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Abstract
PhD Thesis

Knowledge transfer in multinational companies for increasing operational plant performance

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Content of the abstract of the PhD thesis

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Second part: The analysis of knowledge transfer in multinational companies

Keywords

Knowledge management, knowledge transfer, internal knowledge transfer, external knowledge transfer, absorptive capacity, disseminative capacity, human resource management, operational performance

Part I. Systematic literature review

This research was started with the conviction that it will make a significant contribution to increasing the competitiveness and organizational performance of multinational company subsidiaries, with special focus on production plants. Continuous globalization has also accelerated the flows of information, which of course has also affected the operations of multinational companies. The increasing amount of information alone does not contribute to the creation of competitive advantage, but if companies can convert information into knowledge, they can become more competitive. Of course, this is a necessary, but not a sufficient condition for gaining a long term competitive advantage. Organizational competitiveness is enhanced not by the knowledge per se but by the organizational ability to exploit that knowledge. However, managing organizational knowledge in case of multinational companies is a challenging task, as these corporations have dispersed production plants around the world with different strategies, tasks - and which is the most interesting from our point of view - with diverse cultures. In our thesis, offered both case study and survey based evidence how multinational company production plants should transfer and use relevant knowledge for increasing their operational performance.

Multinational companies are enterprises operating in several countries but managed from one (home) country. Generally, any company or group that derives a quarter of its revenue from operations outside of its home country is considered a multinational corporation (Ghohall & Bartlett, 1990). The effective formation of multinational companies dates back to the second half of the nineteenth century, manifesting themselves as forms of consolidation of the economic power of large commercial, industrial, agricultural, etc. companies (Negucioiu et al., 1998). However, the significant changes began in the world economy since the mid-sixties. The colonial

system collapsed, developing countries gradually integrated into the world economy. Rapid technological development began in the areas of transport, telecommunications and data transfer. The international financial system established in the American Bretton-Woods after World War II crashed. All of this has fundamentally altered the international operating conditions of companies, thus interacting with the specificities of operating capital flows. At the beginning of the twentieth century multinational companies controlled 80% of foreign direct capital investment, nearly 70% of global trade, 60% of international capital market lending. Nowadays, according to UN data (UN, 2016), some 35,000 companies have direct investment in foreign countries, and the largest 100 of them control about 40 percent of world trade.

As a result of technological advances, production-level international specialization and the close integration of former loosely connected parent and subsidiaries have become possible. The uncertainties of the international financial system and the strengthening of market competition forced companies with significant capital resources to set up their business with the establishment of foreign subsidiaries in a region offering the most favorable conditions for return on capital. Thus, they not only optimized their production, but also reduced the price, exchange rate risks and mitigated the effects of state regulation and the burden of tax policy.

Delimitation of the topic and research motivation

There are several manufacturing plants in Romania and in Eastern Europe, which – after a relatively short operating period – are relocated to a different geographical location where resources are less costly, while other location advantages are similar. At the beginning of the doctoral research project, the main objective was to find strategic solutions for avoiding the shutdown and relocation of these plants by increasing plant competences via knowledge transfer (KT) from within the internal network of plants belonging to a multinational company. As we have started to read and analyze the existing (operations) management literature related to knowledge transfer, we have discovered that authors handle the process of internal and external knowledge transfer separately. Based on our literature research, we have decided that we focus on both internal and external knowledge flows. Our research addresses the role of internal and

external knowledge transfer simultaneously, an approach that has rarely been considered in previous operations management literature. Furthermore, we identify a link between knowledge transfer and operational performance.

The current state of knowledge

Knowledge management is researched in various fields of management (operations management, strategic management, international business, and human resource management). The literature has two main streams: internal knowledge transfer refers to the transfer of knowledge within the multinational company, while and external knowledge transfer refers to the knowledge transferred outside the external supply chain network. A subsidiary can be involved in both types of KT processes.

The present research reviews the knowledge management (KM) literature on a subsidiary level. KT is realized on subsidiary level both internally (in the network of the multinational company) and externally (in the supply chain network), because the subsidiary operates as part of two networks (Demeter et al., 2015; Rudberg & Olhager, 2003). It is important to mention that knowledge flows can have different directions. In the internal network, we distinguish between forward (HQ to subsidiary), reverse (subsidiary to HQ) and lateral (subsidiary to subsidiary) knowledge transfer directions.

Organizational knowledge has become the most strategically significant resource of the organization (Minbaeva, 2006). Organizational competitiveness is enhanced not by knowledge per se but by the organizational ability to exploit that knowledge. Szulanski (1996) claimed that little systematic attention has been paid to 'internal stickiness of knowledge transfer', and he developed a model showing the best practices of transferring knowledge. Based on Teece's (1976) findings, Szulanski (1996) showed the sequence of events that lead to the decision of knowledge transfer. The four sequences are: (i) initiation, (ii)implementation, (iii) ramp-up, and (iv) integration. His findings are one of the starting points of knowledge transfer literature from an organizational point of view. Gupta and Govindarajan (2000) complemented Szulanski's (1996) theory, pursuing a nodal level of analysis. Building on communication theory, they have

argued that a complete mapping of the knowledge transfer process requires to the involvement of all of the following five major elements: (i) value of the knowledge possessed by the source unit, (ii) motivational disposition of the source unit regarding the sharing of his knowledge, (iii) the existence, quality, and cost of transmission channels, (iv) motivational disposition of the target unit regarding the acceptance of incoming knowledge, (v) and the target unit's absorptive capacity for the incoming knowledge. Minbaeva (2007) argues that two metaphors have guided knowledge transfer research. The first sees knowledge transfer as a process of communication, while the second views transfer primarily in terms of cost and benefit: the higher the cost of transfer, the slower the transfer will occur.

Current literature does not focus on both internal and external knowledge transfers, and their implications on operational performance. Although researchers agree that KT must have an impact on performance, there are (beside of a few operations management articles) relatively few papers focusing on performance implications, and there are none which researches the performance implications of both the internal and external KT. It is also important to mention that these questions are relevant both in Operations management and Human resource management field. The main difference between these two fields is the focal level. While OM has a more macro perspective (organizational level), HRM focuses on the micro foundations (employee level).

During the process of organizing the literature, we have found that there are some frequently researched relationships in each management field, but there are also some major differences between the focal interest points of different research areas. For identifying where are the research gaps in our chosen topic, we developed a theoretical framework, and identified that internal and external knowledge transfer, and the performance implications depend also on the absorptive and disseminative capacities, which researched jointly offers unique approach in KM literature.

Defining the research objectives

During the past decades, more and more multinational companies started to acknowledge that an international manufacturing network, composed of several manufacturing plants located in different countries or even on different continents, can become an important source of competitive advantage on the global market. On the level of individual units, though, it is a complex and practically relevant question how these plants can use internal knowledge to reach a higher level of competences. Improving the strategy of these plants should consider several constraints (i.e., the strategy on the network's level), and additional possibilities (i.e., learning from the other members of the network) which stem from the fact that these units are part of an international network composed of several plants with different roles and strategies.

Optimum knowledge transfer is essential for a local manufacturing unit, which is part of a multinational company, in order for it to be a successful member of the network. If the knowledge accumulated at headquarters or at other manufacturing units is shared with the individual manufacturing unit, the performance of this plant can be improved.

Thus, the research proposes to focus on the contextual factors of knowledge transfer within international manufacturing networks, and the impact of this knowledge on the performance of the plant.

The unit of analysis is the plant which is part of an international manufacturing network of a multinational company. Within the research we focus both on plants located in Romania – a developing country - target of many offshoring companies from Western Europe, and on developed country plants (Switzerland) as well.

In order to identify methods of improvement of the knowledge transfer process, we need to consider the following factors:

- Identifying the particularities of the plant's strategy in the context of international manufacturing networks (*Cheng et al., 2011)*
- Current competences of the manufacturing plants *(Feldman et al., 2013)*
- Advantages of plant location *(Ferdows, 1997)*

- Participation in the transfer of knowledge between the members of the network *(Vereecke et al., 2006)*

Main research objective:

- Identifying the methods than can contribute to the improvement of knowledge transfer from individual units of the international manufacturing network towards the focal unit. This objective is highly relevant for Romania due to the fact that, in general, offshore plants have inferior competences compared to several other network members or the headquarter, located generally in a developed country *(Mudambi, 2008).*

Specific objectives:

- Detailed elaboration of the theoretical background of the topic, based on a systematic literature analysis focusing on the following topics: multinational companies, international manufacturing network, manufacturing plant, manufacturing competences, knowledge transfer, absorptive capacity, disseminative capacity
- Identifying practical methods of assessing the competence levels of individual plants
- Identifying existing methods of knowledge and information transfer within the network
- Identifying methods to improve the absorptive capacity and the knowledge transfer process of individual plants, through which these plants can improve their competence levels, thereby ensuring their long-term existence and sustainability within the network.

Defining the research logic

The evolutionary nature of scientific research has been proved by several researchers working closely with the subject (Karlsson, 2009). According to their views, the research has several stacked but distinct phases, the tasks defined in the sections follow each other. These activities have a specific algorithm, and this is determined by the researchers in different ways, but the essence of the concepts is identical. According to Babbie (2001), the process of research has to be initiated with initial steps (goals, analysis units, topic definition) and then conceptualization (by defining the concepts and variables of the subject), selecting the research method and then operationalizing (by establishing specific measurement procedures). This is followed by the selection of the population to be examined, the sampling followed by the observation/test. The line continues with data processing and analysis. The last step is the formulation of the conclusions. During our research, we have respected the main steps of scientific research, and we have designed the present thesis according to that (Figure 1).

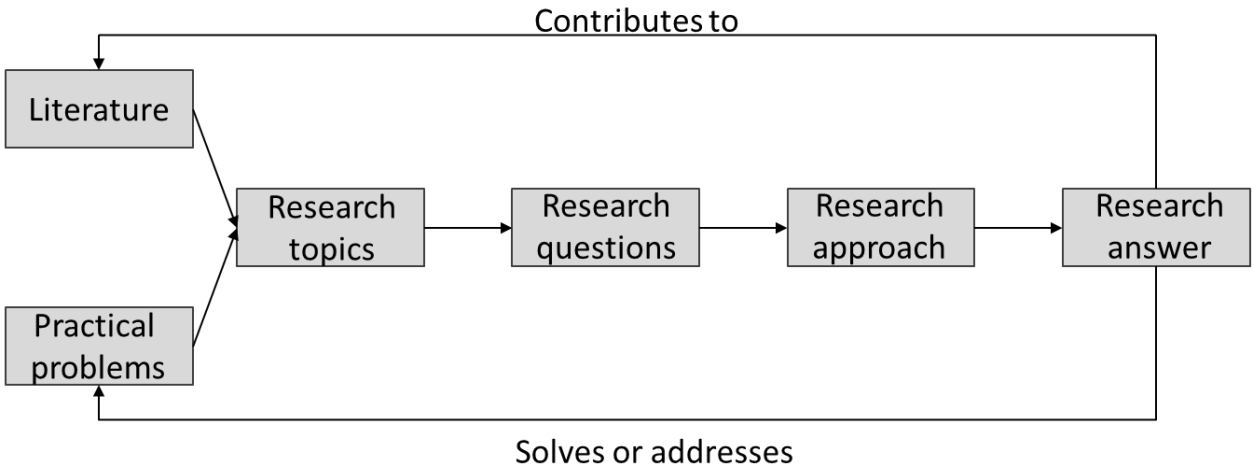

Figure 1. The research cycle of the thesis

Source: own editing

As management is a social science, it is very important that research should contribute in solving practical problems as well. At the very beginning of our research, we have identified the practical problems, and we will try to find the most relevant answers in order to solve them. We have also

designed our thesis according to the model represented on Figure 1. Furthermore, at the beginning of the main parts of the thesis we will include the above-mentioned figure, showing which chapter corresponds to the research steps.

Literature reviewing method for identifying the research gap in knowledge management

We have identified a few keywords in order to get acquainted with the knowledge management literature: knowledge transfer, external knowledge transfer, internal knowledge transfer, knowledge management, knowledge sharing, absorptive capacity and disseminative capacity. For the classification of relevant scientific literature, we have used Google Scholar, Web of Science and Anelis search engines. We found more than 500 articles for those keywords. After carefully filtering the papers we found, we have idenitied the most relevant 130 journal articles. After thoroughly reviewing the references to these articles not to omit an important finding in the knowledge management field, we have reached a number of 143 articles. Like all disciplines, the knowledge management literature has its controversial results. In order to exclude controversial results, we have relied on meta-analytical work by Van Wijk et al. (2008) and found more 98 reviewed journals. Here it is important to mention that we reviewed the above mentioned 98 papers in order to identify the research gaps in knowledge management. Our whole research is based on more than 200 journal articles and more than 50 books.

Identifying research gaps in knowledge management

Although all the scholars agree that knowledge transfer must have "an impact on performance, there are (beside of a few operations management articles) relatively few papers focusing on performance implications, and there are none which researches the performance implications of both the internal and external KT" (Rácz & Borza, 2015, p. 459). We also want to highlight that these categorzations are relevant both in Operations management and Human resource management field. One of the main differences between these disciplines is the focal level. While

OM has a more macro perspective (organizational level), HRM focuses on the micro foundations (employee level).

During the process of organizing the literature, we found that there are some frequently researched relationships in each management field, but there are also some major differences between the focal interest points of different research areas. For identifying where are the research gaps in our chosen topic, we used our theoretical framework, and identified that internal and external knowledge transfer, and the performance implications depend also on the absorptive and disseminative capacities.

Formulating the research questions and elaborating the research framework

Our research focuses on the organizational level. Thus, we use an updated version of ACAP definition, formulated by Zahra and George (2002, p. 186) who view the concept as "*a set of organizational routines and processes by which firms acquire, assimilate, transform and exploit knowledge to produce a dynamic organizational capability*", which is "*pertaining to knowledge creation and utilization, which enhances a firm's ability to gain and sustain a competitive advantage*". Furthermore, they developed the ACAP concept by dividing it into two separate parts: potential ACAP and realized ACAP. They define the two subsets of ACAP as follows: "*Potential ACAP comprises knowledge acquisition and assimilation capacities, and realized ACAP centers on knowledge transformation and exploitation.*" (Zahra & George, 2002, p. 185). The link between ACAP and DCAP is the realized capacity, as it could easily turn into DCAP. As we highlighted in the previous chapters, "transformation and exploration of knowledge creates value (by increasing performance) for the subsidiary and for the whole company" (Rácz & Borza, 2015,. 457). Because of these relationships knowledge transfer is a dynamic process, the sender can transform into a receiver and vice versa (Zahra & George, 2002). In the same article, the authors claim that the potential and realized ACAP depends on country, industry and organizational specific aspects (see also Szász et al., 2016). Nonaka (1994) and Minbaeva et al. (2003) argue that KT and ACAP depends highly also on individuals. For a better understanding and distinguishing between the potential and the realized ACAP and its performance

implications, we have formulated the first research questions related to potential ACAP. Based on the above described research gaps, our first main research question is related to acquiring internal knowledge and sharing it with MNC exterior partners:

Main research question 1: How can subsidiaries acquire and then share internal knowledge with external partners, for increasing performance?

Our second main research question relates to sharing internal knowledge with internal partners:

Main research question 2: How can subsidiaries share their internal knowledge within the network, to contribute to the performance of the network?

We have divided the main research questions into specific sub questions, as it follows:

RQ1.1: How can subsidiaries improve the process of acquiring internal knowledge from their manufacturing network?

Answering this research question helps us exploring how the potential ACAP can be improved within a subsidiary.

The second research question refers to the realized ACAP: MNC subsidiaries operate also as part of the external supply chain network, and consequently beside internal knowledge sharing, they may share knowledge outside the network as well. Sharing knowledge with external supply chain partners can be considered from the subsidiaries' point of view ACAP as well, because SC partners often share their product and process related needs with the plant they are purchasing from. Both internal and external knowledge transfer have a positive impact on performance, but there are relatively few papers considering the combination of internal and external knowledge sharing. Demeter et al. (2016, p. 75) based on survey research argue, that those subsidiaries which "*have already implemented methods and systems for internal KT might find easier to involve their external supply chain partners into knowledge sharing activities than subsidiaries*

that have not yet implemented such systems or practices". In the same paper, they are not analyzing how the internal knowledge could be shared in the external network. Frohlich and Westbrook (2001) also highlight the fact that supply chain integration could lead to higher operational performance. None of the papers are analyzing how the internal knowledge could be shared in the external network. In line with this, our second research question is:

RQ1.2: How can the subsidiary share the internal knowledge with external supply chain partners?

Starting from the literature, and based on the previous research questions, we also believe that intra-network knowledge shared and recombined with the knowledge of supply chain partners has important performance benefits (Ho, 2014). Literature argues that both internal knowledge transfer (Andresson et al., 2001; Lane et al. 2001; Mahnke et al., 2005; Szász et al., 2016;) and external knowledge transfer could lead to higher operational performance (Caloghirou et al., 2004), but there is no case study based research supporting that the interdependence of internal and external knowledge transfer has performance implications. We wanted to bring some new evidence regarding the performance implications of the intra-network knowledge sharing with external partners. Following these arguments, our third research question is:

RQ1.3: What are the performance implications of acquiring and sharing the internal knowledge with external partners?

There is some prior research on internal and external knowledge transfer, based on surveys (Demeter et al., 2016; Figueiredo, 2011), where similar questions were addressed only on an aggregate level, without having the possibility to offer detailed information on the two processes. As Demeter et al. (2016) suggest, further investigation is needed for a better understanding of the interdependence of internal and external knowledge transfer. As our research questions are mostly exploratory, for answering them we use the case study method, but for achieving a greater validity, we will also use quantitative research, as it is presented in the next chapter.

The second main research question also focuses on the role of manufacturing plants belonging to multinational companies (MNC). Nowadays, the knowledge of these MNCs does not only reside in well-established global headquarters, but also at local plants dispersed across the globe (Ambos et al., 2006; Sanchez-Vidal et al., 2016). Tsai (2002) argues that different plants may

compete on the company level for acquiring the relevant knowledge. Furthermore, Monteiro et al. (2008) claim that gaining the internal knowledge is not sufficient; for an active role in the knowledge sharing process, a plant should also share its knowledge with other plants. The plant's implication in knowledge transfer is also important from the perspective of the unit's future, as in global production networks the mandates of the production plants lacking relevant capabilities can be easily lost (Birkinshaw, 1996). In an analogous manner, Vereecke et al. (2006) find that plants actively participating in communication with other MNC units and being intensively involved in innovation sending activities have higher strategic roles and their future role is more secure in the network, whereas other plant types expect significant variance (increase or decrease) in their importance to the company. Thus, taking up a knowledge sender role within an MNC can secure the future of the respective plant within the company.

Taking this role, however, requires higher levels of plant capabilities. Monteiro et al. (2008), for example, show that the perceived capabilities of knowledge sending plants by other units within the MNC are significantly higher. Vereecke et al. (2006) also finds higher plant capabilities at units sharing innovations more intensively with other units than plants with lower capabilities. Nevertheless, the type of capabilities needed for becoming a knowledge-sending unit and the way they can be developed are not yet fully explored in the literature. Disseminative capabilities are discussed to be the knowledge sending capability within dynamic capabilities (Oppat, 2008). Nevertheless, results on disseminative capabilities stem from product development and not from knowledge transfer between manufacturing plants. Thus, we focus on the MNC plant as unit of analysis to investigate the capabilities needed in the process of transformation towards knowledge sending roles within the MNC. Furthermore, we also aim to identify contingency factors that can help or represent a barrier for a plant in becoming a knowledge sending unit. Thus, we formulate the following sub research questions:

RQ2.1: Which capabilities does a plant need to possess in order to transform to the role of a knowledge sending plant?

RQ2.2: What are the implications of becoming an internal knowledge sender plant?

Part II. Research methodology and data analysis

After a detailed literature review, and the identification of the research topic, choosing the proper methodology is crucial. The dual embeddedness of the subsidiaries is researched mainly in international business and operations management. In these fields, the most common methodologies are the surveys, case studies, action research, and modeling and simulation. For achieving the most accurate research results, we have decided that we will combine two from the enumerated 4 methods. Choosing the right method is dependent on the research topic. There is some knowledge on dual embeddedness, but there was no prior research that combined the construct of dual integration with operational performance. This results that our research is both exploratory and explanatory.

For the exploratory research, we have chosen the survey method, and for a more detailed understanding of the topic (explanatory research) we will use the case study method. Combining these methods, we can eliminate the disadvantages of each method separately.

To reach a better understanding on how internal and external knowledge transfer are working, and how they influence subsidiary performance, our research is primarily exploratory. In line with our research questions we have chosen the multiple case study method, which is "a history of a past or current phenomenon, drawn by multiple sources of evidence" (Leonard-Barton, 1990, p. 249). We have included data from both direct observation and systematic interviews with subsidiary managers, as well as from public and private archives. As there is some prior, mostly survey based, research on internal and external knowledge transfer, we try to cover the contextual conditions, which is only possible with case studies (Stuart et al., 2002). We have started our research with a detailed literature review. The second step was the formulation of the research questions, based on prior knowledge, followed by the design of our interview protocol, and secondary data collection (Eisenhardt, 1989). We have chosen the retrospective method instead of the longitudinal case studies, mostly because subsidiaries had no willingness to offer rich information on ongoing projects. As we wanted to omit the observer bias and wanted to have a good external validity, we have chosen multiple case study companies. The sampling process was based on several conditions: (i) multinational manufacturing subsidiary

with a headquarter in a developed country and operations in at least three different countries, (ii) top 10 company in their industry, because researching the best practices has more theoretical and practical value, then understanding why the manufacturing and organizational practices are not effective, (iii) strong support from the plant manager, as we wanted to conduct our first interview with the him/her, and also wanted him/her as our 'key informant', (iv) involvement of the subsidiary at least in the flows of goods, resources, information, and knowledge (not an isolated subsidiary) and (v) access to secondary data, as triangulation provides stronger substantiation of constructs and research questions. Based on these conditions, we have contacted eleven pre-selected multinational company subsidiaries, and reached a final number of six case study companies, three from Romania and three form Switzerland. The interviews have been carried out between December 2015 and December 2016, and during the period afterwards we conducted multiple interviews at three Romanian MNC and three Swiss MNC subsidiaries.

To study the internal and external knowledge transfers on a larger sample, and their impact on operational performance, we have formulated our hypotheses in line with our research questions and qualitative research findings. Then, we have tested our hypotheses using an international database containing data not only on Romanian and Swiss companies (as in the case study research), but also on firms (plants) from other countries. Thus, the analyzes and conclusions of the research are generalizable and at a larger level.

For processing and analyzing data from the database mentioned above, we used SPSS Statistics, version 17.0. For validating our hypotheses, we used the structural equation modelling.

For the purpose of our research, we selected from the IMSS VI database only those manufacturing plants, which are plants of a multinational company (single-plant companies were filtered). We further eliminated those cases that had missing data on any of the variables used in the analysis. Thus, the final dataset consists of 459 manufacturing plants located in the same 22 countries (Table 1.).

Table 1. Data sample

Sample	Number of respondents	% of original samle
Original sample	931	100,0%
Respondents belonging to a multinational company	606	65,1%
Missing data filter	459	49,3%

Source: own editing

In the case study research, we have highlighted the importance of the HR development on the internal and external knowledge transfer, and consequently its impact on operational performance. The relationships between internal knowledge transfer and external knowledge transfer, internal KT and operational performance, external KT and operational performance were tested with structural equational model in a previous article (Demeter et al., 2016) of the author of the present thesis. In the PhD research, we analyzed the effect of HR development on the above-mentioned constructs, as we wanted a more generalizable evidence on what we have found in our case study research. Our findinds based on the case study research (detailed in the next chapter) were generalizable on a larger scale.

Conclusions and presonal contributions

The shape of global production is in a continuous and dynamic change. The majority of multinational companies recognize that, by operating international manufacturing networks of plants dispersed in different countries, they can improve their competitiveness on the global market. The main source of this competitive advantage is that different plants possess different capabilities that can be combined and used throughout the internal network of an MNC, and due to the increase of global competition, plants must also absorb external knowledge, and share their internal knowledge with their partners form the supply chain network. The diversity of these plants is also present in the spread of their geographic location: many MNCs operate manufacturing plants in both developed and emerging countries.

Theoretical contributions

Our main objective was to investigate how the knowledge transfer prosses is designed, and how multinational companies can increase their operational performance by transferring relevant knowledge within and outside their network.

In answering the research questions, we took into consideration that the plants operate in two different networks: internal and external. Internal knowledge flows between the subsidiaries and between HQ and subsidiaries, while the external knowledge flows in the supply chain network. We have showed through multiple retrospective case studies, that knowledge residing in the internal network could be shared in the external one for achieving a better operational performance. We also highlighted the best practices in designing an effective knowledge management, based on absorptive capacity.

The main finding of the thesis is that subsidiaries need to access the internal knowledge, and for accessing it, it is not enough that all the MNCs have state-of-the-art knowledge transfer systems, human interaction is also compulsory for a successful knowledge transfer. All the interviewees claimed that job rotation, or prior professional relationships helped the transfer. Companies should consider this aspect as well, and invest in HR development. Another finding (which is

contrary to the relevant literature), regarding how internal knowledge acquisition can be improved, we have found some unexpected results, as internal knowledge acquisition does not necessarily depend on prior knowledge related to the project. In three out of the six successful projects, there was absolutely no prior local knowledge on how the project should be implemented, while in all the less successful projects the subsidiaries had some prior knowledge. Of course, these results should be carefully interpreted. These findings can be explained with the need of effective knowledge transfer from the internal network. If a plant has no prior knowledge on a project, it is forced to absorb internal knowledge, which is an available and tested source for best practices.

We also want to highlight that internal knowledge transfer can be improved by developing both the information systems and the human resources. Paying attention to only one of them will not result in successful projects, and consequently it will not increase the operational performance of the plant. It is also not enough to absorb internal knowledge and not share it with external partners. Our case study data suggests, that successful products can be developed (based on the open innovation paradigm) if external partners (customers and suppliers) are involved in the product development. We also want to highlight the fact that internal knowledge, shared with the external partners could lead to higher performance. Our case studies bring evidence that mainly in new product development, success can be reached if the customers and suppliers are involved in the process. This is only possible when the internal knowledge transfers are effective, then knowledge could be shared with external partners as well. Our results conclude that operational performance measures can be improved by acquiring the internal knowledge and sharing it with external partners, as we have seen improvements in quality, cost, differentiation and also in lead times.

We wanted to generalize the case study findings, consequently we have used the survey research methodology, using which we have tested the importance of human resource development on knowledge transfers and operational performance on a larger scale. In the survey-based analysis we use structural equation modeling (SEM) to test the impact of human resource development on internal and external knowledge transfer, and their operational performance outcomes. This was a useful approach in our case, because in contrast with regression models, where only one

dependent variable can be used at once, SEM can estimate multiple relationships in one full model, where one construct can be both a dependent construct and an independent one which influences other constructs of the model. We employed confirmatory factor analysis, for developing and validating the constructs measuring internal knowledge transfer, external knowledge transfer and operational performance. Based on our quantitative research, we have found that our case study results are also valid on a larger scale, as the HR development has a positive effect on all our selected constructs.

Furthermore, answering the second main research question, addressing an important gap in the OM and wider management literature, this research aims to explore disseminative capabilities in an international manufacturing network context, thereby adding to the identification and understanding of capabilities needed by manufacturing plants to take up knowledge sending roles within the network of an MNC. Based on the case studies we have brought evidence that even plants with lower strategic roles (located mainly in developing countries), have some decision autonomy. Out of three Romanian plants, with relatively low strategical plant role, just one had very low decision autonomy, while the others were able in some degree to make even strategical decisions. This finding is also important from a managerial perspective, as many developing country plant managers are not willing to take strategical decisions, because they have the perception that they are not allowed to. Managers, responsible for relatively low strategic role plants, who have the willingness of investing in KT, and through that in subsidiary level innovation, have much higher chance in succeeding. Based on this finding, we have also highlighted that on the long term KT, more specifically knowledge sharing could result in higher plant strategic roles, by the improvement of several operational performance measures. According both to literature and our case study findings, we argue that for becoming a knowledge sender plant, first knowledge should be absorbed and used for achieving higher performance. We have also brought evidence that plants with higher strategical roles have more stable positions within the multinational network, consequently the chances of relocation or shutdown are much lower. Plant managers should consider the long-term goal of becoming a knowledge sender plant, but first they should develop their plant's absorptive capacity. If they are continuously and successfully absorbing and using new knowledge, and consequently they

develop new competences, they can focus on developing the plant's disseminative capacity. The right order of developing these competences is crucial, and cannot be done in the reverse order.

Furthermore, our findings show that in contrast with Gupta and Govindarajan (1991, 2000) manufacturing plants can take up more diverse roles within the knowledge network, and can actually be positioned along a continuum from dominantly knowledge receiving to dominantly knowledge sending units, with multiple intermediary position coexisting.

We have also shed light on the fact that the knowledge position of many interviewed plants seems to be stable, several respondents indicated a strategic intent to change their positions, moving mainly along this continuum towards a higher intensity of knowledge sending roles. These results support our literature-based assumption that increasing the amount of knowledge sent to other plants within the MNC can strengthen the future position of the plant within the company.

We also found that a knowledge sharing oriented organizational culture, managerial systems and structures that reward the transfer of knowledge, and the intensity of inter-plant human interactions are important disseminative capabilities. The role of this latter dimension seems to be of such significance, that at some plants it can even compensate for the lack of other capability dimensions. Lastly, in contrast with the main results of the relevant literature, technology seems not to be a necessary element of DC, being outweighed by the human component in several knowledge sending projects.

Here we have found some contradiction of what plant managers believe in, and how they act. While all the interviewed plant managers have highlighting the importance of human-to-human relations, the benefits of job rotations, the importance of trainings, almost all of them was cutting costs from this exact area. From a managerial perspective, our findings aim to offer knowledge management best practices for increasing the operational performance and in line with this, it offers also guidance for plant managers working in MNCs on how to develop plant competences to become a knowledge sending unit, which can better secure the future of the plant in the IMN.

In summary, we have contributed both to knowledge management theory and practice, by jointly discussing the two directions of knowledge flows, and highlighting their impact on operational

performance measures, an approach rarely researched in literature. We have also offered insights on designing a highly effective knowledge transfer system, by focusing not only on predefined KT processes, but also on HR development, which turned out to be the bottleneck of a highly functional knowledge management. Furthermore, we brought evidence that even plants with relatively low strategical roles have some decision autonomy, which they should use in order of gradually becoming a knowledge sender unit, which results on a long term in higher plant roles, consequently a more stable position within the network.

Managerial implications

As mentioned above, in our research we tried to focus on practical (managerial) implications as well. However, "there is nothing is more practical than a good theory" (Eysenck, 1987, p. 49), in this section we highlight the managerial implications of our research.

It is indisputable that every plant manager wants to increase the subsidiary's operational performance measures. We have found some best practices in increasing these measures mainly by knowledge transfers:

(1) Plant managers should try to acquire as much internal knowledge as possible, and then share their internal knowledge with external partners in order to develop products and services which satisfy the demands of their customers.
(2) We have also found that acquired internal knowledge should not only be shared with subsidiary external partners, but also with other subsidiaries within the internal network.
(3) For becoming a knowledge sender plant, managers should develop first their plant's absorptive capacities, and then focus on disseminative capacities. This order of developing capabilities can not be reversed.
(4) We have highlighted that knowledge acquisition does not necessarily depend on prior knowledge, but on information systems and HR development. Consequently, for developing absorptive capacities, plant managers should invest in KT systems and HR development.

(5) However, in developing knowledge sending roles, we have found that state-of-the-art information systems are compulsory, but not satisfactory factors, the most important being the human interactions.

(6) Many plant managers seem to focus on HR development mostly in words, and not in actions, as most of the interviewed managers claimed that human interactions are important, but they were cutting costs from training programs. We want to highlight that investing in HR development is crucial from the KT perspective, and should be done not only in words, but also with actions.

(7) We have brought evidence that investing in KT and innovation will result in higher operational performance, which results in higher strategic plant roles. We have also highlighted that subsidiaries with higher plant role are less exposed to the risk of closure.

Limitations and future research possibilities

The main limitation of our research is relatively small number of case studies, and the fact that we could not use the longitudinal case study method, just the retrospective one. Although we aimed at a large variance of manufacturing plant selection in terms of contingencies, such as country, industry, and plant age, and in terms of knowledge roles as a core variable, our case study findings have still a limited generalizability. For a greater validity of the exploratory research more case studies should be conducted with the longitudinal perspective. Thus, we focused on generalizing by quantitative research the case study findings on the prominent role of human resource development on knowledge transfer and its operational performance implications. Another limitation of the survey research is that it did not study the possible influence of contingency factors on the relationships established in this study. IB literature, however argues that there are several factors (internal and external to the subsidiary), which may have an important effect on knowledge transfer. Successfully orchestrated knowledge sharing is also dependent on other factors. Here we give a list of dominant contingency factors from the literature (particularities of the parties involved in the transfer, characteristics of the knowledge transferred, and the relationship with other plants and the broader external context) which have been suggested to meaningfully influence knowledge sharing.

Given some of our case study findings which goes against the mainstream assumptions in knowledge management literature, we also suggest that the following topics should be researched on a sample that offers greater generalizability:

(1) the relationship of prior knowledge and project success, (2) our finding that manufacturing plants can take up more diverse roles within the knowledge network, and can actually be positioned along a continuum, and (3) that HR has greater role in knowledge sending than technology.

The investigation of these factors in relation to our model could represent an important direction for future research.

Referenses

Cited books

[1]. Adam, E. E., Ebert, R. J. (2001). *Production and Operations Management: concepts, models and behavior (Managementul producţiei si al operaţiunilor),* 5th Edition, Teora: Bucharest.

[2]. Adler, J.H. (1965). *Absorptive Capacity: The Concept and its Determinants*. Brookings Institution: Washington

[3]. Armstrong, M., Taylor, S. (2014). *Armstrong's handbook of human resource management practice*. Kogan Page Publishers: London

[4]. Babbie E. (2001) *A társadalomtudományi kutatás gyakorlata*. Balassi: Budapest

[5]. Bakacsi Gy., Bokor A., Császár Cs., Gelei A., Kováts K., Takács S. (2006). *Stratégiai emberi erőforrás menedzsment,* 2nd Edition. KJK-Kerszöv: Budapest

[6]. Bărbulescu, C. (2000), *Managementul producţiei industriale,* Sylvi: Bucharest.

[7]. Borza, A., Bordean, O., Mitra, C., Dobocan, C. (2008). *Management strategic. Concepte si studii de caz,* Risoprint: Cluj-Napoca

[8]. Brewster, C., Houldsworth, E., Sparrow, P., Vernon, G. (2016). *International human resource management*. Kogan Page Publishers: London

[9]. Cândea, D., Cuc, S.M. (2008). *Transparență și responsabilitate în guvernanța corporativă pentru sustenabilitatea afacerilor,* Teora: Bucharest

[10]. Chase, R. B., Jacobs, F. R., Aquilano, N. J. (2006). *Operations Management for Competitive Advantage*. McGraw-Hill/Irwin: New York

[11]. Chikán, A. (2008), *Vállalatgazdaságtan,* Aula: Budapest.

[12]. Cocioc, P., Jula, O. (2004), *Principii de economie generală*, Risoprint: Cluj-Napoca.

[13]. Constantinescu, D., Nistorescu, T. (2008). *Economia întreprinderii.* Editura Universitaria: Craiova

[14]. Cyert, R. M., March, J. G. (1963). *A Behavioral Theory of the Firm.* Prentice Hall: Englewood Cliffs New Jersey

[15]. Demeter, K. (ed.) (2010). *Az értékteremtés folyamatai. Termelés, szolgáltatás, logisztika. Jegyzet.* Vállalatgazdaságtan Intézet. Budapesti Corvinus Egyetem: Budapest

[16]. Dowling, P. J., Festing, M., Engle, A. D. (2009). *International Human Resource Management. Managing people in a multinational context,* 5th Edition. Thomson South Western CENGAGE Learning: London

[17]. Elster, J. (1989). *Nuts and bolts for the social sciences*. Cambridge University Press: Cambridge

[18]. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E. (2010). *Multivariate data analysis*. Pearson Prentice Hall: Upper Saddle River, NJ.

[19]. Hayes, R. H., Wheelwright, S. C. (1984). *Restoring our competitive edge: competing through manufacturing.* John Wiley & Sons: New York, NY

[20]. Hill, T. (1989). *Manufacturing Strategy Text and Cases*. Irwin: Homewood, IL.

[21]. Ilies, L., Lazăr, I., Mortan, M., Popa, M., Lungescu, D., Veres, V. (2008), *Management*, Risoprint: Cluj-Napoca.

[22]. Karlsson, C. (Ed.). (2010). *Researching operations management*. Routledge: London

[23]. Katsioloudes, M. I. (2006). *Strategic management. Global cultural perspectives for profit and non-profit organizations*, Butterworth-Heinemann (Elsevier): Oxford

[24]. Kirckpatrick, L. (1997). *Evaluating training programs.* Routledge: London

[25]. Kirkpatrick, J. B. (1999). *A continent transformed: human impact on the natural vegetation of Australia*. Oxford University Press: Oxford

[26]. Mayo, E. (1933). *The human problems of an industrial society*. Macmillan: New York, NY

[27]. McGehee, W., Thayer, P. W. (1961). *Training in business and industry.* Routledge: London

[28]. Naghi, M., Stegerean, R. (2004). *Managementul producţiei industriale,* Dacia: Cluj-Napoca

[29]. Negucioiu A., Dragoescu A., Pop S. (1998) *Economie politica,* 2nd Edititon, Editura George Baritiu: Cluj-Napoca

[30]. Oppat, Kay. (2008). *Disseminative capabilities: A Case Study of Collaborative Product Development in the Automotive Industry.* Gabler: Wiesbaden

[31]. Peretti, J. M. (1990). *Fonction personnel et management des ressources humaines*. Vuibert Gestion: Paris

[32]. Poór J. (2013). *Nemzetköziesedés és globalizáció az emberi erőforrás menedzsmentben*. Complex: Budapest.

[33]. Popescu, G. (2009). *Evoluţia gândirii economice*, Beck: Bucuresti.

[34]. Porter, M. E. (1985). *Competitve advantage, creating and sustaining superior performance.* The free press: New York, NY

[35]. Porter, M.E. (1985). *Competitive advantage: creating and sustaining superior performance*. The Free Press: New York, NY

[36]. Raţiu-Suciu, C. (2000). *Managementul sistemelor dinamice.* Editura Economică: Bucuresti.

[37]. Roberts, J. (2004). *The Modern Firm. Organizational design for performance and growth,* Oxford University Press Inc: New York.

[38]. Scarborough H., Swan J., Preston P. (1999). *Knowledge Management: A Literature Review. Issues in People Management*. Institute of Personnel and Development: London

[39]. Schmenner, R.W. (1981). *Production/Operations Management, Concepts and Situations*, 1st Edition. Science Research Associates: Chicago, IL.

[40]. Scullion, H. (1995*). International Human Resource Management. in: Storey, J. (ed.): Human Resource Management: A Critical Text.* Routledge: London

[41]. Scullion, H., Collings, D. G. (Eds.). (2006). *Global staffing*. Routledge: London

[42]. Simai, M. (2008). *A világgazdaság a XXI. szàzad forgatagàban: új trendek és stratégiàk*. Akadémiai: Budapest

[43]. Stegerean, R. (2002). *Sisteme moderne de conducere a producţiei.* Dacia: Cluj-Napoca.

[44]. Teece, D. J. (1976). *Multinational corporation and the resource cost of international technology transfer*. Ballinger Publishing Company: Cambridge, MA

[45]. Torrington Hall, L. (1995). *Personnel management, HRM in action,* 3rd Edition, Prentice Hall: London.

[46]. Turban, E. (1992). *Expert systems and applied artificial intelligence*. Macmillan: New York, NY

[47]. Turban, E., Meredith, J. R. (1992). *Fundamentals of management science.* McGraw-Hill College: Cambridge, MA

[48]. Waters, C. D. J., Waters, D. (2002). *Operations management: producing goods and services*. Pearson Education: London

[49]. Winter, S.G. (1987). *Knowledge and competence as strategic assets*, Ballinger: Cambridge, MA

[50]. Y. Doz. (1988). *Technology partnerships between larger and smaller firms: some critical issues. In: F.J. Contractor, and P. Lorange (Eds.), Co-operative Strategies in International Business: Joint Ventures and Technology Partnerships*. Lexington Books: Lexington, MA

[51]. Yin, Robert K. (1988). *Case Study Research and Design Methods.* Sage: Newbury Park

[52]. Zaltman, G., Duncan, R., Holbek, J. (1973). *Innovations and organizations,* Wiley: New York, NY

Cited scientific articles

[1]. Aggarwal, R., Chandra, A. (1990). Stakeholder management: opportunities and challenges, *Business 40*(4), 48-51 (in Katsioloudes, 2006, p. 21)

[2]. Ahmad, S., & Schroeder, R. G. (2003). The impact of human resource management practices on operational performance: recognizing country and industry differences. *Journal of operations Management*, *21*(1), 19-43.

[3]. Almeida, P., Song, J., Grant, R. M. (2002). Are firms superior to alliances and markets? An empirical test of cross-border knowledge building. *Organization Science 13(*2), 147-161.

[4]. Ambos, T. C., Ambos, B., Schlegelmilch, B. B. (2006). Learning from foreign subsidiaries: An empirical investigation of headquarters' benefits from reverse knowledge transfers. *International Business Review 15(*3), 294-312.

[5]. Andersson, U., Forsgren, M., Holm, U. (2001). Subsidiary embeddedness and competence development in MNCs – a multi-level analysis. *Organization Studies 22(*6), 1013-1034.

[6]. Andersson, U., Forsgren, M., Holm, U. (2002). The strategic impact of external networks: subsidiary performance and competence development in the multinational corporation. *Strategic Management Journal 23(*11), 979-996.

[7]. Anh, P. T. T., Baughn, C. C., Hang, N. T. M. Neupert, K. E. (2006). Knowledge acquisition from foreign parents in international joint ventures: An empirical study in Vietnam. *International Business Review 15(*5), 463-487.

[8]. Argote, L., Greve, H. R. (2007). A behavioral theory of the firm – 40 years and counting: introduction and impact. *Organization Science 18*(3), 337-349.

[9]. Argote, L., Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational behavior and human decision processes 82*(1), 150-169.

[10]. Argote, L., McEvily, B., Reagans, R. (2003). Managing knowledge in organizations: An integrative framework and review of emerging themes. *Management science 49*(4), 571-582.

[11]. Bapuij, H., Crossan, M. (2005). Co-evolution of social capital and knowledge: an extension of the Nahapiet and Ghoshal (1998) framework. *Academy of Management Best Conference Paper.*

[12]. Bartezzaghi, E. (1999). The evolution of production models: is a new paradigm emerging?. *International Journal of Operations & Production Management 19*(2), 229-250.

[13]. Bartlett, A., Ghoshal, S. (1989). Managing Across Borders–The Transnational Solution. *Harvard Business School Press 15,* 158-179

[14]. Befus, C. P. (1988). A multilevel treatment approach for culture shock experienced by sojourners. *International Journal of Intercultural Relations 12*(4), 381-400.

[15]. Bertalanffy, L. (1950). An outline of general systems theory. *The British Journal for the Philosophy of Science 2*, 134-165.

[16]. Bhawuk, D. P. (2001). Evolution of culture assimilators: toward theory-based assimilators. *International Journal of Intercultural Relations 25*(2), 141-163.

[17]. Bhawuk, D., Brislin, R. (2000). Cross-cultural training: a review. *Applied Psychology 49*(1), 162-191.

[18]. Birkinshaw, J. (1996). How multinational subsidiary mandates are gained and lost. *Journal of International Business Studies 27(*3), 467-495.

[19]. Boldis I., Boncz E., Csanádi P. (2000). Az emberierőforrás - menedzsment megújulása. *Munkaügyi Szemle 36(10),* 10-17.

[20]. Borrmann, W. A. (1968). The problem of expatriate personnel and their selection in international enterprises. *Management International Review 15*(2), 37-48.

[21]. Brătianu, C. (2008). A dynamic structure of the organizational intellectual capital. *Knowledge management in organizations*, 233-243.

[22]. Brewster, C. (2007). Comparative HRM: European views and perspectives. *The International Journal of Human Resource Management 18*(5), 769-787.

[23]. Cagliano, R., Blackmon, K., Voss, C. (2001). Small firms under MICROSCOPE: international differences in production/operations management practices and performance. *Integrated Manufacturing Systems 12*(7), 469-482.

[24]. Cagliano, R., Caniato, F., Golini, R., Longoni, A., Micelotta, E. (2011). The impact of country culture on the adoption of new forms of work organization. *International Journal of Operations & Production Management 31*(3), 297-323.

[25]. Cagliano, R., Caniato, F., Longoni, A., Spina, G. (2014). Alternative uses of temporary work and new forms of work organisation. *Production Planning & Control*, *25*(9), 762-782.

[26]. Caloghirou, Y., Kastelli, I., Tsakanikas, A. (2004). Internal capabilities and external knowledge sources: complements or substitutes for innovative performance?. *Technovation 24* (1), 29-39.

[27]. Cascio, W. F. (1993). Downsizing: What do we know? What have we learned?. *The Academy of Management Executive 7*(1), 95-104.

[28]. Chaturvedi, R., Dutta, S. (2005). Knowledge management practices at Toyota Motors, *ICMR Center for Management Research, Hyderabad, India – Case study no. 905-031-1*, distributed by The Case Center.

[29]. Cheng, Y., Farooq, S., Johansen, J. (2011). Manufacturing network evolution: a manufacturing plant perspective. *International Journal of Operations & Production Management 31*(12), 1311-1331.

[30]. Chesbrough, H. (2003). The logic of open innovation: managing intellectual property. *California Management Review 45*(3), 33-58.

[31]. Cleveland, G., Schroeder, R. G., Anderson, J. C. (1989). A theory of production competence. *Decision Sciences 20*(4), 655-668.

[32]. Coase, R. H. (1937). The Nature of The Firm. *Economica 6(*13), 386-405.

[33]. Cohen, W. M. and Levinthal, D. A. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation, *Administrative Science Quarterly 35(*1), 128-152

[34]. Colotla, I., Shi, Y., Gregory, M.J. (2003). Operation and performance of international manufacturing networks, *International Journal of Operations and Production Management 23(*10), 1184-1206.

[35]. Conner, K. P. (1991). A historical comparison of resource-based theory and five schools of thought within industrial organization economics: do we have a new theory of the firm?. *Journal of Management 17*(1), 121-154.

[36]. Corbett, C., & Van Wassenhove, L. (1993). Trade-offs? What trade-offs? Competence and competitiveness in manufacturing strategy. *California management review 35*(4), 107-122.

[37]. Cross, K. F., & Lynch, R. L. (1988). The "SMART" way to define and sustain success. *Global Business and Organizational Excellence*, *8*(1), 23-33.

[38]. Crowe, D., & Brennan, L. (2007). Environmental considerations within manufacturing strategy: an international study. *Business strategy and the environment 16*(4), 266-289.

[39]. Cua, K. O., McKone, K. E., Schroeder, R. G. (2001). Relationships between implementation of TQM, JIT, and TPM and manufacturing performance. *Journal of operations management*, *19*(6), 675-694.

[40]. da Silveira, G. J. (2005). Market priorities, manufacturing configuration, and business performance: an empirical analysis of the order-winners framework. *Journal of Operations Management*, *23*(6), 662-675.

[41]. Davenport, T. H., Prusak, L. (1998). Working knowledge: How organizations manage what they know. *Harvard Business School Press 29, 258-277*

[42]. Delaney, J. T., Huselid, M. A. (1996). The impact of human resource management practices on perceptions of organizational performance. *Academy of Management journal 39*(4), 949-969.

[43]. Demeter, K. (2003). Manufacturing strategy and competitiveness. *International Journal of Production Economics 81*, 205-213.

[44]. Demeter, K., Szász L., **Rácz, B.** (2015). The impact of subsidiaries' internal and external integration on operational performance. *EurOMA Conference.* Neuchatel, Switzerland.

[45]. Demeter, K., Szász, L. (2016). The diversity of European manufacturing plant roles in international manufacturing networks. *Journal of East European Management Studies 21*(2), 184-208.

[46]. Demeter, K., Szász, L., **Rácz, B.** (2016). The impact of subsidiaries' internal and external integration on operational performance. *International Journal of Production Economics*, 182, 73-85.

[47]. Donaldson, T., Preston, L. E. (1995). The stakeholder theory of the corporation: concepts, evidence and implications. *Academy of Management Review 20*(1), 65-91.

[48]. Dowling, G. R. (1986). Managing your corporate images. *Industrial marketing management 15*(2), 109-115.

[49]. Dowling, P. J. (1999). Completing the puzzle: Issues in the development of the field of international human resource management. *Management International Review 26,* 27-44

[50]. Drucker, P. F. (1988). The coming of the new organization. *Harvard Business Review, 66*, 45-53

[51]. Dyer, J. H., Nobeoka, K. (2000). Creating and managing a high-performance knowledge-sharing network: the Toyota case, *Strategic Management Journal 21(*3), 345-367.

[52]. Easterby-Smith, M., Crossan, M., Nicolini, D. (2000). Organizational learning: debates past, present and future. *Journal of management studies 37*(6), 783-796.

[53]. Easterby-Smith, M., Lyles, M. A. and Tsang, E. W. K. (2008). Inter-organizational knowledge transfer: current themes and future prospects. *Journal of Management Studies 45(*4), 677-690.

[54]. Eisenhardt, K. M. (1989). Agency theory: an assessment and review. *Academy of Management Review 14*(1), 57-74.

[55]. Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of management review 14*(4), 532-550.

[56]. Ettlie, J. E. (1998). R&D and global manufacturing performance. *Management Science 44*(1), 1-11.

[57]. Eylon, D., Au, K. Y. (1999). Exploring empowerment cross-cultural differences along the power distance dimension. *International Journal of Intercultural Relations 23*(3), 373-385.

[58]. Eysenck, H. J. (1987). "There is Nothing More Practical Than A Good Theory"(Kurt Lewin)-True or False?. *Advances in psychology*, *40*, 49-64.

[59]. Farrell, H., Farrell, B. J. (1998). The language of business codes of ethics: Implications of knowledge and power. *Journal of Business Ethics 17*(6), 587-601.

[60]. Fayerweather, J. (1969). International business management. *Thunderbird International Business Review 11*(1), 10-11.

[61]. Feldmann, A., Olhager, J. (2008). Internal and external suppliers in manufacturing networks – an empirical analysis, *Operations Management Research 1(*2), 141-149.

[62]. Feldmann, A., Olhager, J. (2013). Plant roles: site competence bundles and their relationships with site location factors and performance. *International Journal of Operations & Production Management 33* (6), 722-744.

[63]. Ferdows, K. (1997). Making the most of foreign factories. *Harvard Business Review 75*, 73-91.

[64]. Ferdows, K. (2006). POM Forum: Transfer of Changing Production Know-How. *Production and Operations Management 15*(1), 1-9.

[65]. Ferdows, K., De Meyer, A. (1990). Lasting improvements in manufacturing performance: in search of a new theory. *Journal of Operations management 9*(2), 168-184.

[66]. Fey, C. F., Björkman, I. (2001). The effect of human resource management practices on MNC subsidiary performance in Russia. *Journal of international business studies*, 59-75.

[67]. Figueiredo, P. N. (2011). The role of dual embeddedness in the innovative performance of MNE subsidiaries: evidence from Brazil. *Journal of Management Studies 48(*2), 417-440.

[68]. Flynn, B. B., Huo, B., Zhao, X. (2010). The impact of supply chain integration on performance: a contingency and configuration approach. *Journal of Operations Management 28*(1), 58-71.

[69]. Foss, N. J., Minbaeva, D. (2009). Governing knowledge: the strategic human resource management dimension. *The Strategic Human Resource Management Dimension 3, 458-472.*

[70]. Foss, N. J., Pedersen, T. (2002). Transferring knowledge in MNCs: The role of sources of subsidiary knowledge and organizational context. *Journal of International Management 8(*1), 49-67.

[71]. Frazis, H., Gittleman, M., Horrigan, M., Joyce, M. (1998). Results from the 1995 survey of employer-provided training. *Monthly Lab. Rev*., 121-129

[72]. Frohlich, M.T., Westbrook, R. (2001). Arcs of integration: an international study of supply chain strategies. *Journal of Operations Management 19(*2), 185-200.

[73]. Fusco, J., Spring, M. (2003). Flexibility versus robust networks: the case of the Brazilian automotive sector. *Integrated Manufacturing Systems 14*(1), 26-35.

[74]. Garcia-Pont, C., Canales, J. I., Noboa, F. (2009). Subsidiary strategy: The embeddedness component. *Journal of Management Studies, 46*(2), 182-214.

[75]. Ghalayini, A. M., Noble, J. S. (1996). The changing basis of performance measurement. *International Journal of Operations & Production Management 16*(8), 63-80.

[76]. Ghobadian, A., Gallear, D. (1997). TQM and organization size. *International journal of operations & production management 17*(2), 121-163.

[77]. Ghobadian, A., Gallear, D. N. (1996). Total quality management in SMEs. *Omega*, *24*(1), 83-106.

[78]. Ghoshal, S., Bartlett, C. A. (1990). The multinational corporation as an interorganizational network. *Academy of management review 15*(4), 603-626.

[79]. Gibson, C. B. (1999). Do they do what they believe they can? Group efficacy and group effectiveness across tasks and cultures. *Academy of Management Journal 42*(2), 138-152.

[80]. Golini, R., Deflorin, P., Scherrer-Rathje, M. (2014). Enhancing operational performance in production subsidiaries: balancing autonomy, leveraging embeddedness, *EurOMA Conference*, Palermo.

[81]. Gooderham, P., Minbaeva, D. B., Pedersen, T. (2011). Governance mechanisms for the promotion of social capital for knowledge transfer in multinational corporations. *Journal of Management Studies*, *48*(1), 123-150.

[82]. Grant, R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California management review*, *33*(3), 114-135.

[83]. Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic management journal 17*(S2), 109-122.

[84]. Grant, R. M., Shani, R., Krishnan, R. (1994). TQM's challenge to management theory and practice. *Sloan Management Review 35*(2), 25-35.

[85]. Greenwood, R., Morris, T., Fairclough, S., Boussebaa, M. (2010). The organizational design of transnational professional service firms. *Organizational Dynamics 39(*2), 173-183.

[86]. Größler, A., Grübner, A. (2006). An empirical model of the relationships between manufacturing capabilities. *International Journal of Operations & Production Management*, *26*(5), 458-485.

[87]. Guest, D. (1989). Personnel and HRM. *Personnel management 21*(1), 48-51.

[88]. Gupta, A. K., Govindarajan, V. (2000). Knowledge flows within multinational corporations. *Strategic management journal 21* (4), 473-496.

[89]. Haas, M. R., Hansen, M. T. (2005). When using knowledge can hurt performance: The value of organizational capabilities in a management consulting company. *Strategic Management Journal 26*(1), 1-24.

[90]. Hallgren, M., Olhager, J., Schroeder, R. G. (2011). A hybrid model of competitive capabilities. *International Journal of Operations & Production Management 31*(5), 511-526.

[91]. Hallin, C., Holm, U., Sharma, D. D. (2011): Embeddedness of innovation receivers in the multinational corporation: Effects on business performance. *International Business Review 20(*3), 362-373.

[92]. Hamblin, A. C. (1974). Evaluation and Control of Training. *Industrial Training International 9*(5), 154-156.

[93]. Hansen, M. T. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative science quarterly 44*(1), 82-111.

[94]. Ho, Y. C. (2014). Multilateral knowledge transfer and multiple embeddedness. *The Multinational Business Review 22(*2), 155-175.

[95]. Holm, U., Pedersen, T. (2000). The Dilemma of Centres of Excellence: Contextual Creation of Knowledge versus Global Transfer of Knowledge. *Copenhagen Business School Department of International Economics and Management* 3, 8-20.

[96]. Horn, P., Scheffler, P., Schiele, H. (2014). Internal integration as a pre-condition for external integration in global sourcing: a social capital perspective. *International Journal of Production Economics 153*, 54–65.

[97]. Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of management journal 38*(3), 635-672.

[98]. Husted, K., Michailova, S. (2002). Knowledge sharing in Russian companies with Western participation. *Management International 6*(2), 17-31.

[99]. Inkpen, A. C. (2008). Knowledge transfer and international joint ventures: the case of NUMMI and General Motors. *Strategic Management Journal 29*(4), 447-453.

[100]. Jansen, J. J. P., Van den Bosch, F. A. J., Volberda, H. W. (2005). Managing potential and realized absorptive capacity: how do organizational antecedents matter?. *Academy of Management Journal 48(*6), 999-1015.

[101]. Jeffrey Schwartz (1999) Collaboration – More hype than reality – True knowledge management remains the province of an intrepid few organizations that share their best practices, *Internet Week October 25th Issue,* 786-794.

[102]. Jensen, M. C., Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics 3,* 305-360.

[103]. Jones, T.M., Wicks, A.C. (1999). Convergent stakeholder theory. *Academy of Management Review 24(*2), 206-221.

[104]. Kahn, K.B. (1996). Interdepartmental Integration: A Definition with Implications for Product Development Performance. *Journal of Product Innovation Management 13*, 137-151.

[105]. Karoliny, Z., Farkas, F., Poor, J. (2010). Sharpening profile of HRM in Central-Eastern Europe in reflection of its developments in Hungary. *Review of International Comparative Management 11*(4), 733-747.

[106]. Ketokivi, M. A., & Schroeder, R. G. (2004). Strategic, structural contingency and institutional explanations in the adoption of innovative manufacturing practices. *Journal of Operations Management*, *22*(1), 63-89.

[107]. Kim, J. S., & Arnold, P. (1993). Manufacturing competence and business performance: a framework and empirical analysis. *International Journal of Operations & Production Management*, *13*(10), 4-25.

[108]. King, A. W., Zeithaml, C. P. (2001). Competencies and firm performance: Examining the causal ambiguity paradox. *Strategic Management Journal*, *22*(1), 75-99.

[109]. Koch, M. J., McGrath, R. G. (1996). Improving labor productivity: Human resource management policies do matter. *Strategic management journal 154*, 335-354.

[110]. Kochan, T. A., Rubinstein, S. A. (2000). Toward a stakeholder theory of the firm: The Saturn Partnership. *Organization Science 11*(4), 367-386.

[111]. Kogut, B., Zander, U. (1993). Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of international business studies 14*, 625-645.

[112]. Lane, P. J., Lubatkin, M. (1998). Relative absorptive capacity and interorganizational learning. *Strategic management journal 19*(5), 461-477.

[113]. Laurent, A. (1986). The cross-cultural puzzle of international human resource management. *Human resource management 25*(1), 91-102.

[114]. Leonard-Barton, D. (1990). A dual methodology for case studies: Synergistic use of a longitudinal single site with replicated multiple sites. *Organization science 1*(3), 248-266.

[115]. Littrell, L. N., Salas, E. (2005). A review of cross-cultural training: Best practices, guidelines, and research needs. *Human Resource Development Review 4*(3), 305-334.

[116]. Low, M. B. (1988). Farsighted corporations focus on long-term gains, *Business and Society Review,* 61-64 (in Katsioloudes, 2006, p. 21).

[117]. Luo, Y. (2005). Toward coopetition within a multinational enterprise: a perspective from foreign subsidiaries, *Journal of World Business 40*(1), 71-90.

[118]. Lyles, M. A., Salk, J. E. (1996). Knowledge acquisition from foreign parents in international joint ventures: An empirical examination in the Hungarian context. *Journal of international business studies 23*(2)*,* 877-903.

[119]. Machlup, F. (1967). Theories of the firm: marginalist, behavioral, managerial. *The American economic review 57*(1), 1-33.

[120]. Mahnke, V., Pedersen, T., & Venzin, M. (2005). The impact of knowledge management on MNC subsidiary performance: the role of absorptive capacity. *MIR: Management International Review*, 101-119.

[121]. McAfee, A. (2002). The impact of enterprise information technology adoption on operational performance: An empirical investigation. *Production and operations management*, *11*(1), 33-53.

[122]. Meyer, K. E., Mudambi, R., Narula, R. (2011). Multinational enterprises and local contexts: the opportunities and challenges of multiple embeddedness. *Journal of Management Studies 48(*2), 235-252.

[123]. Michailova, S., Minbaeva, D. B. (2012). Organizational values and knowledge sharing in multinational corporations: The Danisco case. *International Business Review 21*(1), 59-70.

[124]. Miltenburg, J. (2008). Setting manufacturing strategy for a factory-within-a-factory. *International Journal of Production Economics*, *113*(1), 307-323.

[125]. Minbaeva, D. B. (2007). Knowledge transfer in multinational corporations. *Management International Review 47*(4), 567-593.

[126]. Minbaeva, D., Pedersen, T., Björkman, I., Fey, C. F., Park, H. J. (2003). MNC knowledge transfer, subsidiary absorptive capacity, and HRM. *Journal of international business studies 34*(6), 586-599.

[127]. Monteiro, L. F., Arvidsson, N., & Birkinshaw, J. (2008). Knowledge flows within multinational corporations: Explaining subsidiary isolation and its performance implications. *Organization Science 19(*1), 90-107.

[128]. Nahapiet, J., Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of management review 23*(2), 242-266.

[129]. Neumann, J., Morgenstern, O. (1945). Theory of games and economic behavior. *Bull. Amer. Math. Soc, 51*(7), 498-504.

[130]. Newman, K. L., Nollen, S. D. (1996). Culture and congruence: The fit between management practices and national culture. *Journal of international business studies 27*(4), 753-779.

[131]. Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization science*, *5*(1), 14-37.

[132]. Nonaka, I., Toyama, R. (2003). The knowledge-creating theory revisited: knowledge creation as a synthesizing process. *Knowledge management research & practice 1*(1), 2-10.

[133]. Nonaka, I., Toyama, R., Nagata, A. (2000). A firm as a knowledge-creating entity: a new perspective on the theory of the firm. *Industrial and corporate change 9*(1), 1-20.

[134]. Oluwaseyi Ojo, A., Raman, M., Choy Chong, S., Wei Chong, C. (2014). Individual antecedents of ACAP and implications of social context in joint engineering project teams: a conceptual model. *Journal of Knowledge Management 18*(1), 177-193.

[135]. Otterbeck, L. (1981). Concluding remarks and a review of subsidiary autonomy. *The Management of Headquarters Subsidiary Relationships in Multinational Corporations,* 337-343.

[136]. Paterson, S. L., Brock, D. M. (2002). The development of subsidiary-management research: review and theoretical analysis. *International Business Review 11*(2), 139-163.

[137]. Pitelis, C. N. (2007). A behavioral resource-based view of the firm: the sinergy of Cyert and March (1963) and Penrose (1959). *Organization Science 18(*3), 478-490.

[138]. **Rácz B.**, Borza A. (2016). Increasing absorptive capacity to improve internal and external knowledge transfer in multinational companies: a multiple case study approach. *Management and Economics Review 1*(2), 120-135

[139]. **Rácz, B.**, Borza, A. (2015). An Interdisciplinary Perspective on Managing Knowledge In Multinational Companies: Review And Theoretical Analysis. *Proceedings of The 9th International Management Conference Management And Innovation For Competitive Advantage*, Bucharest, Romania

[140]. Ragatz, R.B., Handfield, T.V., Scannell I. (1997). Success factors for integrating suppliers into new product development. *Journal of Product Innovation Management 14*, 190-202.

[141]. Raymond, L. (2005). Operations management and advanced manufacturing technologies in SMEs: A contingency approach. *Journal of Manufacturing Technology Management*, *16*(8), 936-955.

[142]. Reagans, R., McEvily, B. (2003). Network structure and knowledge transfer: The effects of cohesion and range. *Administrative science quarterly 48*(2), 240-267.

[143]. Rosenzweig, E. D., & Easton, G. S. (2010). Tradeoffs in manufacturing? A meta-analysis and critique of the literature. *Production and Operations Management*, *19*(2), 127-141.

[144]. Ross, S. A. (1973). The economic theory of agency: the principal's problem. *American Economic Review 63*, 134-139.

[145]. Rudberg, M., Olhager, J. (2003). Manufacturing networks and supply chains: an operations strategy perspective. *Omega 31*(1), 29-39.

[146]. Rungtusanatham, M., Miller, J. W. and Boyer, K. K. (2014). Theorizing, testing, and concluding for mediation in SCM research: Tutorial and procedural recommendations. *Journal of Operations Management 32(*3), 99-113.

[147]. Safizadeh, M. H., Ritzman, L. P., Mallick, D. (2000). Revisiting alternative theoretical paradigms in manufacturing strategy. *Production and Operations Management 9*(2), 111–127

[148]. Sanchez-Vidal, M. E., Sanz-Valle, R., Barba-Aragon, M. I. (2016), Repatriates and reverse knowledge transfer in MNCs. *The International Journal of Human Resource Management 27*, 1-19.

[149]. Savage, G. T., Nix, T. W., Whitehead, C. J., Blair, J. D. (1991). Strategies for assessing and managing organizational stakeholders. *Academy of Management Executive 5(*2), 61-75.

[150]. Scarlat, E. (2005). Economic priciples for e-market functioning. *Revista Informatică Economică 4(*36), 1-10

[151]. Schmenner, R.W., Swink, M.L. (1998). On theory in operations management. *Journal of Operations Management*, *17(*1), 97-113.

[152]. Schmid, S., Schurig, A. (2003). The development of critical capabilities in foreign subsidiaries: disentangling the role of the subsidiary's business network. *International Business Review 12(*6),755-782.

[153]. Schoenherr, T., Swink, M. (2012). Revisiting the arcs of integration: cross-validations and extensions. *Journal of Operations Management 30(*1), 99-115.

[154]. Schuler, R. S. (2000). The internationalization of human resource management. *Journal of International Management 6*(3), 239-260.

[155]. Selmer, J. (2001). Expatriate selection: back to basics?. *International Journal of Human Resource Management 12*(8), 1219-1233.

[156]. Shapiro, S. P. (2005). Agency theory. *Annual Review of Sociology 31,* 263-284.

[157]. Shelton, S., Alliger, G. (1993). Who's afraid of level 4 evaluation? A practical approach. *Training & Development 47*(6), 43-47.

[158]. Shi, Y., Gregory, M. (1998). Internation al manufacturing networks —to develop global competitive capabilities. *Journal of Operations Management 16(*2), 195-214.

[159]. Sila, I. (2007). Examining the effects of contextual factors on TQM and performance through the lens of organizational theories: An empirical study. *Journal of Operations management*, *25*(1), 83-109.

[160]. Simon, H. A. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics 19, 198-215*

[161]. Sine, W. D., Shane, S., Gregorio, D. D. (2003). The halo effect and technology licensing: Th e influence of institutional prestige on the licensing of university inventions. *Management Science 49*(4), 478-496.

[162]. Skinner, W. (1969). Manufacturing: missing link in corporate strategy. *Harvard Business Review 47*(3), 136-145

[163]. Sousa, R., Voss, C. A. (2002). Quality management re -visited: a reflective review and agenda for future research. *Journal of operations management 20*(1), 91-109.

[164]. Spender, J. C. (1989). Industry recipes: The nature and sources of managerial judgment. *Management Learning 25*(3), 387-412.

[165]. Stuart, I., McCutcheon, D., Handfield, R., McLachlin, R., & Samson, D. (2002). Effective case research in operations management: a process perspective. *Journal of Operations Management 20*(5), 419-433.

[166]. Sveiby, K. E., Simons, R. (2002). Collaborative climate and effectiveness of knowledge work –an empirical study. *Journal of knowledge Management 6*(5), 420-433.

[167]. Swamidass, P. M., Newell, W. T. (1987). Manufacturing strategy, environmental uncertainty and performance: a path analytic model. *Management science*, *33*(4), 509-524.

[168]. Swink, M., Narasimhan, R., Kim, S. W. (2005). Manufacturing practices and strategy integration: effects on cost efficiency, flexibility, and market?based performance.*Decision Sciences 36*(3), 427-457.

[169]. Swink, M., Narasimhan, R., Wang, C. (2007). Managing beyond the factory walls: effects of four types of strategic integration on manufacturing plant performance, *Journal of Operations Management 25(*1), 148-164.

[170]. Szász, L., Scherrer-Rathje, M., & Deflorin, P. (2016). Benefits of internal manufacturing network integration: the moderating effect of country context.*International Journal of Operations & Production Management36*(7), 757-780.

[171]. Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic management journal 17*(S2), 27-43.

[172]. Tiwari, A., Turner, C., Sackett, P. (2007). A framework for implementing cost and quality practices within manufacturing. *Journal of Manufacturing Technology Management 18*(6), 731-760.

[173]. Tsai, W. (2001). Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *Academy of management journal 44*(5), 996-1004.

[174]. Tsai, W. (2002), Social structure of "coopetition" within a multiunit organization: Coordination, competition, and intraorganizational knowledge sharing. *Organization science(13)*2, 179-190.

[175]. Uit Beijerse, R. P. (2000). Knowledge management in small and medium-sized companies: knowledge management for entrepreneurs. *Journal of knowledge management 4*(2), 162-179.

[176]. Upton, D. M. (1995). Flexibility as process mobility: the management of plant capabilities for quick response manufacturing. *Journal of Operations Management 12*(3), 205-224.

[177]. Van Wijk, R., Jansen, J. J. P., Lyles, M. A. (2008). Inter- and intra-organizational knowledge transfer: a meta-analytic review and assessment of its antecedents and consequences. *Journal of Management Studies 45(*4), 830-853.

[178]. Vastag, G. (2000). The theory of performance frontiers. *Journal of Operations Management*, *18*(3), 353-360.

[179]. Venkatraman, N., Ramanujam, V. (1986). Measurement of business performance in strategy research: a comparison of approaches. *Academy of Management Review 11*(4), 801–814

[180]. Vereecke, A., Van Dierdonck, R. (2002). The strategic role of the plant: testing Ferdows's model. *International Journal of Operations & Production Management 22*(5), 492-514.

[181]. Vereecke, A., Van Dierdonck, R., De Meyer, A. (2006). A typology of plants in global manufacturing networks. *Management Science 52(*11), 1737-1750.

[182]. Vickery, S. K., Dröge, C., Markland, R. E. (1993). Production competence and business strategy: do they affect business performance?. *Decision Science 24*(2), 435–455.

[183]. Volberda, H. W., Foss, N. J., & Lyles, M. A. (2010). Perspective-absorbing the concept of absorptive capacity: how to realize its potential in the organization field. *Organization science 21*(4), 931-951.

[184]. Voss, C. A. (2005). Paradigms of manufacturing strategy re-visited. *International Journal of Operations & Production Management 25*(12), 1223-1227.

[185]. Voss, C. A., Åhlström, P., Blackmon, K. (1997). Benchmarking and operational performance: some empirical results. *International Journal of Operations & Production Management 17*(10), 1046-1058.

[186]. Voss, C., Blackmon, K. L., Cagliano, R., Hanson, P., Wilson, F. (1998). Made in Europe: small companies. *Business Strategy Review 9*(4), 1-19.

[187]. Wales, W. J., Parida, V., Patel, P. C. (2013). Too much of a good thing? Absorptive capacity, firm performance, and the moderating role of entrepreneurial orientation. *Strategic Management Journal 34*(5), 622-633.

[188]. Welch, D. (1994). Determinants of international human resource management approaches and activities: a suggested framework. *Journal of Management studies 31*(2), 139-164.

[189]. Wheelwright, S. C. (1978). Reflecting corporate strategy in manufacturing decisions. *Business horizons 21*(1), 57-66.

[190]. Whetten, D. A., Felin, T., King, B. G. (2009). The practice of theory borrowing in organizational studies: Current issues and future directions. *Journal of Management*, *35*(3), 537-563

[191]. Wilcox King, A. and Zeithaml, C. P. (2003). Measuring organizational knowledge: a conceptual and methodological framework. *Strategic Management Journal 24(*8), 763-772.

[192]. Williamson, O. E. (2008). Transaction Cost Economics: The Precursors. *Economic Affairs 15*, 1-14.

[193]. Yamin, M., Andersson, U. (2011). Subsidiary importance in the MNC: What role does internal embeddedness play?. *International Business Review 20(*2), 151-162.

[194]. Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of management review 27*(2), 185-203.

Cited online resources

Barnes, D. (2006). Competing supply chains are the future. Financial Times. http://www.ft.com/intl/cms/s/0/e9c9048c-6ecf-11db-b5c4-0000779e2340.html#axzz43w5rls6Y downloaded on: 25th March 2016

United Nations Conference summary on Trade and Development. http://unctad.org/en/PublicationsLibrary/wir2016_en.pdf downloaded on: 3 March 2017

World Investment Report. (2015). http://unctad.org/en/PublicationsLibrary/wir2015_en.pdf, downloaded on: 29th March 2016

Worldbank. (2015). World Development Indicators: Global Private Financial Flows. http://wdi.worldbank.org/table/6.9 downloaded on 29th March 2016