absence of formalised knowledge management processes. At this stage, both hypotheses were approved: 1) knowledge absorption in KIBS organisations is insufficient due to the inefficient knowledge transfer process; 2) due to the specifics of knowledge as a resource, irresponsible use and waste of knowledge is present in KIBS. To improve organisations' absorption of knowledge and track the efficiency of its transfer Six-stage model of knowledge transfer is developed and proposed as a solution.

7. The Six-stage model of knowledge transfer works as multi-level guidance and combines the insights from a global context, state- and organisational-level. The model is based on the SECI model by Nonaka and Konno (1998), modifying and enriching its structure with new stages, meant for knowledge tracking and measurement. The model embodies best practices from two different schools of knowledge-creating organisation, Western and Japan, present in two types of model stages – dynamic and control. The dynamic stages are inspired by the Japanese approach, not limiting knowledge to explicit one and considering tacit knowledge, personal and subjective insights as valuable components of knowledge. The Western approach is highly relevant to the control stages, suggesting the need for KPI-based knowledge tracking activities. The model visualises the process of knowledge transfer at different levels and offers KPI-based control activities for the efficiency of knowledge transfer and knowledge absorption. As envisioned in the model, the core of it is an organisations' knowledge transfer level – an ultimate indicator of knowledge transfer efficiency in the organisation, with calculations based on the multiple factors. The model acts in an organisational environment, a critical setting for facilitating and systemising the processes. Organisational management should react to an aging society, lack the willingness to transfer knowledge, and develop a motivational system to prevent it.

8. Future research could add valuable insight and broaden up the value of the study. The model could be tested in international KIBS organisations of different sizes, insights could be gathered from other KIBS sectors, like technology-based t-KIBS or professional-based p-KIBS. This information can improve the model and make it more versatile. Besides, future research can help track if all the macrotrends are still relevant, does the same country show the best national knowledge transfer level, or does the model require some adjustments due to the new context. Ultimately, the more profound research can be dedicated to the development of *knowledge measurement units* – a new approach that would provide the so needed tangibility for knowledge. In the future, such units can play a role in evaluating knowledge as an organisational asset.

9. A study has a high level of novelty. There is still a lack of theoretical knowledge on sustainable usage of knowledge and guidance to reduce knowledge waste in an organisation. Knowledge is a unique resource, but that does not make it a subject of irresponsible use, primarily because acquiring new knowledge requires significant organisational resources. New, conscious consumerism-based approaches are needed in knowledge management since it will shape the social, cultural, and business landscape for an upcoming decade.

10. The year 2020 was very different from the previous year due to the global pandemic. Businesses were forced to adapt to the global pandemic fast and effectively. Organisations realised they should remain flexible, transform long-term strategies to short-term tactics, be ready to transfer and absorb knowledge from international (WHO, EU) and national organisations (government, national health organisations) sources. Fast and fluent knowledge transfer can improve the resilience not only of organisations but of the whole humanity. There were several global pandemics before (i.e., Spanish Flu in 1918-1920), however by that time, there were now tools to gather and transfer information to other countries. Covid-19 in the digitalization age will equip organisations and nations with valuable knowledge to be used in times of global force majeure. It will help to save job places, the economy, and lives. This knowledge-rooted resilience proves that an effective knowledge transfer is vital, in the very literal meaning of it.

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