



LUND UNIVERSITY

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Master's Programme in Innovation and Spatial Dynamics

The role of foreign ownership on open innovation in emerging economies.

The case of Russia.

by

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[Abstract]

This paper addresses a gap in the open innovation in the emerging countries. The main purpose was to describe the open innovation in Russian better and contribute to academic literature. The study researches the effect of foreign ownership on open innovation in Russia. The study aims to better describe how foreign owned organizations build their open innovation network in Russia. It uses qualitative data and secondary materials. Using literature based innovation output method from six companies (three foreign owned and three domestic owned), which are actively adopting innovation and open innovation. The research concludes that there are similarities as well as differences between the collaborations of foreign owned firms and domestic owned firms. Where on the one side, foreign owned firms integrate less with local universities and form weaker and indirect relationships with the government. On the other side, foreign owned organizations collaborate largely with startups and incubators using both direct and indirect collaborations.

Keywords Open innovation, foreign ownership, Russia.

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List of abbreviations

CIS	Community Innovation Survey
HQ	Headquarters
IP	Intellectual property
IPR	Intellectual property right
LBIO	Literature Based Innovation Output
LOF	Liability of foreignness
NIH	Not Invented Here
NSH	Not Sold Here
OI	Open innovation
R&D	Research and development

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1 Introduction

This chapter contains background information, purpose of the research, as well as aims and objectives, following by the outline of the thesis. The research problem section provides a background information and follows a funnel approach. Meaning that it starts with a broad discussion of the recent trends in the world and economy. Narrowing down the discussion to a specific topic in the academic world. Moreover, this section provides relevant definitions of the concepts used throughout the research. Lastly, the geographical scope of the paper will be described together with the purpose of the paper and the outline of the thesis.

1.1 Research Problem

In times of third wave of globalization (Martell, 2007), competition rises and firms face severe competitors on a global landscape. With this in mind, it is of important to look at how the world is divided economically. Throughout the history all, the countries were divided into different categories based on their economical and human development indexes, namely developed and developing countries. According to OECD (2006), there is no specific definition for “developed” and “developing” countries. However, it is often considered that there are certain countries and regions, such as Japan, Canada, United States, Australia and Europe, are defined as “developed” countries or areas. Most of the remaining countries are developing countries (OECD, 2006). However, over time, developing countries might show incredible growth, by catching up with the developed countries and they provide growth opportunities for already developed countries. The largest developing countries based on nominal growth domestic product (GDP) are Brazil, Russia, India, China and South Africa. This group of countries is also known as BRICS and was proposed by The Goldman Sachs Group (2007). In the beginning of the 21st century, these countries were facing an incredible economic growth. Even though the growth is not as high as before, these countries still have high positive figures. Moreover, the BRICS countries represent significant part for the world economy, and therefore might affect global economic growth (Franco and Oliveira, 2016). These group of countries, has developed further, however, did not reach the highest development stage. Therefore, it is considered as emerging economies, which are

“Rapidly growing and volatile economies of certain Asian and Latin American countries. They promise huge potential for growth but also pose significant political, monetary, and social risks.” (Business Dictionary, 2017)

One of the BRICS countries, which has set high goals to modernize its economy by transforming into knowledge-based economy, is Russia (Väättänen et al., 2011). According to the World Bank, based on the sum of all factors, Russia is performing better than Brazil, India

and China (Innovation in Russia, 2016, p.4). Russia is an emerging market, which still has a relatively low performance in terms of innovation, which is often linked with high involvement of the government in the business operations (Väättänen et al., 2011).

With ongoing globalization, local firms in the emerging countries, such as Russia, are experiencing both opportunities as well as pressures. The domestic firms face competition with well-established global players, which creates incentives for the local firms to innovate and strengthen their competences (Gorodnichenko, Svejnar and Terrell, 2008; Yudaeva et al., 2003). In addition, the literature also suggests that international trade is an important channel for domestic firm innovation in the emerging economies. However, Gorodnichenko, Svejnar and Terrell (2008) concludes that globalization creates more difficulties for local firms in the emerging countries to adopt innovation. This happens due to various factors, such as low protection of intellectual property and corruption.

It is undoubtable that innovation is crucial for development of a firm, as now innovation is not just research and development (R&D) activities (Carayannis and Meissner, 2017), it is a sustainable way for company's growth (Vrgovic et al., 2012). Clearly, innovation gives some firms opportunity to outperform others (Miller and Langdon, 1999). Furthermore, innovation is the only real source of growth over the long time (Antonelli and Scellato, 2011). Nevertheless, when we discuss innovation within emerging countries, we might find that innovation there occurs less frequently than in the developed countries, as there are more barriers of innovation for firms in the developing countries (Vrogovic et al., 2012; Søndergaard and Burcharth, 2011). Meanwhile, in developed countries firms have strong protection of their intellectual property (IP), developing countries often lack proper intellectual property right (IPR) policies, causing local firms in the developing countries to develop ability to adopt knowledge rather quickly (Yudaeva et al., 2003).

Increased speed of communication and possibilities for global knowledge sharing affects innovation and creates an enormous advantage for the multinational firms located in several countries. While innovation and research might take place in a developed country, the knowledge can be applied in all the subsidiaries across the world. Giving advantage in terms of new technologies and business concepts for international firms located in developing countries over the local players (Yudaeva et al., 2003).

Another major trend in the innovation is that companies are intensifying innovation collaborations in various forms. Generally, there are different types of innovation, which are based on the collaboration with the external players, such as co-creation, crowdsourcing and open innovation.

Chesbrough (2005) defines open innovation as a new model of commercialization of external and internal ideas by deploying outside (as well as in-house) pathways to the market.

So in essence, the difference between the innovation and the open innovation is that input from any external sources or external deployment of the idea has to be present. Nevertheless, according to Chesbrough (2005), the purpose of the open innovation compared to closed innovation remains unchanged and it is to create more value for the company. Small difference in theoretical aspect has large practical differences, which should be taken in

consideration when researching this topic. First, openness of a firm can influence its productivity (Podmetina, Savitskaya and Väättänen, 2012). The results of the analysis show the significant positive effect of open innovation implementation on productivity: companies with inbound and outbound open innovation have the highest productivity and the highest productivity growth (Podmetina, Savitskaya and Väättänen, 2012).

Second, if we look on how the open innovation (OI) is measured in the firms, we will notice that firms that use more close innovation often have higher spending in R&D and increase of patents (Caputo et al., 2016). Firms that are using more OI will not necessarily increase their R&D spending considerably and might not have any change in the patent numbers. As in OI costs are divided and results are not often patented, as OI provides the best outcomes through the share of knowledge and expertise (Wenning, 2016). Compared to closed innovation, open innovation has been extensively studied in the last decade, however this is a new phenomenon and its importance is increasing both for policymakers as well as for managers in firms (Mention, 2016). In recent years, an importance of collaboration in the innovation process has only increased, especially in developing and emerging countries. As closed innovation is less likely to occur in developing countries, due to low protection of the IP, which causes unwillingness of the local firms to innovate (Savitskaya, Salmi, and Torkkeli, 2010). However, open innovation allows splitting risks and overcoming resource scarcity through collaboration with external stakeholders, such as customers, suppliers or partners. (Podmetina, Savitskaya and Väättänen, 2012).

However, Frydman and Rapaczynski (1993) argue that competition cannot substitute for the effects of ownership. Meaning that who is the owner of the company and from where the company is controlled often influences its performance. Some studies showed that ownership could be the most important aspect for the enterprise performance in emerging economies. (Väättänen et al., 2011). Therefore, this research will look deeper into this recent phenomenon of open innovation in Russia, with focus on the role of the ownership, in order to find a gap in the research and building the understanding of important factors related to the phenomenon.

1.2 Aim and Scope

The aim of this research is to study open innovation, as an important concept for firm's growth. The purpose is to describe how ownership might affect the open innovation within a firm, operating in emerging countries. By analyzing existing theory as a starting point, in order to better understand how does open innovation arise in the emerging countries and what barriers exist, as well as how foreignness affects the firms. Thereby, a more specific gap will be identified and formulated into a research question, which will be answered in the conclusion. Using both combination of existing theory, to form an approach, as well as empirical evidences to support the findings.

The study has a geographical scope and focuses primarily on an emerging country, Russia. This has an effect on the implications of the results, which is discussed in the practical implications section. Moreover, this study will focus on open innovation and exclude other

forms of collaboration in the innovation process, such as co-creation and crowdsourcing. As these are relatively new terms, and are not well defined in the literature (Prahalad and Ramaswamy, 2000; Prahalad and Ramaswamy, 2004). Based on some of the available definitions, all these various forms of collaborations differ in terms of each party involvement (Prahalad and Ramaswamy, 2004). In essence, these terms differ in terms of how much third parties are involved in the process of innovation. Therefore, this study to focuses on collaboration, which is more studied, namely Open Innovation (OI), and other terms are fitting well under this term.

Moreover, the empirical section is based on the secondary sources of data, which creates certain limitations for the research and its validity, which is discussed more in depth in the data section.

1.3 Outline of the Thesis

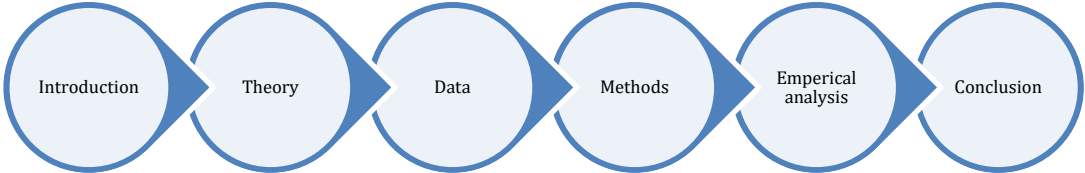


Figure 1 Outline of the thesis (Own source)

This thesis will use the following structure of the thesis: introduction, theory, data, method, and empirical analysis and conclusion sections.

2 Theory

This chapter contains analysis of the current state of the research for the chosen topic. It also contains the research question and the theoretical approach section. Firstly, existing theory on open innovation in emerging economies is presented. Secondly, the importance and the impact of the ownership of firms is discussed. Lastly, the current state of the research on barriers and opportunities of foreign ownership in the process of open innovation is analyzed in order to define a gap in the existing theory. The gap is a starting point for the research question. By answering the research question, the gap will be covered, thereby fulfilling the aim of the research. The last section of this chapter present relevant models and frameworks that support this study.

2.1 Previous Research

2.1.1 Open innovation in the emerging countries

As the topic of this research is narrowed down to open innovation (OI), we will start by looking closer at the existing research about this phenomenon. Open innovation has both importance for academia, as well as practical implication for organizations. Even though the topic have been widely discussed only in the past decade, open innovations existed for several decades already (Carayannis and Meissner, 2017), however it remained unstudied. Therefore, large number of questions remains unanswered in this field. According to Gassmann and Enkel (2004), OI became increasingly important for both practice and theory in the beginning of the 21st century.

Firstly, we will look into a definition of open innovation in order to understand this phenomenon. Pioneer in definition of open innovation is Chesbrough (2005, p.15), who defined open innovation as “the use of purposive inflows and outflows of knowledge to accelerate innovation.” Therefore, companies that are performing joint research and development projects with any external parties are using open innovation. According to Carayannis and Meissner (2017), external actors can be customers, suppliers, universities, as well as any other external organization. Study conducted by Gassmann and Enkel (2004) shows that often in open innovation the locus where knowledge arises will not equal the locus of innovation.

Chesbrough (2005) in his work stressed out importance of OI for firms.

“With knowledge now widely distributed, companies cannot rely entirely on their own research, but should acquire inventions or intellectual property

*from other companies when it advances the business model (...)
Competitive advantage now often comes from leveraging the discoveries of
others. An “open” approach to innovation leverages internal and external
source of ideas.” (Chesbrough, 2005, p.15)*

In other words, firms' competitive advantage is dependent on innovation. Meanwhile efficient innovation is possible primarily through openness of the research and collaboration with third parties.

Gassmann and Enkel (2004) underlined three core strategies for OI: (1) the outside-in process (outbound), (2) the inside out process (inbound) and (3) the coupled process. First, uses company's ability to gather data through the integration with various actors along the value chain, such as suppliers or customers. Second strategy allows the firm to provide their knowledge to third parties, by selling their knowledge and intellectual property. Third strategy is in essence a combination of the previous two. Very often, the main objective for the coupled process strategy could be radical improvements along the whole value chain (Gassmann and Enkel, 2004).

However, since OI requires information flow not only within a company, but also outside of it, organizations have to be ready to transform their “solid boundaries into a semi-permeable membrane” (Gassmann and Enkel, 2004). On the one side, this transformation ensures necessary information flow between the external environment and the organization's internal innovation process, which is in essence a foundation of OI. Gassmann and Enkel (2004) concluded that firms that are adopting OI often have shorter innovation cycles and lower development escalating costs. Therefore, risks are being reduced and innovation becomes more available for various types of firms. On the other side, the firm becomes more vulnerable as internal company's information becomes more accessible by the third parties. Thereby making unnecessary spillovers or leakages of management techniques or technologies to competitors.

Previously we have analyzed literature on OI, which can be applied on both emerging countries as well as developed countries. Thus, if we look specifically on the literature on open innovation in developing and emerging countries, there are certain characteristics, which are unique for these type of countries, such as turbulent environment (Podmetina, Savitskaya and Vääänen, 2012). Therefore, this literature is also important to take into consideration. Due to a wide range of obstacles in developing countries, such as internet illiteracy, bad infrastructure, cultural barriers and lack of skilled labor (Vrgovic et al., 2012) innovating is more complicated and therefore innovation is less likely to take place in the developing countries. However, open innovation, as stressed by Vrgovic et al. (2012), provides opportunities for firms in developing countries to not only exploit existing knowledge, but also to explore new knowledge. Moreover, challenges for innovation arise due to stronger influence from the state and government in the developing countries (Vrgovic et al., 2012).

Furthermore, firms in developing countries can often provide lower prices compared to firms in developed world. As globalization makes convergence of economies unavoidable prices as well as salaries will be catching up in emerging countries at some point. As prices will raise in the developing countries, the firms' competences should be strengthened in order to face

global competitors, as the price advantage will disappear at some point. Meaning, that without innovation, new competences will not emerge (Chesbrough, 2005). There is a number of researches, which argues that innovation in the developing countries is the primary mean to achieve growth (Vrgovic et al., 2012; Podmetina, Savitskaya and Väättänen, 2012; Carayannis and Meissner, 2017). Moreover, literature suggests that innovation is not only R&D activities (Carayannis and Meissner, 2017) as it becomes a way for productivity improvement and new competence creation (Podmetina, Savitskaya and Väättänen, 2012). Especially in the emerging countries, where innovation becomes the main source of growth (Podmetina, Savitskaya and Väättänen, 2012). Today, open innovation is not widely adopted in emerging economies. However, it becomes more widely distributed as the necessary actions take place. The study by Vrgovic et al (2012) suggests that government plays an important role in adaptation of open innovation. Where the government has to establish agencies, which will help in bringing together the right companies. In Russia, the government established several research centers and innovation foundations, as well as forums, which fulfills its objective and allows better knowledge flow.

2.1.2 Barriers of open innovation in emerging countries

However, besides the opportunities, OI has barriers in emerging countries, which is not widely studied. Existing studies primarily focuses on inside-out (outbound) open innovation process. This is when internal knowledge is being exchanged or sold to the third parties for further development. In a research by Savitskaya, Salmi, and Torkkeli (2010) in case of China, authors identified 5 main types of barriers for open innovation: (1) not sold here; (2) complexity of intellectual property rights (IPR), fear of infringements; (3) the difficulty of finding buyers; (4) lack of marketplaces for technologies; (5) other barriers. The authors concludes that among all the barriers, IPR protection has the highest effect on the open innovation processes.

Another work by Søndergaard and Burcharth (2011) studied two specific barriers of open innovation in developed countries, namely not sold here (NSH) and not invented here (NIH) syndromes. These two syndromes represent unwillingness of employees to adopt foreign norm or technologies, which is called NIH, and unwillingness to share the internal company's knowledge, which is also known as NSH. The concepts differ depending on where the external knowledge should be adapted in the company or internal knowledge is being transferred to another company in a form of licensing. Rejection of adaptation or unwillingness to sharing will result in either NIH or NSH accordingly (Søndergaard and Burcharth, 2011). Based on the research by Savitskaya, Salmi, and Torkkeli (2010), we cannot certainly state that NSH has a strong impact on the open innovation in the emerging countries. Meanwhile research by Søndergaard and Burcharth (2011) argues that both the NIH and NSH syndromes have a strong negative influence on the open innovation practices in the firms. However, the research studied developed countries and might not fully represent the actual picture in the developing countries (Søndergaard and Burcharth, 2011).

2.1.3 Impact of the ownership on open innovation

“The majority of empirical studies on transitional economies show that ownership has a significant impact on enterprise performance” (Vääätänen et al., 2011, p.133). This study has researched more in-depth, how the ownership type influences the open innovation process in organizations in the developing country. Thus, the study concludes that privately owned enterprises in the developing countries outperform state-owned enterprises, Vääätänen et al (2011) also suggest that ownership and state involvement determines productivity of innovation and R&D. Thereby ownership is a determinant factor of firms’ performance in developing countries (Vääätänen et al., 2011).

Literature defines four main ownership types: state-owned, privatized, de-novo, and foreign-owned (Megginson and Netter, 2001). According to Vääätänen et al (2011), the foreign-owned firms often perform better in terms of profitability and number of patents on products and processes (Vääätänen et al., 2011).

Large number of studies in developed countries in Central and Eastern Europe showed positive effects of foreign ownership on enterprise performance (Konings, 2001). Thus, literature in the developing and emerging countries is not as developed. Some authors argue that foreign-owned firms show higher performance in the developing countries. As foreign-owned firms attempt to adapt to the turbulent environment and complex cultural norms of the developing countries, which often results in radical changes of their business models, such as “increased openness, value creation, and value capture” (Podmetina et al., 2011). Therefore, foreign ownership ensures that organization often develop stronger competitive advantages than other firms with a different type of ownership. However, there are more aspects to this problem. Therefore, literature on the foreign-ownership versus other type of ownerships is examined.

2.1.4 Foreign-owned versus domestic-owned firms

All enterprises can be split into foreign-owned and domestic-owned enterprises, ones are following instructions from the abroad and others controlled locally. In other words, all the privately owned organizations can be divided based on the location of their headquarter (HQ): domestic-owned firms and foreign-owned firms.

It is certain that firms with the local HQ in the emerging countries will have advantage over the international firms, which are establishing their operation, and are very likely to face cultural, as well as institutional differences and barriers. The key challenges for the foreign-owned organizations is to overcome complex taxation system and bribery (Yudaeva et al., 2003), as corruption often remains higher in developing countries than in developed countries. Denk et al (2012) supports this view and suggests that internationalization is often accompanied with competitive disadvantages, compared to a well-embedded local firm.

Even though at first sight it might look like liability of foreignness (LOF) creates disadvantages for foreign-owned firms, in terms of additional costs (Denk et al., 2012). The literature suggests that challenges, which foreign organizations are facing, decrease over time (Denk et al., 2012). However, some of the challenges remain and create barriers not only for firms’ operation, but also to the innovation process. According to Yudaeva et al (2003),

foreign-owned firms operating in emerging economies might face different level of quality of the products from the local suppliers, leading to dissatisfaction with the local suppliers. Moreover, different infrastructure and language barriers of the customers and suppliers will create complications. Therefore, foreign-owned organizations might not form strong bounds with the local players (Yudaeva et al., 2003). Thus, open innovation is based on strong integration with third parties, such as consumers and suppliers, which are crucial sources for innovation and R&D (Carayannis and Meissner, 2017) by excluding their suppliers from integration, foreign-owned firms reduce their possibilities to adopt open innovation. Vrgovic et al (2012) suggests that some developing countries lack research centers, infrastructure, universities or independent inventors. Therefore, foreign owned organizations, which are not willing to collaborate with the local suppliers and customers, might not find other partners of collaboration in developing countries. Moreover, according to Denk et al (2012) foreign firms always will end up investing more resources in order to obtain new sources of knowledge and learning. If we refer back to the open innovation concept, which requires an external party participation in the innovation process.

Thus, foreign owned firms have often advantages, as they poses access to the management styles and technologies from the abroad (Yudaeva et al., 2003). Therefore, according to Yudaeva et al (2003) foreign ownership often leads to higher productivity of a firm. Moreover, Yudaeva et al (2003) suggest that local firms in the emerging markets have developed strong capabilities to adapt inventions from the other organizations very quickly. Therefore, foreign-owned organizations get advantage with their new management styles and technologies temporarily, as domestically owned firms operating in the same industry would often adopt these spillovers created by the foreign owned firms (Yudaeva et al., 2003). Skilled labor circulation from foreign owned firms becomes extremely easy, which also makes it is easier for the domestic firms to copy adopt new technologies and business concepts from foreign owned firms. As being located within the same country borders, it makes it easier for the local firms to imitate practices from the foreign-owned organizations. Moreover, openness of foreign firms in innovation improves their productivity (Podmetina, Savitskaya and Väättänen, 2012). Alongside, it facilitates leakages of technological and managerial techniques, making these firms more vulnerable. Especially since the domestic firms have ability to restructure their business faster (Yudaeva et al., 2003).

Additionally, foreign owned firms face other barriers in the developing countries, such as higher involvement of the government and the state in the economic activity of the firm (Vrgovic et al., 2012). In order to foster innovation in the country, government in the developing countries might constantly monitor firms in order to connect firms with the independent inventors (Vrgovic et al., 2012).

Overall, the Open Innovation in emerging economies is a unique concept, and with high importance of the ownership of the firm, this study will aim to compare and find differences in OI networks in domestic owned and foreign owned organizations.

2.2 Research Question

What is the effect of the foreign ownership on open innovation networks in the emerging countries?

2.3 Theoretical Approach

This section outlines key models from the literature, which can help in better understanding of the phenomenon of open innovation for the study. Moreover, available theories will be fused together in order to create a theoretical model, which will guide the empirical study.

2.3.1 Open Innovation models

Since, open innovation is rather new phenomenon, limited number of models and frameworks is available. One of the first frameworks for studying open innovation was proposed by Chesbrough (2005) and it visualizes the process of how ideas are reaching markets (Figure 2).

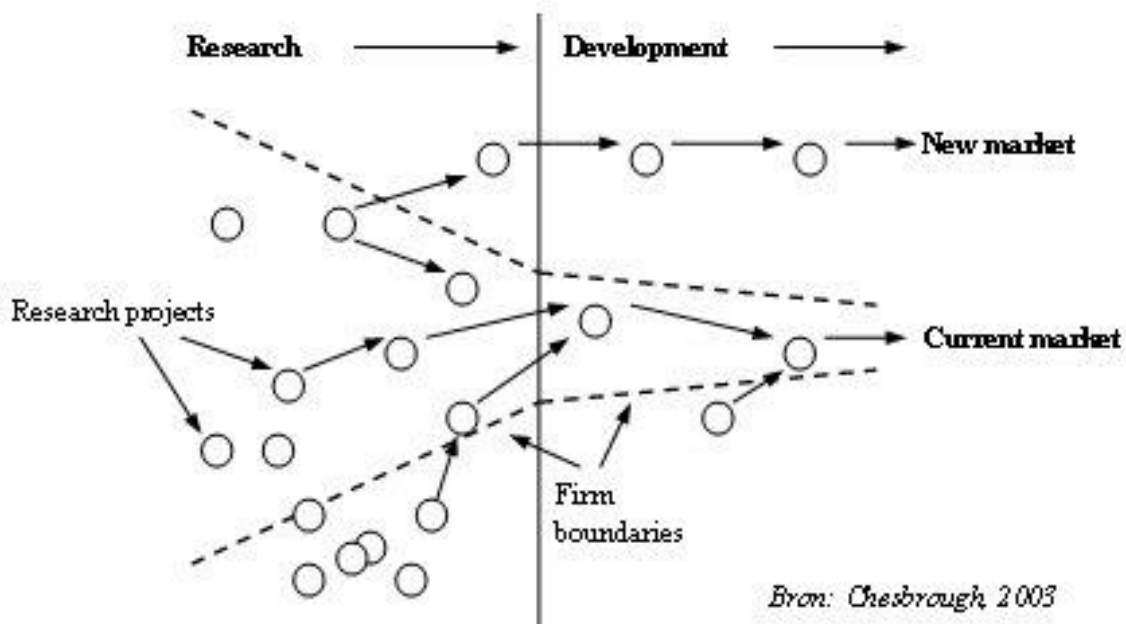


Figure 2 Open Innovation (Chesbrough, 2005)

The model, present general structure of open innovation process with all two types of open innovation processes: the outside-in (inbound) and the inside-out (outbound). The model shows, information flow from external environment to the internal boundaries of the firm as

well as the other way around. This model represents the mature stage of the development and ignores incentives for the projects in the early steps of the innovation. More detailed model proposed by Reger (2009) includes more specific processes, which a company can take from the very early stages of the development, up until the commercialization and launch to the market (Figure 3).

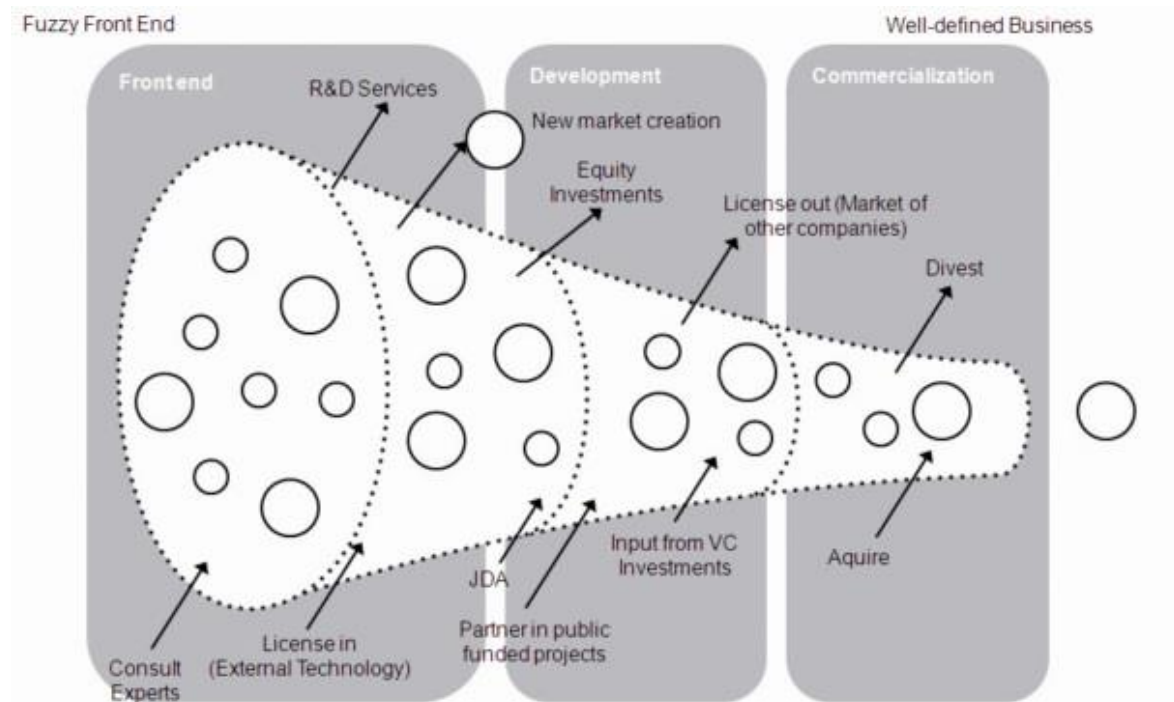


Figure 3 Open Innovation Customer Integration (Reger, 2009)

Based on the Figure 3, we can see that on every stage of the innovation, firma has possibilities for outbound and inbound open innovation implementation. For example, if we will look at the last stage of innovation, the company has two options for OI: acquire a firm or a project (Inbound OI) or to divest their own project (Outbound OI).

Specifically for the developing countries, a model to study open innovation was proposed by Vrgovic et al (2012) (Figure 4). The model presents systematic guide on how the innovation process takes place, and where the collaboration takes place. It represents the open innovation process as a linear step-by-step process. Moreover, we can clearly note importance of the governmental and state influence on the innovation process (Figure 4). Moreover, it is crucial for the development that the government uses the right policies and government agencies use innovation hubs to foster innovation. Throughout connection, communication and collaboration of the firms with independent inventors.

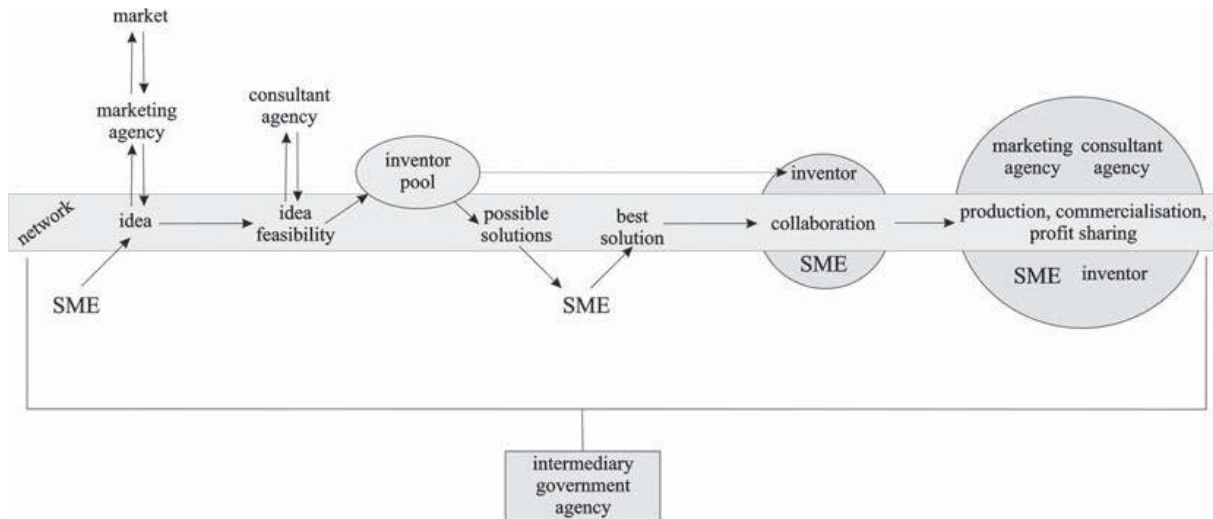


Figure 4 Joint invention market model for SMEs engaging in open innovation in developing countries (Vrgovic et al., 2012)

As the study is focused on the role of foreign-ownership in the emerging countries, characteristics of the foreign owned firms will be grasped from the literature. As foreign ownership can represent both barriers for a firm as well as create opportunities, which domestic firms do not have, following two sections will summarize barriers and opportunities of foreign ownership from the literature.

2.3.2 Foreign ownership as a barrier

Based on the literature, the foreign ownership can create barriers for a firm to collaborate with local actors in open innovation process. First barrier is related with the necessity to build a network with local organizations. According to Vrgovic et al (2012) infrastructure should be present in order to build a network with external players. However, foreign owned companies usually lack incentives to collaborate with the local suppliers (Yudaeva et al., 2003) and as the gap remains between the organizations it affects possibilities of the foreign organization to build the network (Vrgovic et al., 2012).

Second, related to the cost and resources to maintain the information flow within the network. Meanwhile local suppliers and customers, who are primary sources of knowledge, will rather easily establish information flow with the domestically owned organizations (Denk et al., 2012), due to similarities in organization and structure. Foreign owned organizations, with

different managerial styles, will have LOF and, therefore, are very likely to invest more resources into establishing constant information flow (Denk et al., 2012).

Third, cultural issues, which tend to influence business life extensively, can create rejection forces, in terms of Not Sold Here (NSH) and Not Invented Here (NIH) syndromes. (Søndergaard and Burcharth, 2011; Savitskaya, Salmi, and Torkkeli, 2010) In essence, this means that practices used by the foreign owned firms abroad might not be fully accepted, or completely rejected by the local employees.

Lastly, due to characteristics of emerging economy, where protection of IP is rather low. New technologies and business concepts, will not be well protected by the IPR (Savitskaya, Salmi, and Torkkeli, 2010), due to underdevelopment of the IPR in developing countries and relatively high complexity of registration. Therefore, competences and intellectual property might be easily copied or imitated by the local competitors, especially in the outbound open innovation.

2.3.3 Foreign ownership as an opportunity

However, foreign-owned enterprises can also benefit from their connections and origin from abroad, as with the challenges arising from the developing countries these organizations are forced to develop and significantly strengthen their competences and competitive advantage. In some cases, this involves radical changes of the business model (Podmetina et al., 2011).

Furthermore, according to Vrgovic et al (2012) developing countries might often lack research centers, necessary infrastructure or universities. Some of the developing countries do may even lack independent inventors (Vrgovic et al., 2012), which delimits local organizations to collaborate with customers and suppliers, meanwhile foreign owned enterprises have access to these facilities abroad. They get access to the management styles and technologies from the abroad (Yudaeva et al., 2003). However, this advantage is not permanent and decreases over time, as local firms tend to copy these practices and concepts.

2.3.4 Theoretical model

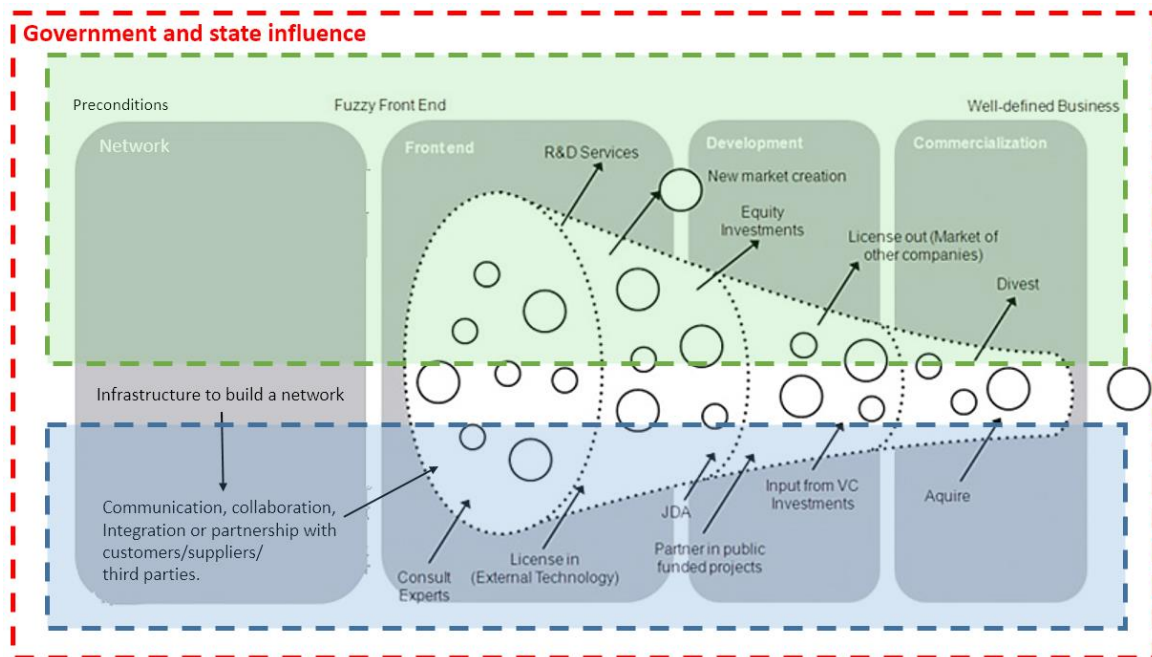


Figure 5 Theoretical model (Own source)

As already mentioned, foreign ownership can be both as a barrier to build necessary network for the open innovation, or it can act as an opportunity, which makes other firms to be more interested in collaboration with these firms. Thus, these aspects have to be included in the theoretical model. As base for our theoretical model for this research, we will use a model illustrated in Figure 5. It is based on the open innovation process proposed by Reger (2009) and same as model proposed by (Chesbrough, 2005) follows a funnel-like shape. The theoretical model also includes governmental and state influence, as suggested by Vrgovic et al (2012).

As my own contribution to theoretical model (Figure 5), several important aspects were added. Firstly, it is important to distinguish between outbound inbound open innovations. Thereby, two areas were marked on the model: green, representing outbound open innovations and a blue area, representing inbound open innovations. These are two important types, which distinguish between the internal knowledge that is being developed externally and external knowledge being developed internally. This creates different types of barriers, such as NSH, leakages and imitations and IPR insecurity for outbound open innovations. In addition, NIH for inbound open innovation, which can be also seen in the model (Figure 5).

Moreover, one extra step before the “Front end” stage was added. It is a precondition for a foreign-owned firm to perform open innovations in developing countries and it is “Network”. It means that foreign owned firms have to cooperate close enough or even integrate with local customers or suppliers in order to execute open innovations in the emerging countries. However, because foreign firms are often advanced in technologies and business concepts, it happens less frequently. From the literature, we can note importance of the suppliers,

customers and the government in the network. However, building better understanding on how the networks differ between domestic owned and foreign owned organizations is the main goal for the research.

3 Data

This chapter demonstrates what material are used to study the topic and answer the research question. Moreover, it will present the sources of the data and discuss quality of the data, used in the empirical analysis chapter.

3.1 Open innovation effect on the company's performance

In order to determine sources of empirical study, we have to first understand how does the Open Innovation affects organizations performance. As it was mentioned earlier, closed innovation is often tracked using R&D figures, number of patents (Caputo et al., 2016). However, reliability of these factors decrease with openness. For example, in closed innovation companies tend to have a significant increase in patent number, when more innovation projects are being executed. Thus, during open innovation patent growth is not influenced (Caputo et al., 2016). Moreover, when looking into financial performances, the positive change can be tracked in sales growth caused by the openness, meanwhile operating profit and turnover decrease with OI adoption (Caputo et al., 2016).

As operating profit and turnover are affected by many factors in the company, using these figures for the analysis would influence the validity of the data. Therefore, it is important to look into theory to see the options for OI measurements, based on other factors.

3.1.1 Measuring innovation

This section will be devoted to building better understanding on how to measure open innovation, as well as analyzing issues that might arise when estimating innovation. One of the first researchers, who stressed importance of the innovation measurement, was Kuznets (1962). Lately, Smith (2005) conducted a study, which provides an in-depth analysis of the available measurements of innovation. Smith (2005) suggests that currently, all the measures of innovation can be divided into four main categories: input, output, object and subject. All the measures differ in term indicators used for the estimation of the innovation. One of the most straightforward ways to measure innovation in a firm is to use input indicators, such as research and development expenditures (Smith, 2005). On the input basis, it is also possible to measure innovation using residual calculation from total factor productivity and linking these aspects to the innovation (Hulten, 2001). This method work on many levels of analysis: from a firm level to a country level. However, Shith (2005) suggests that quantifying innovation is highly complex.

Another perspective focuses on the output indicators of the innovation, such as patents. In another study conducted by Grupp (1994) discusses issues of both theoretical and practical gathering of the innovation data. Grupp (1994) suggests that input method is highly complex, due to internal nature of the R&D investments. In other words, tracking investments within the company will be highly challenging, so using output indicators, such as patent analysis is more applicable and feasible. The author suggests that this measure also provides a more reliable picture. However, as discussed in the theoretical chapter, recent studies showed low correlation between patents and open innovation, thereby this method is also not advisable (Caputo et al., 2016).

Third method determined by Smith (2005) was proposed by OECD (2005). This method is subject based and it relies on Community Innovation Survey (CIS). OECD (2005) have set specific guidelines for collecting and interpreting innovation data using an innovation measurement framework. The framework includes the most relevant aspects, which should be taken in consideration when measuring innovation. However, the surveys are primarily conducted in European Union.

Last method mentioned by Smith (2005) is object based innovation measurement. This method is also called a Literature Based Innovation Output (LBIO), which is widely used on a micro level or firm level (van der Panne, 2007). LBIO method in essence is a study of the innovative behavior of individual firms, based on compiled screening of the relevant literature, such as trade journals. Certainly, there are limitations for this type of data collection, namely that not all the innovations might be published in the journals and interpretation of the data might affect the results. However, the disadvantages of the method, as well as how to overcome those, is discussed further in the method section.

Analysis conducted by Andersson, Ejermo and Taalbi (2015), where all the four methods were compared on a firm level, showed similar outcomes of different methods (Figure 6).

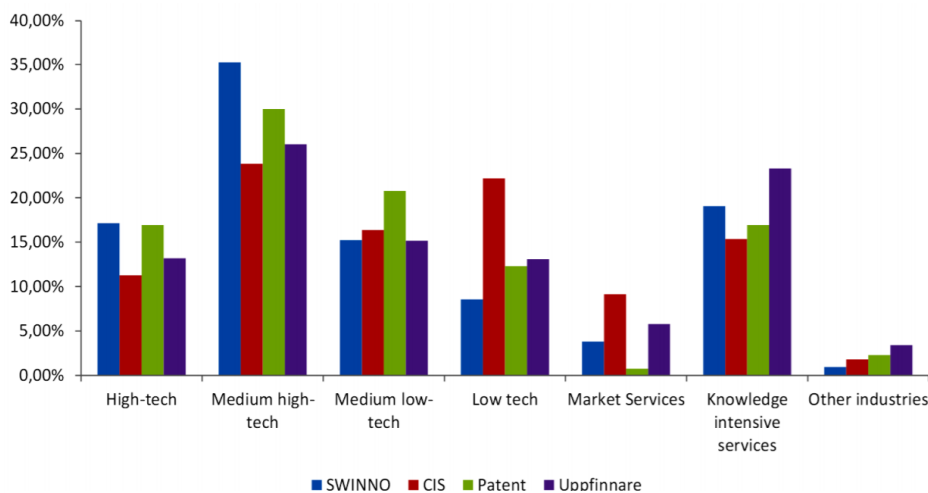


Figure 6 CIS, Patent, SWINNO and in-house Inventors. (Andersson, Ejermo and Taalbi, 2015)

Nevertheless, some methods should be excluded when measuring OI, due to certain limitations. Due to collaborative nature of open innovation, where several firms collaborate in the innovation process, input method will certainly mislead the measurement. As R&D will

represent expenditure of several firms. Open innovation are also very unlikely to use, as patent number does not increase in case of more OI adaptation.

3.1.2 Measuring open innovation in emerging countries

Therefore, this section will discuss how LBIO can be applied to measure data for this research in Russia. Generally, LBIO provides with very unpredictable outcomes. Due to partial dependence on the interpretation of this method, different researchers might interpret data differently and therefore might end up with different data for the same case. In other words, the data gathered from LBIO is usually unstructured and since it is qualitative data, it requires a structure or a framework to compare the results.

One of such frameworks, was developed by European Commission (2017) and helps in assessment of open innovation. It suggests to “focus on connections and interactions between organizations involved in innovation projects. It should look at the quality, accessibility and diversity of those connections.” (European Commission, 2017). Furthermore, the framework looks at the impacts at individual, community and global level (European Commission, 2017).

Another research conducted in emerging country, namely Russia, suggests that when assessing innovation number of collaboration should be assessed. This includes cooperative R&D, amount of the new programs in universities being developed, etc (Bortnik et al., 2013, p.3).

3.2 Source Material

After reviewing the common methods for data collection, and focusing on LBIO. We will assess sources, which will be used for the empirical analysis. Since the research is focused on Russia as the representation of an emerging country. Which has an ongoing modernization of its economy and high focus on innovation and knowledge-based economy (Väättänen et al., 2011).

However, lack of digital reporting in Russia, makes statistical information rather narrow. Therefore, all the relevant data, such as statistical data, annual reports and company’s financial performance data will be closely analyzed in order to obtain the necessary. Firstly, the official webpage of the company will be analyzed. Specifically searching for cases of open innovation in annual reports, press releases and publications of the company.

Secondly, databases with various publications in a form of electronic journals and articles of innovation centers and forums will be analyzed. These innovation centers include Skolkovo Foundation (Skolkovo, 2017) that is a high technological Innovation Center located in Moscow. It fosters entrepreneurial activities in the region and was developed by the initiative of the Russian government. Another important database is Innovation in Russia (<http://innovation.gov.ru>), which is an official governmental database of companies and provides various reports about innovative activities of the firms, such as strategic planning.

Thirdly, newspapers and events will be analyzed, such as Rostec (<http://rostec.ru>), Open innovation Forum (Forinnovations, 2017) and Kommersant (2012).

Lastly, we will look at the business network LinkedIn (<https://www.linkedin.com/>), searching specifically for employees working or who worked for the companies in Russia. There it is common to share activities, which a person was executing while in the position, this data will be also taken into consideration.

Certainly, using LBIO and these specific sources, which are secondary sources of information has its negative sides. Therefore, it is also crucial to critically analyze potential data in terms of reliability, representativity and validity. Moreover, it is highly important to determine how these aspects can be improved, in order to provide significant conclusions for the research.

As it was previously mentioned, LBIO has a high level of uncertainty of the results, as it has significant level of interpretation involved in the process. This will affect reliability of the data to a high extent. As the data will not lead to a direct evidence, but rather give indication to certain conclusions.

Representativity might be affected, by the choice of limited number of cases. However, the cases represent certain phenomenon, which was already, mentioned in the literature.

Lastly, validity of the data might be affected by the secondary nature of the data. It might lead to a situation, where specific part of the framework will not have available information for a company.

Being aware of these downsides of the data collection, it would be crucial to discuss how these issues can be compensated. This will be explained more in depth in the method section.

4 Methods

This chapter presents in more details the method, which is used in this study. Research approach, strategy, and design are specified. Moreover, it will discuss weaknesses of the chosen method as well as how the issues related with the chosen method and data might be improved. This section is also aimed on operationalization and therefore, will answer how the data is gathered and analyzed for this study.

4.1 The Approach

This section describes the chosen research approach, research strategy, research design and the selection of the case companies.

4.1.1 Approach, strategy and method

Andersen (2012) in his work suggests that an inductive approach is commonly used for less studied phenomena. Open innovation is relatively new phenomenon, at the same time open innovation in emerging economies have small number of available theories. Therefore this research follows the inductive approach, as it takes it starting point in empirical data in order to build a research (Alvesson and Sköldbberg, 2009) and this approach relies on empirical data to a large extent (Yin, 2013). Due to the “what” research question, it was more relevant to use a qualitative research with use of secondary data, as qualitative design aims to describe the phenomenon, which is not well studied (Alvesson and Sköldbberg, 2009).

In order to fulfill the purpose of the research and answer the research question in the best possible way, the research will adopt the case study strategy. As this strategy suits best to study a certain phenomenon within a context, where it is emerging. As open innovation in emerging markets, can only be studied within the context. Therefore, case study is the most appropriate choice, as according to Yin (2013), case study acknowledges that this phenomenon cannot be taken out of the context. Since the case will not be taken out of the boundaries, where it arises, provides the study with better understanding of phenomena.

Within case study design, this research will follow holistic and multiple-case design (Yin, 2013). It means that the study is focused on one context, which in this case is Russia and studies a case of open innovation in various organizations. However, for the purposes of comparison of the data, it is necessary to collect empirical data about the domestic owned firms and foreign owned firms. Meanwhile, holistic design allows higher validity, as the outcomes can be generalized more than in other designs (Yin, 2013) and chances of

misinterpretation are significantly lower. Multiple-case design allows data comparison in order to generate relevant conclusions.

When selecting case companies, it was crucial that the chosen companies have high focus on open innovation and operating on the Russian market. Moreover, for the comparison purposes it was relevant to have companies, which are operating in the same industries. Therefore, airline, telecommunication and car industries were chosen. Generally, these industries have high necessity for technological and business improvement and, therefore, have high chances to adopt open innovations. Thereafter, various forums and open innovation databases were skimmed in order to determine the companies. As domestic owned companies for this research: Aeroflot, Avtovaz and Rostelecom were chosen and as foreign owned organizations: Lufthansa, BMW and Cisco were picked.

4.1.2 Operationalization

After collecting all the possible source materials from the previously mentioned data sources, all the papers were skimmed for importance to the topic, namely open innovation in emerging countries, namely Russia. Due to complications arising from the measurement of open innovation and the choice of LBIO, there was high influence from the interpretation of data, which further affects reliability of the data. Therefore, in order to make the research more replicable, it was crucial to refer to existing methods of doing such research.

We will analyze connections of the foreign owned as well as a local company operating in the same industry. Later, we will compare these connections in terms quality, accessibility and diversibility, looking at what are the connections, how stable and frequent communication takes place and diversified are companies and industries among the connectors.

4.1.3 Coding

When qualitative data is available, Creswell (2013) suggest coding it. In order to do in the most systematic way, the research addresses (Creswell, 2013, Table 9.4). Which suggests step-by-step guide to code the data. It is usually done by organizing unstructured data into segments and naming each segment with a specific name. Thereby, first part of the analysis contains raw data, structured according to possible networking partners in the process of innovation. Meaning, that it has the least amount of interpretation, however, it structures the text. This allows forming segments relevant for this analysis.

Creswell (2013) also suggests using software for qualitative analysis. Using Nvivo software, it was possible to structure the data in a more professional manner. All the sources were uploaded in Nvivo, allowing to mark necessary categories to the relevant parts and sentences from the sources. As a result of the approach proposed by Creswell (2013) following categories were established: relationship with local government, partnership with local incubators and startups, collaboration with local universities, participation in local clusters, collaboration with local customers, collaboration with local suppliers and collaboration with partners from the same industry. Furthermore, another three relevant segmentations related to

the measurement of the open innovation were used: quality of the connections, accessibility of the connection and diversification of the connection. Furthermore, to provide that relevant results, we will count the number of coded parts for each category and firm, focusing on how innovation occurs directly or indirectly, as well as focusing on words related to strength, such as strong, integrated or low, through 3rd parties.

5 Empirical Analysis

This chapter covers three areas: presentation of cases, analysis of the data and discussion of the findings. Firstly, raw data will be summarized for each case and later in the discussion section, it will be interpreted and compared: foreign owned versus domestic owned firms. Moreover, the empirical data will be linked with the literature. This will bring the research closer to the answer of the research question and fulfilling the aim of the paper.

5.1 Cases

The case companies were selected based on their high focus on innovation, and presence of adaptation of OI. The companies had to have direct presence in Russia, such as sales offices and manufacturing plants for product companies. In order to find patterns, six companies were chosen, which includes three domestic owned and three foreign owned organizations. Two organizations from each industry, such as telecommunications, car manufacturer and air transportation.

5.1.1 Cisco

Cisco is an American based company, which is a world leader in information technology and operates in telecommunication industry (Cisco, 2017a). The company operates in Russia and is foreign owned, with HQ located in USA. It has both production and sales facilities in Russia. The company has been strongly focusing on open innovation for several years (Anand, 2017). The company performs all the processes from the research and development up until manufacturing and sales of their equipment. They have been strengthening their positions on the Russian market since 2011 and have long strategic planning for the market (Cisco, 2017b).

Cisco believes in growth potential in emerging markets, such as Russia (Goryachev, 2014). Therefore, they built strategies to support growth in the country (Goryachev, 2014). Among other priorities, Cisco has interest in strengthening their partnerships with networking academies and the government (Khetaguri, 2011). The second, however, will not take place directly, but via the Innovation Center established by initiative from the government: Skolkovo Innovation Center (Khetaguri, 2011; Skolkovo, 2017). Which is an important objective for Cisco: to collaborate with the governmental institutions worldwide (Beliveau-Dunn, 2017) and specifically in Russia (Khetaguri, 2011). It is also an important part of the Cisco's strategy to build trust with local institutions and become a "Trusted Country Partner" (Goryachev, 2014). Cisco has a partnership with WorldSkills, which organizes competitions

every year, and determines the most desirable employers in the country. This allows attracting skilled labor to the company, where it is less available (Innovation in Russia, 2016, p.36).

In addition to partnerships with the government, Cisco is also assessing their potentials to collaborate with higher education institutions (Beliveau-Dunn, 2017). As another important strategy of Cisco is aimed to support research in universities (Baranskaya, 2017) and establish bonds with universities (Khetaguri, 2011). One of the examples of this research support was establishing connections in Kazan, by opening a Mobile Lab (Beliveau-Dunn, 2017). Besides that, Cisco opened innovation hubs in collaboration with the local universities (Goryachev, 2014).

Number of activities in Cisco addresses entrepreneurial startups. Cisco has partnerships with local incubators and they are mentoring local startups (Baranskaya, 2017). The company supports local entrepreneurial communities (Baranskaya, 2017) and organizes innovative events in Russia, such as “Cisco I-PRIZE startup competition” and “Innovation events at the Cisco Experience Center” (Baranskaya, 2017).

5.1.2 Rostelecom

Alternative to Cisco, Rostelecom is the leading telecommunication company in Russia. The company is domestic owned and maintains its presence in all segments of the communication sector (Rostelecom, 2017). It takes the leading position on the Russian market in television. The company focuses on large variety of customer groups and operates within business-to-customer, business-to-business, as well as business-to-government sectors (Rostelecom, 2017). It participates in the large number of governmental procurements in information technology and helps in creation of the electronic infrastructure for governmental services (Innovation in Russia, 2017a). It is a leading supplier of telecommunication equipment for the governmental purposes and is considered technological leader in innovation (Rostelecom, 2017).

Rostelecom is aware of the changing global business landscape and digitalization (Kalugin, 2016, p.4), which currently actively takes place in the emerging markets. Therefore, Rostelecom has set innovation objectives as well as developed innovation strategies for 2016-2020 (Rostelecom, 2016). This strategic document defines how Rostelecom is collaborating with the players within the innovational ecosystem of Russia (Rostelecom, 2016). The key players for Rostelecom are higher education institutions, public research centers, representatives of the small and medium innovative firms, technological platforms, clusters and venture funds (Rostelecom, 2016).

The company is actively participating and is a key partner of The Moscow International Forum for Innovative Development “Open innovations” (Rostelecom, 2013a; Forinnovations, 2017). Moreover, Rostelecom aims not only for well-established technological clusters, but invests resources in the developing regions, through collaboration with clusters and technological platforms (Kalugin, 2016, p.18). Recently, Rostelecom has entered into a cluster in Kaluga region, which is still developing (Rostelecom, 2013b).

Among other objectives, Rostelecom mentions development of integrated procurement systems with their suppliers (Kalugin, 2016, p.17), both large and SMEs. This will be achieved through improvement of the organizational structure (Kalugin, 2016, p.17). Therefore, Rostelecom has hired an employee from Skolkovo Innovation Foundation, which should help in strengthening company's networks with the Innovation center and provide with the input for structure improvement (Nowak, 2015). The company has also entered into an agreement for collaboration with Rostec, which is a governmental organization supplying technological equipment (Rosinform, 2016). Moreover, the company has close partnership with some supplier of the networking and telecommunication solutions – RDP (RDP, 2017).

Lastly, the company has a strategic partnership with the annual national competition: “10 best IT projects for the governmental sector”. Which was developed by the ministry of communication and technology of Russia (Innovation in Russia, 2017a).

5.1.3 BMW

BMW Russland Trading is a national sales company of BMW Group in Russia (BMW, 2017). BMW is a German car manufacturer and is a foreign owned organization in Russia. The company has established its operations in Russia market in the late 1992. The company has assembly in Russia (in Kaliningrad) as well as sales activities in more than 30 major cities in Russia (BMW, 2017).

Recently, BMW has launched an incubator for startups from all around the world in Germany, which is called BMW Startup Garage. The projects aims to develop startups all around the world, by sharing internal knowledge of BMW. The incubator promises to provide testing facilities for startups and will push potential developments into production processes of the real cars (Shustikov, 2016). It will provide these startups with the internal knowledge from BMW (BMW Startup Garage, 2017). “Here you will learn how to succeed in the automotive world. You will learn about industry dynamics and how development, manufacturing and purchasing works... Our best engineers will help you build your prototype. You will also learn from seasoned managers how to succeed in the automotive industry” (BMW Startup Garage, 2017). BMW believes that this high involvement with startups will pay off, especially for finding fast new solutions for problems (BMW Startup Garage, 2017). The uniqueness of the BMW Startup Garage is that they do not acquire startups, but instead purchases products of the startups and uses technologies in their cars to test (BMW Startup Garage, 2017). Even though the incubator locates in Germany, it has direct contacts with startups all around the world, as well as in Russia, with a startup called Mensa (Shustikov, 2016). The incubator activale cooperates not only with startups, but also with The Skolkovo Innovation Center (Shustikov, 2016).

Moreover, BMW has a direct relationship with Avtotor, which takes care of the assembly of the BMW cars in Russia. Avtotor started to develop an automobile cluster in Kaliningrad, Russia (Strategic Partnership North-West, 2014). However, BMW does not involve largely into this development. BMW has relationships with sponsors and in collaboration organizes and manages different events, which supports the brand's visibility (Ratkovskaya, 2017).

The company has also partnership with The Moscow International Forum for Innovative Development “Open innovations”, which is an annual event, that is related to innovation and aims to bring the relevant players together (Forinnovations, 2017). Furthermore, the company is a partner of WorldSkills competition and had taken the first place (Innovation in Russia, 2016, p.36).

BMW provided its tools and knowledge to a developing cluster in Khabarovsk (Innovation in Russia, 2012a, p.42). However, BMW does not involve further into the development of this cluster.

5.1.4 Avtovaz

The leading car manufacturing in Russia is Avtoaz (Avtovaz, 2017). It has one of the largest automotive plants in Eastern Europe (Avtovaz, 2017) and in 2014 had approximately 17% market share on the Russian market (Rostec, 2014) and the company has around 270 suppliers of components and raw materials. (Avtovaz, 2017). The company has discussed its collaboration with suppliers and producers (Rostec, 2014), where it was stressed out those suppliers are changing and developing together with Avtovaz. However, there is no strong integration of suppliers and Avtovaz, as they are working on business optimization and reduction of bureaucracy (Innovation in Russia, 2013a; Andersson, 2014). The company has introduced a new form of teamwork, by using “open office” concept, where all 150 employees working on one project sit in one office not divided by any walls (Andersson, 2014).

Nevertheless, Avtovaz actively collaborates with universities across the country (Avtovaz, 2011). The company collaborates with several universities and had 48 programs in universities developed in collaboration with the universities. This also allows the company to send employees for trainings, qualification upgrades, as well as receive interns from these institutions (Avtovaz, 2011).

However, Avtovaz had undergone certain changes, which partly changed their ownership type in 2013 (Shmygov, 2012). If in the beginning the company was fully domestic owned, in December 2012 25% of shares were purchased by Renault and Nissan. Which means that Renault-Nissan has a control pack in Avtovaz. Thereafter, Nissan, Renault and Avtovaz entered into Avtovaz-Renault-Nissan alliance by creating strategic partnership (Shmygov, 2012). After that, the company undergone certain changes (Kommersant, 2012). This is especially relative case, as we will see changes in the domestic own firm, which became controlled by the foreign owned alliance (Kommersant, 2012). Since Avtovaz entered in alliance with Renault and Nissan (Avtovaz, 2017) it started to assemble cars of numerous brands, such as Renault, Nissan and Datsun (Rostec, 2014).

Moreover, since 2013, certain changes occurred in the company, especially in the innovation activities. Firstly, Avtovaz became more actively participating in the innovation ecosystem with Skolkovo Innovation Center (Baklanov, 2015). Furthermore, Avtovaz for their brand cars Lada is planning to integrate technologies from the large information technological giant

Yandex (Lada, 2017). This is the largest organization operating in search engine industry in Russia.

5.1.5 Lufthansa

Lufthansa is the largest German owned airline company. In combination with all its subsidiaries, it is considered the largest airline operator in Europe. The company has direct sales operations in Russia and has a strong focus on innovation. Moreover, subsidiaries, such as Lufthansa Consulting and Lufthansa Technik works with gathering and sharing knowledge with local firms in Russia. Since Russia is an emerging country, and therefore has a complex environment (Lufthansa Group, 2016), in regards to general financial and tax issues (Lufthansa Consulting, 2017a). Due to recent downturn of the economy, the company has to reduce its capacity, by suspending some of their routes. However, as reducing capacity is not a sustainable solution, the company is focused in service and product improvements. (Lufthansa Group, 2016). Therefore, the company sets high focus of its services especially for this region in order to overcome the challenges (Lufthansa Group, 2016, p.46). Thus, Russia continues to represent a challenge for Lufthansa's current business.

In order to strengthen the company's position in the turbulent and challenging environment, Lufthansa focuses on the needs of the customers within this demanding and fast-paced environment (van de Kuil, 2017). This often results in a unique selling position for the Russian market (Lufthansa Consulting, 2017a). With the arising opportunities from Russian digitalization (Lufthansa Group, 2015), the company uses digital transformation of their fleet to provide new services for their customers (Lufthansa Consulting, 2017a).

Lufthansa works with Aeroflot as a team, through its subsidiaries, namely Lufthansa Consulting (Lufthansa Consulting, 2017b). Together these organizations are trying to overcome issues of the resource scarcity, in order to provide operational excellence to their customers and meet the increasing demand (Lufthansa Consulting, 2017b). In practice, the company, shares its knowledge through its Lufthansa Consulting subsidiary with other airlines, by supporting them in the implementation of the Wi-Fi onboard (Lufthansa Consulting, 2017a). The company is promoting the view among other airlines, that innovation is more crucial than adaptation (Lufthansa Consulting, 2017a). In addition, it argues that improvement of services is key. Moreover, Lufthansa is identifying and developing sales opportunities across the region and creates premium products for the region (Koinzack, 2017). Moreover, the company cooperates with other local competitors, such as Aurora Airlines through the Lufthansa Consulting. Lufthansa shares its knowledge and technology to increase efficiency of the resource use and to find new ways for growth (Lufthansa Consulting, 2017a).

The company actively participates in the cluster in Ulyanovsk, and remains one of the main players (Innovation in Russia, 2012b). Moreover, the company's subsidiary Lufthansa Consulting collaborates with the airports in Russia, such as Kolcovo airport, by providing its knowledge and expertise on the innovative practices and solutions (Innovation in Russia, 2011, p.20).

Lufthansa maintains close contact with representatives of Russia, such as representation from the government, legal and aviation authorities, which helps in avoiding legislation and traffic rights breach within the region (Schulz, 2017). Furthermore, Lufthansa attends St. Petersburg's International Economic Forum, where the most relevant economical discussions take place and plans for technological development are set (Lufthansa Consulting, 2017a).

Lufthansa also takes part in maintenance, repair and operations (MRO) services of the aircrafts, through Lufthansa Technik Group. Ongoing networking at management level and mutual projects ensures access to the relevant knowledge (van de Kuil, 2017). Moreover, knowledge exchange often takes place on the engineer level on the conferences (Russian Aviation Insider, 2016). Later the gathered knowledge can be shared by Lufthansa Consulting. As example, the company cooperates with Aurora Airlines on development of conceptual design of MRO facilities in the surrounding area of the airline's base airport in Yuzhno-Sakhalinsk (Lufthansa Consulting, 2017a).

Moreover, Lufthansa participates in the clusters in Russia through Lufthansa Technik (Lufthansa Technik, 2016; van de Kuil, 2017), such as Ulyanovsk-Avia (Innovation in Russia, 2012b, p.28). Even though, Lufthansa does cooperate with the suppliers, local aircraft manufacturers, are not part of this network (van de Kuil, 2017).

5.1.6 Aeroflot

Aeroflot is the largest Russian airline with the fleet containing 130 planes (Innovation in Russia, 2017b). The company has a strong focus on research and development aimed to maximize business operations and improve ecological effectiveness of the company (Innovation in Russia, 2017b). In order to support development, government provided investment into long-term improvement of the company, which equals to 4900 million Rubbles (Innovation in Russia, 2017b).

The key strategy for innovation is focused on strong cooperation with educational intuitions, such as universities and R&D centers (Innovation in Russia, 2017b, p.10). In order to achieve these goals the company is planning to collaborate with innovative organizations, and amount of partner universities grows every year and has reached 18 institutions (Polozov, 2012). The goals from this cooperation are ensuring skilled labor availability and stabilizing competences on the global scale (Innovation in Russia, 2017b, p.10).

Moreover, the company has aim to strengthen partnership with innovation centers, such as Skolkovo, MCB and RBK, as well as technological clusters (Innovation in Russia, 2017b, p.11). Collaboration with innovation centers is highly important, which can be seen from how close the company integrates with these centers. Furthermore, Aeroflot is a partner of The Moscow International Forum for Innovative Development "Open innovations" (Forinnovations, 2017).

Aeroflot does not integrate closely with their suppliers, however, state of Khabarovsk is developing a cluster, in order to bring together local players and find the best practices for the airline industry (Innovation in Russia, 2012a, p.31), where Aeroflot takes an important role.

Technological advancements of the fleet and business is crucial for the firms. In order to strengthen its global competitiveness Aeroflot has introduced Wi-Fi on around 10% of their aircrafts (Innovation in Russia, 2013b).

Since key focus of the Aeroflot is on their consumers, they do integrate and develop their business together with the customers. Aeroflot used an open innovation competition, where individual innovators had opportunity to develop Aeroflot’s In-Flight entertainment system (Aeroflot, 2013b). However, the contest was developed by external business incubator Open Innovation (Aeroflot, 2013b). Now the winners will start working closely together with Aeroflot IT team in order to implement their concepts in practice (Aeroflot, 2013a). However, the developed technology instead of purchasing by Aeroflot developed another strategy, which allowed developing team to sell content on the platform (Aeroflot, 2013b).

5.2 Results

This section presents summary of the results of the study, followed by the discussion of the results. The data of the foreign owned as well as a domestic owned companies operating in the same industry was encoded. The discussion section compares the results in terms of quality, accessibility and diversification of the presented results. The structure of this section follows guide to measurement of open innovation proposed by OECD (2005).

Case companies

	Cisco	Rostelecom	Lufthansa	Aeroflot	BMW	Avtovaz
Ownership type						
HQ location	USA	Russia	Germany	Russia	Germany	Russia

Ownership type Domestic owned, Foreign owned

Relationship with local government

Table 1 Relationship with local government (Based on the analysis)

	Cisco	Rostelecom	Lufthansa	Aeroflot	BMW	Avtovaz
Strength						
Type						

Strength Low, Medium, High

Type Direct, Both direct and indirect, Indirect

Partnership with local incubators and startups

Table 2 Partnership with local incubators and startups (Based on the analysis)

	Cisco	Rostelecom	Lufthansa	Aeroflot	BMW	Avtovaz
Strength	High	Low	Low	Medium	High	Low
Type	Direct	Both direct and indirect	Both direct and indirect	Both direct and indirect	Both direct and indirect	Indirect

Strength □ Low, □ Medium, ■ High
Type □ Direct, □ Both direct and indirect, ■ Indirect

Collaboration with local universities

Table 3 Collaboration with local universities (Based on the analysis)

	Cisco	Rostelecom	Lufthansa	Aeroflot	BMW	Avtovaz
Strength	Medium	Medium	Low	High	Low	High
Type	Direct	Direct	Indirect	Direct	Indirect	Direct

Strength □ Low, □ Medium, ■ High
Type □ Direct, □ Both direct and indirect, ■ Indirect

Participation in local clusters

Table 4 Participation in local clusters (Based on the analysis)

	Cisco	Rostelecom	Lufthansa	Aeroflot	BMW	Avtovaz
Strength	Low	High	High	High	Low	Medium
Type	Indirect	Direct	Both direct and indirect	Direct	Indirect	Direct

Strength □ Low, □ Medium, ■ High
Type □ Direct, □ Both direct and indirect, ■ Indirect

Collaboration with local customers

Table 5 Collaboration with local customers (Based on the analysis)

	Cisco	Rostelecom	Lufthansa	Aeroflot	BMW	Avtovaz
Strength	Low	Low	Low	Medium	Low	Low
Type	Direct	Direct	Direct	Both direct and indirect	Both direct and indirect	Direct

Strength □ Low, □ Medium, ■ High
Type □ Direct, □ Both direct and indirect, ■ Indirect

Collaboration with local suppliers

Table 6 Collaboration with local suppliers (Based on the analysis)

	Cisco	Rostelecom	Lufthansa	Aeroflot	BMW	Avtovaz
Strength						
Type						

Strength Low, Medium, High
Type Direct, Both direct and indirect, Indirect

Collaboration with partners from the same industry

Table 7 Collaboration with competitors from the same industry (Based on the analysis)

	Cisco	Rostelecom	Lufthansa	Aeroflot	BMW	Avtovaz
Strength						
Type						

Strength Low, Medium, High
Type Direct, Both direct and indirect, Indirect

5.2.1 Quality of the connections

In this section, we will analyze the quality of the connections. Comparison of the size of the network of the foreign owned and domestic owned organizations is presented.

Firstly, similarities in open innovation networks between foreign owned and domestic owned firms include that there is no high level of partnerships between local suppliers and organizations. Furthermore, low level with collaboration with customers and organization remain (Table 5; Table 6). Even though the domestic owned firms are discussing potentials for higher integration, it rarely occurs due to underdevelopment of the infrastructures.

The data indicates that domestic owned organizations tend to collaborate with local universities more, than foreign owned organizations (Beliveau-Dunn, 2017; Khetaguri, 2011; Goryachev, 2014; Avtovaz, 2011; Baranskaya, 2017) (Table 3). This collaboration occurs in various ways, such as internships and mutual study program development. Moreover, domestic owned firms, collaborate more directly with clusters. Alternatively, foreign owned-organizations focus on local startups and incubators, and try to form more direct contacts with these organizations. Meanwhile, domestic owned organizations use help of other organizations, such as agencies in order to cooperate with startups.

Moreover, differences for foreign owned organizations include building indirect relationship with the government in Russia through strong relationships with the governmental agencies, such as research centers, primarily in the well-developed areas and regions. They also often collaborate with third parties, which have rather distant relation to the company's own business. These organizations have own capabilities to develop own incubators, which works directly with startups, as well as event and competition organization.

Domestic owned organizations often go for closer relationship with the government, up until direct relationships through the participation in tenders. Domestic owned organizations have lower ability to collaborate with startups. This can be caused due to very fixed structure and high hierarchy in the company. In essence, integration with highly dynamic and flexible startups would be a significant issue for well-established hierarchical organizations. Therefore, domestic-owned organizations use help from third parties. Meanwhile, foreign owned organizations have own facilities, which are using both outbound and inbound open innovations. In addition, it is possible to note that domestic owned organization often participate in collaborations within less developed regions or clusters. For example, we can see that foreign owned organizations prefer collaboration mostly in Moscow and Kazan, meanwhile Khabarovsk, Kaluga and Kaliningrad regions and clusters, are rarely in the interest of the foreign owned organizations (Strategic Partnership North-West, 2014). This high interest of domestic owned organizations in less developed clusters can be explained with higher potential of growth, compared to well-established clusters. In developed clusters, companies tend to know well the players of the cluster as well as are aware of the abilities of each player.

From the Tables 1, 2 and 4 none of the statements can be made. This is due to different focus levels and integration types among similar players. Meaning that domestic owned companies do not show similar patterns, as well as foreign owned organizations differ in their performances and partnerships.

5.2.2 Accessibility of the connection

Based on the data, we can conclude that both foreign owned and domestic owned firms do collaborate frequently. They have ongoing collaborations with startups, participation in yearly events. Both are investing resources in sharing their knowledge with universities

However, difference exist, as it is possible to see that foreign based firms, form separate businesses from their main business, which main focus is to constantly monitor and maintain relationship with partners, this cannot be observed in the domestic firms. On the one side, domestic owned firms do integrate stronger, if we look at the example, when they hire people from the innovation centers. On the other side, we can also see that domestic owned firms do focus on temporary communications, such as solution finding challenges.

Even though domestic owned organizations are often mentioning integration with their suppliers, due to underdeveloped structure of the organization or high bureaucracy, domestic owned organizations rarely integrate with local suppliers (Kalugin, 2016, p.17; Innovation in Russia, 2013a; Andersson, 2014). On the one side, it occurs due to significant differences in

organizations' structure and firms' operations. On the other side, it can also be caused due to fact that local suppliers have little innovative capabilities. Nevertheless, domestic-owned firms are actively working on improvement of integration, meaning that in general they see potential in cooperation with the local firms.

5.2.3 Diversification of the connection

The analysis allowed determining the most important groups for collaboration: government, local incubators, startups, universities, clusters, customers, suppliers and competitors from the same industry.

Meanwhile foreign owned firms are interested to cooperate with companies not directly linked to their business. Domestic owned firms do share knowledge with direct competitors.

Moreover, domestic owned firms, primarily aim to collaborate with universities, which is also slightly different from how foreign owned organizations do it. If foreign owned firms, provide universities with labs, testing facilities and internal knowledge. Domestic owned firms suggest changes in universities that will help to newly graduates to be easily integrated into the collaborative firms and start to work in existing structure of the firm.

5.3 Discussion

This section will relate the results with the literature. It will connect the findings with the existing theory, as well as position the results in the academic literature.

The fact that domestic owned organization collaborate with higher education institutions in Russia fits well with the literature, which stresses importance of the universities in the open innovation process (Carayannis and Meissner, 2017). However, lack of strong relationships between foreign owned and local universities, might be because of LOF (Denk et al., 2012). Where structure of these two institutions as well as other barriers, creates more costs than gains for the firm.

The literature, however, stressed the importance of the customers and suppliers in the developing countries as a knowledge source (Denk et al., 2012), which resulted to be not as important compared to other actors. This does not contradict with the theory, as customers and suppliers remain important in the process of open innovation regardless of the ownership type. However, the findings shows that not only foreign owned firms, but also domestic owned firms have rather low integration with them. Moreover, the work of Podmetina, Savitskaya and Väättänen (2012), which did not narrow down external stakeholders only to suppliers and customers, goes hand in hand with the findings that suggest that companies collaborate with customers, suppliers, but also with other partners, such as startups, incubators, forums, governmental agencies or competitors.

Most of the foreign owned organizations are well aware of the turbulence of the environment (Vrgovic et al., 2012). This turbulence creates complications for the foreign owned firms, whereas these complications will also often lead to radical solutions for these problems. Thereby significantly strengthening their competences not only in emerging countries, but also provide knowledge on how to strengthen competences in other parts of the world. This supports the literature regarding foreign owned organizations, which suggests that the foreign owned organization have potential for radical improvement of their value and business concept by operating in the emerging countries (Podmetina et al., 2011).

Moreover, the data indicated that foreign owned organizations, are trying to establish indirect links with the government, through the collaboration with research centers, innovation foundations and other agencies. This can be seen as a way to lower influence the effect from the state and government, which according to Vrgovic et al (2012) plays an important role in emerging economies (Vrgovic et al., 2012).

6 Conclusion

This section will summarize findings in order to conclude the study and answer the research question.

The research question proposed in this study was: What is the effect of the foreign ownership on open innovation networks in the emerging countries? The study of the foreign owned organizations in emerging economies, showed importance of collaboration in the process of the open innovation. However, as compared to domestic owned organizations, the foreign organizations showed much higher interest in local startups and incubators, than towards local universities. The data also showed that foreign firms have higher abilities and experience to deal with startups directly, as opposed to domestic owned organizations, which are more likely to cooperate indirectly, such as via agencies.

Moreover, as the data suggests, foreign owned organizations do not strongly collaborate with the local clusters, customers and suppliers, which might be due to already advanced technologies and managerial styles used by the company, while local players have underdeveloped infrastructures and less knowledge to share.

Importance and influence of the government proposed in the literature, was also indicated from the data. In essence, foreign firms use indirect connections to government, by actively participating in the events and collaborating with the agencies established by the governmental institutions. This collaboration is very important for the emerging economies, as literature suggests, government plays the key role in matching the innovators and commercial firms in emerging countries. Therefore, by collaborating with the firms gives the government possibility to open the right facilities where it is needed. Meanwhile, the local firms experience better opportunities for open innovation, as well as gain political influence and have a stronger protection against the political turbulence.

6.1 Research Objectives

The research objectives of this research, to answer the research question and contribute to the academic literature was partly fulfilled. The research question proposed in this paper was answered and provided better understanding of the open innovation in Russia. However, due to nature of the qualitative research aimed to study less developed phenomenon, the results do not provide high level of significance and rather indicate to certain links. Moreover, LBIO as a method of gathering data does not provide the highest level of reliability and validity. Therefore, a quantitative research is important to prove the results.

6.2 Practical Implications

Overall, the paper can be applied by the managers in Russia, in order to ensure successful outcomes from the open innovation. The research have defined the most relevant players for open innovation, both for foreign owned organizations as well as domestic owned organizations. This paper can help domestic owned organizations, to achieve higher growth by exploring new ways to innovate.

Simultaneously, this paper provides insight on open innovation for the foreign owned organizations in Russia. This information is useful for the company, in order to decrease influence from the turbulent and constantly changing environment of the emerging economy.

Lastly, this paper can be applied by the policymakers in emerging country, namely Russia, which shows important collaborations in the process of innovation. The research paper can indicate what links should be strengthened, thereby allowing inspiration for new policies.

6.3 Future Research

There are certain limitations used in this project, namely geographical scope. The paper focuses on a case of emerging country that is Russia. However, there are large potential to develop this theory further and test it on other emerging economies. Even though the theory of this research was based on the literature for emerging economies, the data is primarily taken from Russian domestic owned organizations and foreign owned organizations operating in Russia. Therefore, further research is needed to test these findings in other emerging economies.

Moreover, open innovation can be split in various ways, by type: outbound or inbound, or by involvement level: crowdsourcing, co-sourcing and co-creation. Study of these phenomena is also crucial for the academia and better understanding of the open innovation.

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Appendix A

The screenshot shows the 'Text Search Criteria' dialog box in Nvivo. The search criteria are: 'Search in: All Sources', 'Search for: open innovation', and 'Spread to: None'. The search results are displayed in a table with columns for Name, In Folder, References, and Coverage. The results are as follows:

Name	In Folder	References	Coverage
Aeroflot	Internals	113	3.11%
Avtovaz	Internals	197	3.91%
BMW	Internals	52	3.63%
Cisco	Internals	206	1.73%
Lufthansa	Internals	33	2.17%
Rostelecom	Internals	323	2.18%

On the right side of the dialog, there are search options: 'Find' with a dropdown menu set to 'Special', and a list of search criteria: 'Exact matches (e.g. "talk")', 'With stemmed words (e.g. "talking")', 'With synonyms (e.g. "speak")', 'With specializations (e.g. "whisper")', and 'With generalizations (e.g. "communicate")'. The 'With specializations' option is selected with a blue radio button. At the top right, there are buttons for 'Run Query', 'Save Results...', and 'Add to Project...'.

Figure 7 Search query for open innovation in Nvivo (Own source)

Appendix B

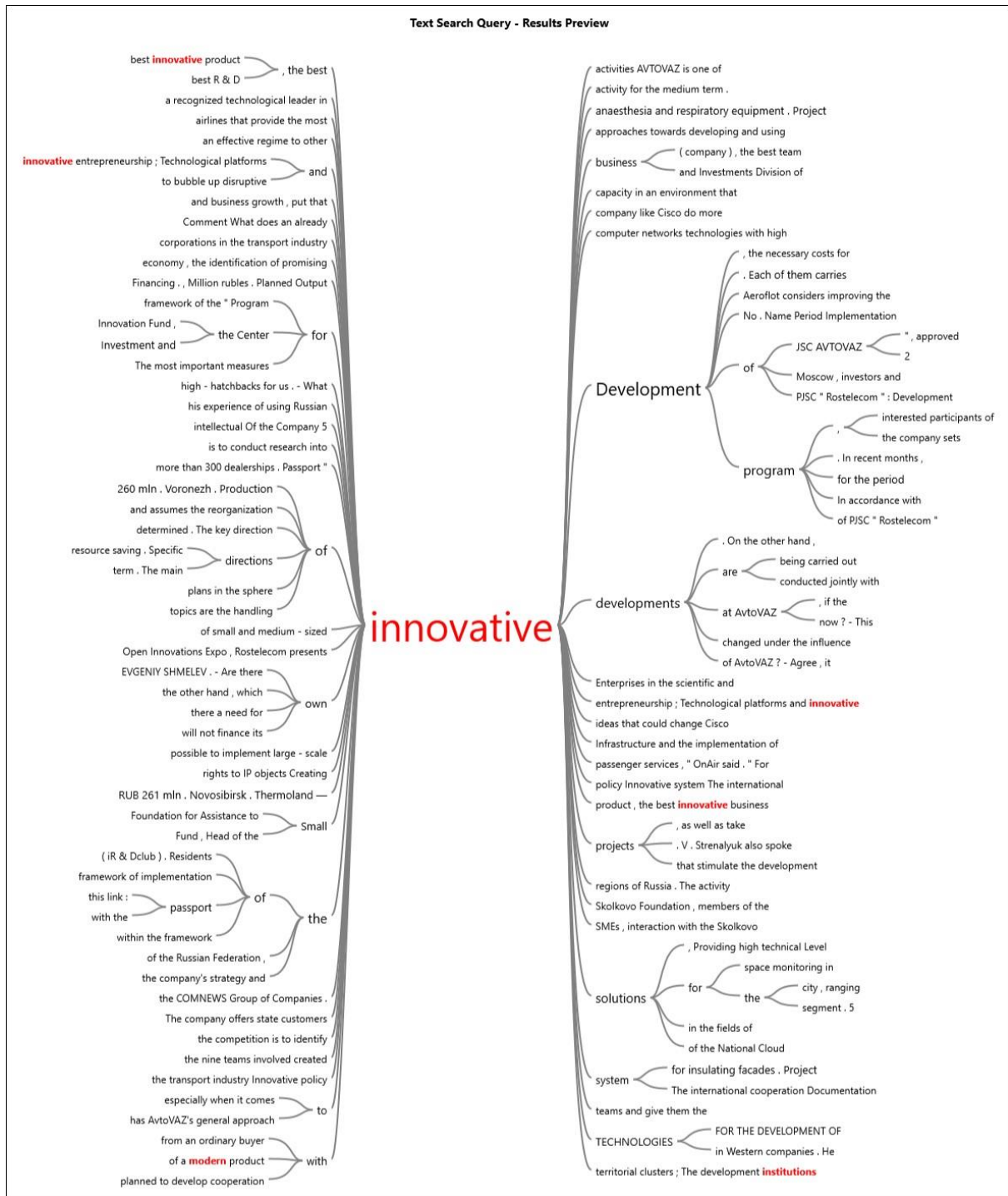


Figure 8 Open innovation search query in all the sources using Nvivo (Own source)