Aalto University
School of Business

Strategy of commercialization of Russian innovations in Finland

Management Science

Master's thesis

Natalia Koryakina

2014

Department of Management Studies
Aalto University
School of Business

Aalto University
School of Business

Aalto University, P.O. BOX 11000, 00076 AALTO
www.aalto.fi

Abstract of master's thesis

Author	Natalia Koryakina
Title of thesis	Strategy of commercialization of Russian innovations in Finland
Degree	Master of Science (Economics and Business Administration)
Degree programme	Management
Thesis advisor(s)	Irina Mihailova
Year of approval	2014
Number of pages	91
Language	English

Abstract

Russia inherited a large research and development (R&D) sector from Soviet times, and has retained a substantial R&D sector today, compared with other emerging economies. However, Russia is failing behind in all indicators measuring innovative output in comparison with most developed countries. According to Martti Vallila, Finland has what Russia needs and Russia has what Finland needs. There are researchers and innovators in Russia. Finland has one of the leading innovation systems in the world to commercialize Russian sourced innovation. Therefore, research problem of the thesis is to find the strategy that Russian companies could use in order to commercialize their innovations in Finland and if this strategy depends on some factors.

To acquaintance the reader to the wider theoretical context of the study, the concepts of commercialization and internationalization as a strategy by providing theoretical background to the issue.

The empirical part of this thesis has been conducted with qualitative methods, a qualitative multiple case study. The research of the study consists of two parts. The first part was conducted by interviews with the representative from Tekes and representative of the project "Finnish-Russian Innovation Cooperation - Commercialization of Russian Innovations". The second part was also conducted by interviews, but with the representatives of the companies, who succeeded to commercialize their innovations in Finland.

The main findings of the empirical part are next. The reason why Russian companies need to commercialize their innovations in Finland was found out, it is due to the obstacles in Russian innovation system, Finnish innovation system looks more attractive to Russian companies. Regarding to the steps of the commercialization process, there are no clear steps, but the following ones were suggested by the author: establish a joint venture, hire a local CEO or a book-keeper, prepare an investment plan, and create projects inside joint venture. Regarding the main challenges for Russian companies in Finland are: lack of human resources, lack of money (or investments), difference in taxation systems. Cooperation commercialization strategy seems to be the most suitable for Russian companies that would like to commercialize their innovations in Finland.

Finally, the research identified that the choice of internationalization strategy effects the choice of commercialization strategy.

Keywords commercialization strategy, internationalization, Russian innovations

CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

1.1.Motivation

Russia inherited a large research and development (R&D) sector from Soviet times, and has retained a substantial R&D sector today, compared with other emerging economies. However, Russia is failing behind in all indicators measuring innovative output in comparison with most developed countries. Russia's innovation performance is disappointing, despite the available stock of human capital and overall investment in R&D. The communist legacy still influences the main actors of the innovation system. The federal state is still the most important funding source for R&D. (Krott, 2008).

Where the Russian innovation system demonstrates some advantages is in the phases of idea screening, concept development and particularly strong in the idea generation phase. The latter, being often the innovation itself is of key importance as it reflects the novelty in the future product or service. However where the Russian innovation system so far clearly fails is in key areas leading to commercialization such as business analysis, technical implementation and commercialization. But what may seem to be the Achilles heel of the Russian innovation system may in fact be an excellent opportunity for foreign organizations. Thus, in Finland there is a growing interest to plugging the Finnish industry and its interests to the Russian innovation potential. There are visible signs that Finnish industries (forestry, ICT, biotech etc.), Finnish authorities (governmental (ministries), regional, and municipal (cities) and academia (universities and research centers) become increasingly interested in the opportunities the Russian innovation capacity offers and in well defined and mutually beneficial ways of exploring and commercializing them. That process is undoubtedly of mutual interest as it clearly will contribute for the overall Finnish and Russian competitiveness (Dezhina, Zashev, 2007).

According to Martti Vallila (2010): "Finland has what Russia needs and Russia has what Finland needs. There are researchers and innovators in Russia. Finland has one of the leading innovation systems in the world to commercialize Russian sourced innovation. Russia has no such system, not even in the near future."

1.2.Research Problem and Research Questions

The research problem of the thesis is to find the strategy that Russian innovative companies could use in order to commercialize their innovations in Finland and if this strategy depends on some factors.

Therefore research question of the thesis is:

- *How Russian companies commercialize their innovations in Finland?*

From the main research questions, the sub questions are constructed:

- *What difficulties both sides face in the process?*
- *What are the steps and the challenges?*
- *What are the crucial factors influences Russian innovations' commercialization process?*
- *What strategies company uses in commercialization?*

The first question generates an overview of the difficulties of commercialization process for Russian and Finnish sides.

The answer to the second question of the steps and challenges in commercialization process creates the basis of the research. It gives basic information on how commercialization of Russian innovations process is going.

The third research question discusses the factors behind the success or failure of commercialization process.

The fourth question tries to identify strategies company uses in commercialization.

1.3. Methodology

The empirical part of this thesis has been conducted with qualitative methods, a qualitative multiple case study. The research of the study consists of two parts. The first part was conducted by interviews with the representative from Tekes and representative of the project "Finnish-Russian Innovation Cooperation - Commercialization of Russian Innovations". The second part was also conducted by interviews, but with the

representatives of the companies, who succeeded to commercialize their innovations in Finland.

Qualitative research in particular is conducted in this thesis because of the following reason: “qualitative methods permit the evaluator to study selected issues in depth and detail. Approaching field work without being constrained by predetermined categories of analysis contributes to the depth, openness, and detail of qualitative inquiry.” (Patton, 1991, p.13).

Qualitative methods typically produce a wealth of detailed information about smaller amount of people and cases. This increase understanding of the cases and situations studied but reduce generalizability (Patton, 1991, p.14).

The research data of this thesis was collected by conducting semi-structured interviews with open ended questions in the case companies and by utilizing written documents, provided by case companies.

Semi-structured interviews were used in the research process of the thesis, since the major advantage is that the materials are somewhat systematic and comprehensive, while the tone of interview is fairly conversational and informal (Eriksson & Kovalainen, 2008, p.82).

Open questions were used in the interviews due to the reason that it gives the participant more control over what is talked about and usually produce more detailed responses.

In addition to the interviews, written documents were utilized as a secondary material in the research.

1.4.Theoretical framework

The empirical research has provided some significant insights on the initial research problem. Based on the case studies, a revised theoretical framework illustrating commercialization process of Russian innovations in Finland can be presented.

Based on the empirical study, the author identified certain features. Due to the obstacles in Russian innovation system, Finland with its innovation system looks more attractive to Russian innovative companies. Therefore the companies decide to internationalize

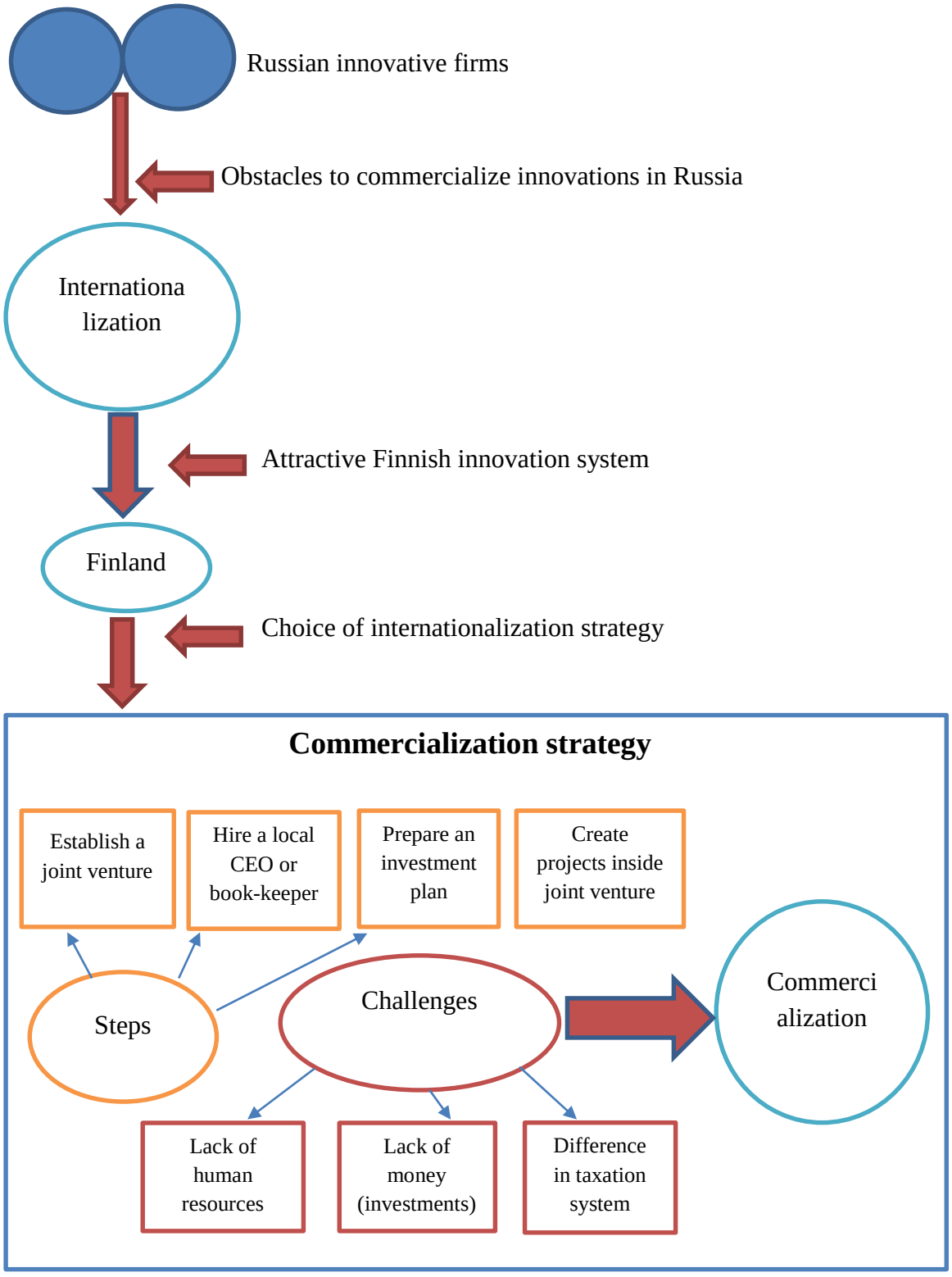
their innovations in Finland. The empirical part of the thesis identified that the choice of internationalization strategy effects the commercialization process, thus commercialization strategy. The main challenges for Russian innovative companies in Finland, which were found during research are: lack of human resources, lack of money (or investments) and difference in taxation systems. Therefore, following steps for commercialization process were suggested by the author: establish a joint venture, hire a local CEO or a book-keeper, prepare an investment plan, and create projects inside the joint venture. These findings allow to show a more specific description of commercialization process of Russian innovations in Finland and thus be added to the theoretical framework (Figure 1).

1.5.Findings

The main findings of the empirical part are next. The reason why Russian companies need to commercialize their innovations in Finland was found out, it is due to the obstacles in Russian innovation system, Finnish innovation system looks more attractive to Russian companies. Second, the empirical research provided also several new insights with regard to the main steps and challenges what Russian companies face in Finland. Regarding to the steps, there are no clear steps, but the following ones are suggested by the author: establish a joint venture, hire a local CEO or a book-keeper, prepare an investment plan, and create projects inside joint venture. Regarding the main challenges for Russian companies in Finland are: lack of human resources, lack of money (or investments), difference in taxation systems. Cooperation commercialization strategy seems to be the most suitable for Russian companies that would like to commercialize their innovations in Finland.

Finally, the research identified that the choice of internationalization strategy effects the commercialization strategy. The choice of internationalization strategy effects the steps of the company, these steps lead to the certain challenges, so through these challenges Russian companies identify the right commercialization strategy for them.

Figure 1. Theoretical Framework



1.6.Structure of the Thesis

In order to answer to the research question, the thesis is divided into six chapters that follow a logical order.

The first chapter of this thesis presents the overall picture of the present research. Firstly, the motives of the thesis are described. The chapter also presents the research problem and questions as well as illustrates the methodology and key findings of the thesis. In the end of the chapter, the structure of the study is outlined.

Then, the second chapter defines the concepts of commercialization and internationalization as a strategy by providing theoretical background to the issue. Firstly, this chapter describes innovation process and commercialization of technology. Secondly, the chapter presents internationalization as a process and internationalization in Russia.

The third chapter elaborates and justifies the method that is used in the empirical part of the thesis.

The fourth chapter presents the empirical research of the thesis. Firstly, Russian and Finnish innovations systems are presented, secondly case finding. This is followed by a discussion that addresses the original research questions of the study; as well as the revision of the theoretical framework.

The fifth chapter describes the cross-case analysis of the thesis.

Finally, the sixth chapter summarizes the research, presents managerial implications and recommendations to the future research.

2. LITERATURE REVIEW

The purpose of this chapter is to define the concepts of commercialization and internationalization as a strategy by providing theoretical background to the issue. Firstly, this chapter describes innovation process and commercialization of technology. Secondly, the chapter presents internationalization as a process and internationalization in Russia.

2.1. Commercialization

2.1.1. The overall innovation process

According to Bulgerman (2004) innovations are the outcome of the innovation process. The innovation process can be defined as "the combined activities leading to new, marketable products and services and / or new production and delivery systems" (Krott, 2008, p.8).

There are various models of the underlying mechanisms that help firms to create innovations. These models have also evolved over the course of time. Until the 1980s, an innovation was considered to be the result of a linear process. The basic variations were technology-push and market-pull models. According to the technology-push model, science and R&D serve as the source of new discoveries and engineers apply these discoveries to products that are left for marketers to promote to potential customers. The market-pull model turned the "pipe" the other way round. According to this model, the customer and market needs are the starting points and initiators for new ideas and requirements. In this model R&D has more of a reactive role in finding solutions to emerging needs. These first- and second generation models were quite simplistic and, as a result, a more advanced model of simultaneous coupling emerged. The third-generation model emphasizes the coupling of functional entities and suggests that innovations are the result of knowledge between research and development, marketing and manufacturing being shared. The interactive, or integrated, model represents the fourth level of innovation and it considers a firm's activities to occur parallel to one another. This model acknowledges that innovation occurs or originates from different points as a result of concurrent tasks. Finally, the fifth-generation, innovation-process model is a complex set

of communication paths and systems integration with strong external networking (Simula, 2012, p.45).

Innovation processes imply the exploitation of opportunities for new or improved products, processes or services based on either the use of new know-how or a change in market demand, or a combination of both. Therefore innovation is primarily a matching process. Pavitt presented a framework to disaggregate the different innovation activities (2006, p.88). He has identified three broad overlapping sub-processes of innovation:

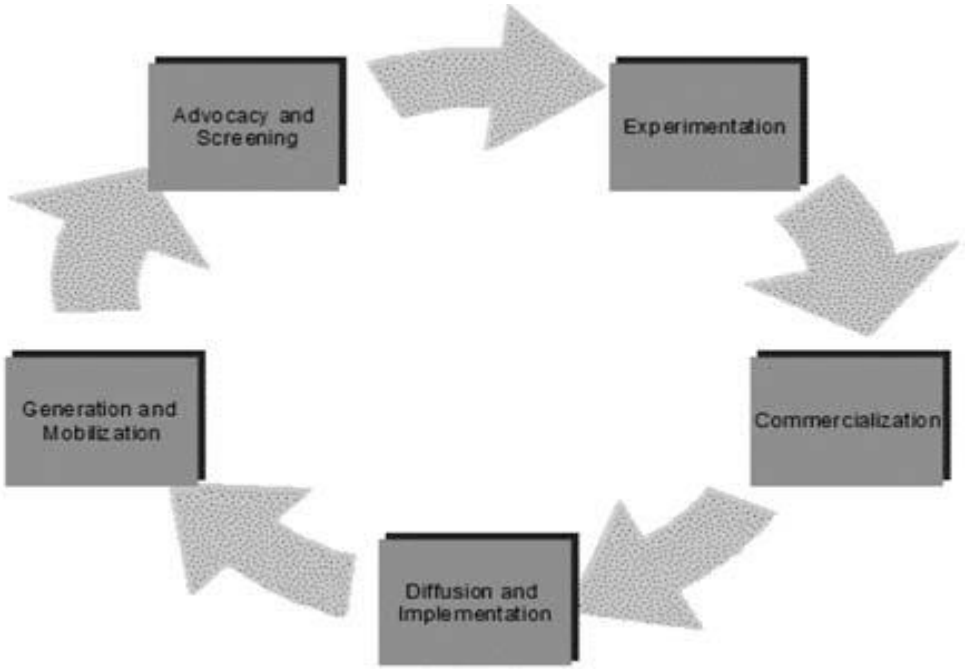
- The production of scientific and technological knowledge,
- The translation of new knowledge in working artefacts,
- Responding to and influencing market demands.

Another model of innovations is so called chain-linked model presented by Kline and Rosenberg. This innovation model divides the innovation process into five relatively separable stages. The first stage of innovation is identification of a need in a potential market. The second stage starts with an invention and / or analytical design for a new process or product that supposed to fill the market need. In the third stage the actual development of the innovation begins, the stage marks the start of detailed design and testing. During the fourth stage, the emerging concept is redesigned and maybe entered full-scale production. The fifth and final stage introduces the innovations to the market, initiating marketing and distribution efforts. Another central feature of this model is the identification of five interrelated paths of innovation. These paths describe different sources of innovation and knowledge inputs throughout the innovation process. (Palmberg, 2002, p.11).

The merit of the chain-linked model lays in identifying the true diversity in the sources of innovations described in the five different paths of innovation. Another strength is the acknowledgement of the relative roles of innovation paths across different industries. Nonetheless, this model has also been criticised for being overly mechanical and for ignoring the broader institutional environment where innovation takes place, leaving no room for regulatory change (ibid).

Desouza et al. (2009) presents the following stages of the innovation process as the most common ones: generation and mobilization, advocacy and screening, experimentation, commercialization, and diffusion and implementation (see Figure 2).

Figure 2. The innovation process.



(Source: Desouza et al., 2009, p.10)

The stages are interlinked in a cyclical manner. An organization may choose to execute each stage on its own, outsource it, or execute it in conjunction with external entities (e.g. customers or business partners). An idea, whether internally or externally generated, moves through a series of stages before it is adopted wholly into a company or a marketplace. The stages of the innovation process detail the major steps that an idea must go through to become fully implemented and accepted. Not all ideas complete all stages of the innovation process, but all ideas that lead to novel practices which are integrated into a company or products and services that are commercialized for the marketplace do pass through these stages (Desouza et al, 2009).

Each stage is described in this chapter. The critical issues that organizations need to pay attention to when executing each stage are presented. Differences between organizations that have robust innovation processes and those that have brittle processes will also be

articulated. Table 1 contains a summary of critical differences between organizations that have robust and brittle processes for innovation. (ibid)

Idea generation is the process whereby new ideas are created, whether through redefinition of concepts, changes in processes, creation of new components of service, or development of new services (Desouza et al, 2009).

Mobilization is where modifications to any existing products, processes, services, or frameworks of thought lead to the movement of ideas from one location (physical or logical) to another (Desouza et al, 2009).

Advocacy and screening is the process of identifying the potential benefits and problems present at a particular time. Advocacy and screening encompasses evaluation of potential opportunities for ideas within a particular organization's context. The process of advocating for and screening ideas reveals another tension in the innovation process. Once ideas have been generated, they need to be evaluated, because not all ideas will be worth the effort of implementation (Desouza et al, 2009).

Once an idea has passed through the screening process, experimentation and prototype-building begins. Even if the idea generator(s) or an advocate has created a prototype as part of an earlier stage of innovation, the idea's applicability to a specific problem, context or production chain must be tested. Ideas that are generated, advocated for, screened, and even found desirable might be ahead of their time or beyond the present capacity of the company. At either the screening stage or the experimentation stage, ideas may be set aside into an idea bank or idea library for development at a later time (ibid).

While experimentation focuses upon the possibility of executing an idea, commercialization focuses upon the potential impact of an idea. Once ideas are developed within a context, the next step is to make them appealing to the intended audience. This involves choosing methods to package the ideas, whether for internal or external audiences. Commercializing involves clarifying how and when ideas can be used by people other than the group that developed them, and using data or prototypes from the experimentation process to demonstrate tangible or visible benefits (ibid).

Table 1. Robust versus Brittle organizations in the innovation process.

Innovation process	Robust organizations	Brittle organizations
Idea generation	• Guidelines and processes exist to standardize stages of idea generation • An 'idea' is defined • Multiple venues exist to identify ideas • A conscious balance exists between the pressure of need and an environment of open playfulness • Procedures are defined to evaluate sources • A wide range of defined idea sources exists • Are often subject to information overload or an absence of ideas	• Employees are unsure what constitutes an idea • Need and pressure are used in inappropriate situations • Idea sources are limited in range and scope
Idea mobilization	• Idea sources are connected across departments, geography and authority ranks • Idea sources are focused on the most likely or useful areas for the organization • Reward and recognition systems show value in both generation and mobilization of ideas • Accountability for recognizing and mobilizing ideas is specified • Idea generators and those involved with mobilization interact with stakeholders	• Idea generators are unclear about how to communicate ideas • The value of ideas is often not recognized • Sources and idea flow is unmanaged • Rewards are lacking for good idea generators or recognizers • Idea hoarding may be present, limiting mobilization • Methods and track record of recognizing and mobilizing ideas are not part of job descriptions or evaluations • Idea generators may be isolated from key stakeholders
Advocacy	• Organizational and customer considerations are clear to advocates • Possible ideas are broadly communicated • Numerous avenues to advocate for ideas and find supporters exist • Dedicated advocate roles exist, and/or reward systems are standardized to reward advocates	• Employees are nervous about sharing ideas because evaluation is unclear • Little feedback, support or constructive criticism is available • Limited processes exist by which to share ideas • Reward systems are skewed towards idea generators, do not recognize advocate role
Screening	• Standards for evaluation are articulated and communicated across the organization • A clear, conscious shift towards evaluative objectivity is made • Evaluation is as transparent as possible • Long term and immediate consequences of ideas are built into the evaluation system	• Evaluation process is unclear and subjective • Egos play a large role in idea evaluation • Secrecy surrounds the evaluation process • Focus is on short term impact and revenues, or local context
Experimentation	• Resources are in place for experimentation • Process is defined and sanctioned • Adoption of external ideas is valued • A variety of avenues exist to experiment, some of which involve external parties • Documentation of process contributes to the organization • Technology is utilized and invested in • Process is transparent and communicative • Failure is part of the process, not an end point	• A lack of resources or incentives exists • Structure and definitions are nonexistent • Experimentation is on employees' own time, without standard process • It is difficult to customize existing experimental processes to current need • Documentation procedures do not exist • Experimenters are isolated • Failure, risk and resource expenditures are emphasized
Commercialization	• Public forums are utilized • Consumers are involved • Distinctions are drawn between immediately useful and ideas needing refinement or market changes • Benefits are articulated and documented • Scope is considered	• Isolated or internal processes exist • Weak evaluation of market trends decreases likelihood of success • One hit wonder syndrome exists • Ideas are not evaluated against market demands or service scope

(Continued)

Innovation process	Robust organizations	Brittle organizations
	• Presentation of components is re-evaluated • Bundling is possible • Centralized unit manages this process • Commercialization is controlled and objective driven • Market response feedback is given to experimenters	• Is not differentiated from or managed differently from previous innovation stages • Loose and uncoordinated control exists • Failure is considered the end of the process
Diffusion and implementation	• The whole organization is targeted • Existing initiatives are incorporated • Realistic objectives are established • Knowledge broker role is acknowledged • Dialogue is emphasized with all stakeholders • Older, duplicative processes are eliminated • Unlearning is understood and prepared for • Storytelling and metaphor is used to inspire and convey the need for and type of change • Values and culture are emphasized • Social networks are utilized • Customer segmentation is established • Technology is used to communicate • Failures are evaluated and considered for further stages or processes	• Process is draconian and top-down with little regard for existing processes • Lack of dialogue exists • Objectives may be arbitrary • Old processes persist and unlearning is slow and not encouraged • Minor failures threaten culture • Existing culture and stories disregarded • Changeis not obviously in line with existing values or culture • External stakeholders are disregarded • Technology is not fully supported • Failure is an end point

(Source: Desouza et al, 2009, p.11-12)

Commercialization takes possible ideas and creates internal or external market value, creating parameters within which value can be expressed or shared in a coherent fashion. External audiences may need to be introduced to products or services, either as entirely new products or as improved versions of existing outputs (ibid).

Diffusion and implementation are two sides of the same coin; diffusion is the process of generating buy-in and acceptance for a new innovation, while implementation is the process of setting up the structures, maintenance and resources to allow the innovation to develop and be utilized or produced (ibid).

The innovation process can be cyclic. All ideas must go through the entire innovation process, but any single organization may not participate in all of the stages. Identifying competencies (and deficiencies) in the innovation process can help organizations improve their overall success with innovation (ibid).

2.1.2. Commercialization defined

Jolly identified that difference between products and technologies influences the way we think about commercialization. But in both cases, commercialization is "to cause

something having only a potential income-producing value to be sold, manufactured, displayed or utilized so as to yield income or raise capital". For products it means taking a design through development and then manufacturing and marketing it. For technologies, on the other hand, value realization encompasses a broad range of things, including "all stages of commercial development, application and transfer, including the focusing of ideas or inventions toward specific objectives, evaluating these objectives, downstream transfer of research and/ or development results, and the eventual broad-based utilization, dissemination and diffusion of the technology based outcomes (Jolly, 1997, p. xv).

Jolly (1997) provides a good distinction between the commercialization of technology and the commercialization of products by stating that, a technology is essentially a "capability", often a versatile one that can be used in more than one product. Products are occasional embodiments of this capability and mediate the process of bringing it to market and realizing from it. The technology and these products, however, often live separate existences, following their own competitive logic, converging sporadically" (ibid). Table 2 provides a detailed contrast between product and technology commercialization.

Table 2. The main differences between product and technology commercialization.

Characteristic	Product	Technology
Object to be commercialized	Single product	Multifaceted capability
Start of commercialization (and time scale)	Product conception (1 - 5 years)	As soon as a potentially valuable technological concept is proposed (10 - 20 years)
Stakeholders to whom to demonstrate value	Customers and end-users	Several, whole mix and interests evolve with the technology
Nature of demand	Final for the segment targeted	Derived from the product(s) made possible
Competition	Other products for same function	At different levels against other technologies for same product or function
Marketing challenge	Exploiting unique selling proposition (USP) of finished product	Exploiting whatever the technology can achieve at the point in time
Timing	End-user market opportunity	The time line of competing inventors, adopters, and resource providers
Opportunity for value creation and appropriation	Revenue from making and selling products competitively	Product sales and/or collateral benefits over life of technology

(Source: Jolly 1997, p. xvi)

2.1.3. Commercialization of technology

According to Zahra and Nielsen, the commercialization of technology is an important way for firms to create new business and profit. Technology can be seen as intellectual property, or it can be something that is embodied in physical artefacts, i.e. products, or it can be present in the form of a technical service - technology represents knowledge rooted in engineering or scientific disciplines, and firms can treat it as an intangible asset (Arora, Fosfuri, & Gambardella, 2001). One definition states that technology is "knowledge of how to do things". Another, even broader, definition states that technology is "the system by which a society satisfies its needs and desires" (Simula, 2012, p.76).

Jolly presents commercialization within the context of technology has been seen to cover aspects ranging from basic and applied research to product development, production, and marketing. According to Teece the strategic management of technology is fundamentally about the commercialization of new knowledge. Rogers, on the other hand, sees commercialization as a way to package research results in a form that can be adopted by users (ibid).

According to Rogers, the commercialization of technology is often done by private firms. However, Abetti & Stuart described that the technology embodied in new products has no value for the firm unless it provides significant new or improved customer benefits, or reduces product costs. The commercialization of technology can happen in various ways and its form it takes depends on the competencies of an underlying organization (ibid).

Jolly (1997) describes five activities that constitute the key sub processes involved in bringing new technologies to market (Table 3):

- Imagining a techno-market insight;

The notion of commercialization as a process of value recognition means that it starts at the idea stage itself. For technology-based innovations, this is when the prospects for a technical breakthrough get combined with a potentially attractive market opportunity.

- Incubating the technology to define its commercializability;

Getting new idea recognized and endorsed to be worth pursuing is, of course, only the start. The commitment of resources and risk capital to develop it requires taking the idea a few steps further. The idea needs to be proved in some unequivocal manner, both technologically and in terms of needs it is supposed to fulfil. This incubation to define its commercializability expresses what is required substantively as well as figuratively as the "defining moment" – when considerably greater resources start to be devoted to the technology (Jolly, 1997, p.6).

- Demonstrating it contextually in products and/or processes;

Taking a new technology up to the point where it gets recognized to be commercializable is often easy compared to what comes next – demonstrating it in marketable products and processes. This is the stage associated with product development. Unlike other products, those that derive from a new technological capability require walking a tightrope between conceiving of something customers will buy and being able to implement it with the technology at hand (Jolly, 1997, p.8).

- Promoting the latter's adoption;

Regardless of how extensively one performs market research prior to developing a product, acceptance by the market is never assured. Technology-based innovations encounter the same set of problems any new product concept does- the need to create a complex socioeconomic process over which one seldom has complete control.

For many new technologies the promotional challenge has two dimensions. One has to do with persuading people to adopt. The other dimension relates to the infrastructure that has to be created in order to deliver the technology's full benefit (Jolly, 1997, p.10).

- Sustaining commercialization.

The key to realizing value from any new technology, of course, is to make sure the products and processes incorporating it enjoy a long presence on the market and that a fair share of the long-term value they generate are appropriated by the technology's initiator. With rapid product (and technology) obsolescence and the constant entry of new

competitors, this is often the hardest part. In fact, it is precisely here that many start-up companies fail (Jolly, 1997, p.11).

As important as these sub processes are the four bridges between them. While the former involve problem solving of a technical or marketing nature- doing things to the technology, so to speak- these bridges are associated with mobilizing resources around it. They have to do with satisfying the various stakeholders of the technology at each stage, without whom the technology's value does not get recognized, nor is there an impulse to take it further. Thus the bridges are value-creating activities in their own right (Jolly, 1997, p.3).

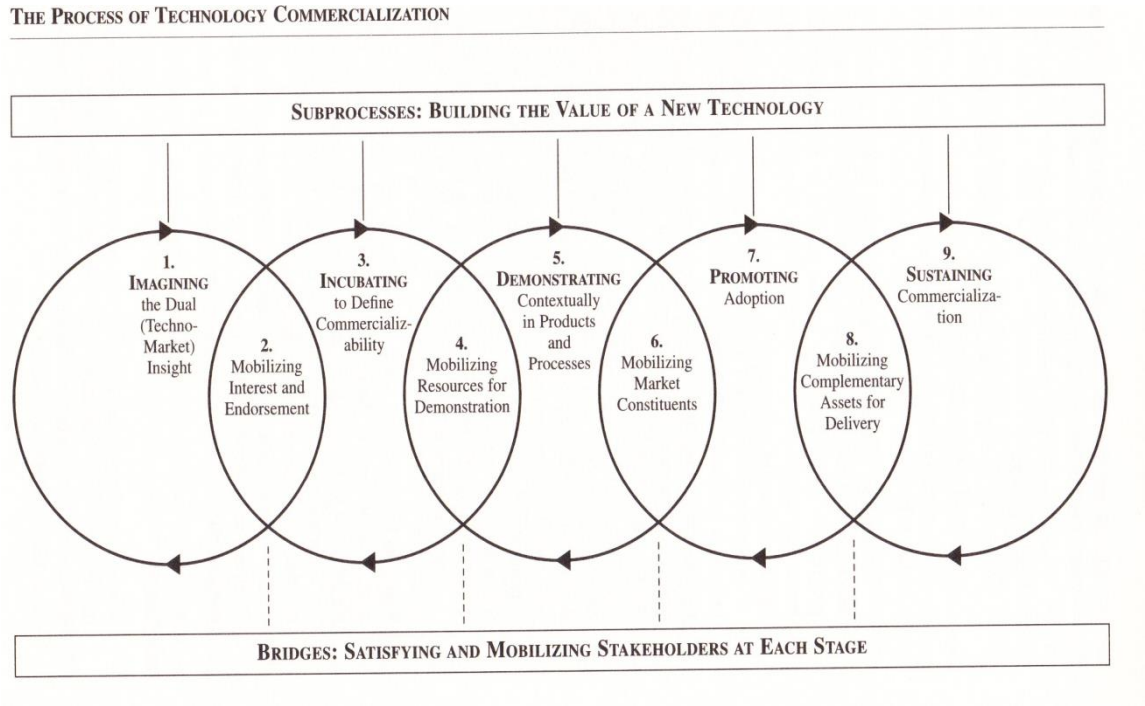
These bridges evoke am important reality about innovation process - that it is fundamentally an exercise in stakeholder management. Many technologies fail not because of the technical skills of their proponents, nor because of the market to which they are targeted. They fail simply because no one got sufficiently interested in them at the right time (ibid).

In most technology-based innovations, four bridges need to be built to close the circle of commercialization. The first is between imagining an idea and assembling resources for the research and development phase associated with proving its worth. It involves mobilizing interest on the part of those whose support is needed at that point to take it further. Next is the link between the technology in its generic form and the development of marketable products incorporating it. This involves mobilizing a considerably greater number of actors both within and outside an organization. It involves the transition from interest and encouragement to a commitment on the part of backers (Jolly, 1997, p.13).

These two bridges are generally associated with the so-called technology transfer problem. But they are not the only ones contend with, and may not even be the most important ones required for successful commercialization. Two other, this time market-related, bridges need to be built too. One relates to the acceptance of the product incorporating a new technology by the first set of customers as well as a host of market constituents. The latter include suppliers of complementary products and the infrastructure needed for users to benefit fully from the technology, competitors helping to get the technology established as a standard solution for a particular problem, as well

as “lead users” and third parties that play an important role in any new technology, without which it will have only an ephemeral impact (ibid).

Table 3. The process of technology commercialization.



(Source: Jolly, 1997, p.14)

2.1.4. The commercialization process

Commercialization may be defined as the process of transferring and transforming theoretical knowledge (Chiesa and Piccaluga, 1998) such as existing in an academic research institution, into some kind of commercial activity. Jolly (1997) defines commercialization as:

“… the process that starts with the techno-market insight and ends with the sustaining functions of the market-competent product. The problems of commercialization include links between technological discoveries and opportunities, demonstration of technology to opinion leaders, incubation of technology, resources for successful demonstration, market acceptance and transfer of benefits, and selection of proper business tools.”

This definition suggests a conception of the processes of commercialization as a stage model in a diffusion of innovation process. Such models generally start with the

technology-driven basic development of new knowledge discoveries and inventions, followed by an incubation process in which the business opportunities and business concepts are more systematically explored and developed, culminating with the establishment of a business activity positioned in the market (Krott, 2008, p.15).

Different stage-gate models found in the literature are summarised in Table 4. All stage-gate models highlight one important aspect of the commercialization process. It will often undergo a change from a mainly technology-driven process to a process which is mainly market-driven. In the early stages, it is the opportunities identified and based on technological knowledge that are the main driving forces, and which motivate the actors in their work. During the process, a shift towards increased emphasis on market opportunities will gradually emerge, making apparent how these may be exploited by developing products or services in order to meet anticipated needs in the market. In the final stages, the main emphasis will be on market opportunities and how the business concept and the business strategy may be designed in order to fully exploit these opportunities (ibid).

Lundvall states that by depicting the commercialization process in terms of stage models, this implies linearity, i.e. where the process goes smoothly through each successive stage. This may be taken as a support for the traditional linear model of innovation, which has mostly been rejected by the development of the interactive innovation model. The point here is not to advocate the revitalisation of the linear model, but rather to point at a way of structuring and provide a basis for analysis. By this we identify stages in the process which may differ from others regarding what kind of knowledge, skills and activities that are important, and which may help identifying important bottlenecks in the process. At each stage issues of specific importance may be identified, and this may in turn provide a basis for developing a framework for analysis (ibid).

This is not to neglect the fact that processes are generally complex, and do not necessarily follow the ‘linear’ pattern indicated by the stage model, which explains why some theorists use terms such as ‘chaotic’ and characterize this as an ‘innovation journey’. Hence, actors may go back and forth between the stages, where they may partly combine

Table 4. Stage models for commercialization.

	Tübke and Empson (2002)	Jolly (1997)	Virtanen and Laukanen (2002)	Ndonzuau, Pirnay and Surlemont (2002)	Roberts and Malone (1996)
Stages					
Idea generation	Opportunity creation Concept development	Technological discoveries and opportunities	Invention, discovery Proof of principle	Generating business ideas from research Finalising new venture projects out of ideas	Invention Disclosure Evaluation Protection
Commercialisation New venture creation	Internal exploitation	Demonstration of technology to opinion leaders Incubation of technology	Working prototype Marketable product	Launching spin-off firms from projects	New venture creation Product development Incubation
New business activity	Venture development Exit	Market acceptance and transfer of benefits Selection of proper business tools	Product Palette Established market position	Strengthening the creation of economic value by spin-off firms.	Business development Sale/IPO

Source: Spilling, 2004

(Source: Krott, 2008, p.16)

elements from different stages simultaneously, or important elements from different stages may come in a different order. Furthermore, the actors will also depend on interaction and communication with a number of other actors belonging to the business community as well as the research community. Interaction across our analytical constructs of stages and organisational boundaries are subsequently important for the

process, providing the rationale for analysing processes of commercialization in a systemic context (Krott, 2008, p.17).

The process of commercialization has several characteristics. It is important to highlight these characteristics of commercialization:

- Complex, involving multiple phases, processes and participants;
- Broad, as it can be carried out through a number of different channels ranging from intellectual property patenting and licensing, through open publication and dissemination, to the movement of skilled people:
- Multi-faceted, involving different investments in product development, production marketing and distribution:
- Risky, early investment might not generate economic return;
- Time consuming, a huge time gap can exist between the investment phase and generation of economic returns (Krott, 2008, p.17).

2.1.5. Commercialization strategies of Innovations

During the commercialization stage, the innovator has to make a basic strategic choice between cooperation or competition in introducing the innovation to the market. The challenges of technology commercialization are often framed with the concepts of appropriability regime and complementary assets, as suggested by Teece (1986). If an innovation does not have a strong intellectual property protection, the innovator has no choice but to commercialize the innovation alone because any partner would be liable to steal its assets. If an innovation is protected by strong intellectual property rights, the innovator can choose whether to commercialize alone or in collaboration with a partner (Krott, 2008, p.17).

Ganz and Scott stated that the appropriability regime and the specialised complementary assets are the drivers of the commercialization strategy. The first factor influencing the strategic choice, called "appropriability regime" describes the ease to imitate an innovation. Teece has defined the appropriability regime as: "a regime of appropriability refers to the environment factors, excluding firm and market structure that govern an innovator's ability to capture the profits generated by an innovation". Teece identifies

two variables influencing the appropriability regime: nature of technology and efficacy of legal protection (ibid).

The second factor in Teece's framework is need for complementary assets. Complementary assets, like new commercialization capabilities, need to be created or acquired. If successful commercialization will require manufacturing, distribution or sales assets that the firm does not possess, the firm must cooperate with another firm for commercialization process (ibid).

Ganz and Scott described that if the innovator wants to launch a new product independently and compete on the market with other firms, the success of the commercialization will depend on several factors. Beyond the intrinsic value of the technology, the innovator must develop key capabilities and acquire complementary assets to ensure that the innovation is turned into a new product with customer value. If the complementary assets necessary for successful commercialization are themselves a novelty, prior market leadership may be irrelevant. Likewise, the success of the innovation will depend on the competitive strategies of incumbents, including the potential for fierce price competition and the ability of established firms to imitate the innovation quickly. Several challenges have to be tackled by the innovator pursuing this strategy. He/ she has to undertake investments (such as in manufacturing and marketing), manage multiple dimensions of uncertainty and focus scarce organizational resources on establishing a market presence (Krott, 2008, p.18).

According Ganz and Scott the alternative to the competition strategy is a "cooperation strategy". This strategy is composed of identifying and concluding contractual agreements with other firms who serve as intermediary for commercializing the innovation to the market. Cooperation strategies take several distinct forms. One possibility for the innovator is to licence intellectual property to another organization. Another form of cooperation strategy is acquisition of the innovator by established firms. These two forms represent the extreme options along the various forms of cooperation strategies. Furthermore, intermediate contractual relationships are possible, from a joint venture, to alliances, to milestone financing. Commercialising through the "market of ideas" has several advantages. First, cooperation reduces market competition. Moreover,

cooperation allows reducing the innovator's investment in complementary assets needed for commercialization. Finally, cooperation facilitates the development of complementary technologies. However, several factors discourage innovators to pursue the collaboration strategy. The biggest impediment arising from the so-called disclosure problem occurs when the innovator shows a potential partner the content and nature of the innovation in order to engage in a partnership. After the disclosure, the partner could use the innovation without compensating the innovator for its efforts. Therefore, innovators are sometimes reluctant to choose the cooperation strategy. A second problem that occurs when choosing the cooperation strategy is that the innovator must overcome the cost of identifying and appraising potential partners (ibid).

An effective commercialization strategy results from the interaction between excludability and a complementary asset environment. These two factors define four distinct commercialization environments, as shown in Table 5.

The "attacker's advantage" environment is characterised by poor intellectual property protection, and the incumbents do not control the complementary assets necessary for effective commercialization. The competition is likely to be intense and the innovators should develop and diffuse competence-destroying technologies to reap benefits of the innovation. Such an environment, characterised by high imitability and low dependence on existing complementary assets, implies tight integration between research and commercialization. Thus, few opportunities exist to cooperate with the incumbents. Opposite to this, the "ideas factory" environment is characterised by effective protection from imitation and control of complementary assets by current market leaders. In this environment, benefits from a cooperation strategy are the best and it can be expected that the innovation will be commercialised through partnerships with downstream market players (Krott,2008, p.19).

Table 5. Four commercialization environments.

Excludability	Control of necessary complementary assets by incumbents: No	Control of necessary complementary assets by incumbents: Yes
Weak*	**Attacker's advantage**	**Reputation-based ideas trading**
Strong**	**Greenfield competition**	**Ideas factories**

* innovator cannot preclude effective imitation of the innovation by an incumbent

** innovator can preclude effective imitation of the innovation by an incumbent

Source: Ganz and Scott 2003

(Source: Krott,2008, p.19).

The two remaining environments do not reinforce clearly a competitive or cooperative strategy but reflects a trade-off between excludability and availability of complementary assets. Reputation-based ideas trading is an environment where the disclosure problem is severe, but the incumbents possess complementary assets needed for commercialization. This might lead to an expropriation hazard where established firms have an incentive to use the technology revealed to them without remunerating the innovator. Consequently, innovators are discouraged to pursue a cooperation strategy. In such a constellation, a collaborative strategy would be better for both, and therefore established firms should develop a reputation for "fairness" and thus encourage innovators to approach them with promising innovations. In the last environment, "Greenfield competition" environment, complementary assets are unimportant but the innovators can preclude effective imitation. In this environment both competition and cooperation strategy may be effective, the relative returns of competition over cooperation are distinct from the intrinsic value of the technology, e.g. the control of key elements of the value chain (ibid).

Summary on commercialization.

This chapter provided definitions of commercialization and reviewed commercialization as a stage of the innovation process, commercialization of technology, commercialization process and commercialization strategies.

As the stage of the innovation process, commercialization was described, as a stage that takes possible ideas and creates internal or external market value, creating parameters within which value can be expressed or shared in a coherent fashion.

There are many definitions of commercialization, but in the context of the thesis, the following definition, presented by Jolly, is the most suitable one: "commercialization is to cause something having only a potential income-producing value to be sold, manufactured, displayed or utilized so as to yield income or raise capital".

Jolly also provides a good distinction between the commercialization of technology and the commercialization of products by stating that, a technology is essentially a "capability", often a versatile one that can be used in more than one product. The case companies in the thesis presented a new technology on the market, therefore, commercialization of technology was described in details. There are five activities that constitute the key sub processes involved in bringing new technologies to market:

- Imagining a techno-market insight;
- Incubating the technology to define its commercializability;
- Demonstrating it contextually in products and/or processes;
- Promoting the latter's adoption;
- Sustaining commercialization.

Commercialization process was presented in the chapter as well. One important aspect of it, that it will often undergo a change from a mainly technology-driven process to a process, which is mainly market-driven.

There are several characteristics of commercialization process:

- Complex, involving multiple phases, processes and participants;

- Broad, as it can be carried out through a number of different channels ranging from intellectual property patenting and licensing, through open publication and dissemination, to the movement of skilled people:
- Multi-faceted, involving different investments in product development, production marketing and distribution:
- Risky, early investment might not generate economic return;
- Time consuming, a huge time gap can exist between the investment phase and generation of economic returns.

According to Teece during the commercialization process, the innovator has to make a basic strategic choice between cooperation or competition in introducing the innovation to the market.

Ganz and Scott described that if the innovator wants to launch a new product independently and compete on the market with other firms, the success of the commercialization will depend on several factors. The alternative to the competition strategy is a "cooperation strategy". This strategy is composed of identifying and concluding contractual agreements with other firms who serve as intermediary for commercializing the innovation to the market. Cooperation strategies take several distinct forms. One possibility for the innovator is to licence intellectual property to another organization. Another form of cooperation strategy is acquisition of the innovator by established firms.

2.2. Internationalization

2.2.1. Internationalization, as a strategy

According Mintzberg strategy making is about changing perspectives and/or positions. Welch and Luostarinen stated that internationalization is the process of increasing involvement in international operations across borders. It comprises both changed perspectives and changed positions. Thus internationalization is a major dimension of the ongoing strategy process of most business firms. The strategy process determines the ongoing development and change in the international firm in terms of scope, business idea, action orientation, organizing principles, nature of managerial work, dominating

values and converging norms. The internationalization dimension is related to all these aspects of the strategy process. Structural theory on MNCs has advanced much further than dynamic theory on internationalization as a strategy process. In a survey of academic researchers in strategic management, Lyles argued that the internationalization theme regarding global competition was viewed as the coming decade's most important area of strategic management research. This notwithstanding, the research in strategic management currently pays little attention, says Lyles, to internationalization (Melin, 1992).

Miller and Friesen described that furthermore, the strategic management field is still dominated by cross-sectional research that 'proceeds from a distance, with a remote researcher gathering data from organizations he knows almost nothing about. At the same time, there seems to be increasing consensus among researchers that longitudinal research would enable a better understanding of organizations. According to Huff and Reger there is danger in believing that statistically rigorous, narrowly focused studies are superior to the rich, complicated understanding that results from careful understanding of a few organizations (ibid).

Welch and Luostarinen presented that in sum, there remains a considerable need for research that is responsive to the longitudinal character of internationalization as a development process through time. However, different meanings of development processes can be identified, depending on the methodological approach used to reveal the process (ibid).

In fact, the longitudinal approach incorporates at least four different approaches (graphically illustrated in Figure 3):

—In type A, process is a time-series of detached critical events, or states, e.g., structural or economic. Most management studies that include the time dimension in their explanatory models seem to use this approach, analysing situations disjointed in time. Typical are the large number of studies of the correspondence between strategy, structure, and performance. Recent illustrations include a study by Gomez-Mejia who related corporate performance during a 5-year period to changed strategies, and a study by Habib and Victor where the fit between strategy and structure in MNCs was related to

performance of the two following years. It seems that the process dimension is weakly developed in this type of longitudinal approach (ibid).

—In type B, process is relatively short episodes. According Haspeslagh and Jemison the approach here may be to study a single episode such as an acquisition from the preacquisition phase to the postacquisition phase, or to study several episodes in sequence or in parallel. The time period for an episode may vary from a few weeks to a few years (ibid).

—In type C, process is lengthy epochs. An epoch may be the strategic development of a company under an influential CEO. A Series of epochs may be long periods of evolutionary change disrupted by shorter episodes of revolutionary change. An epoch may be from 2 to 20 years. (ibid).

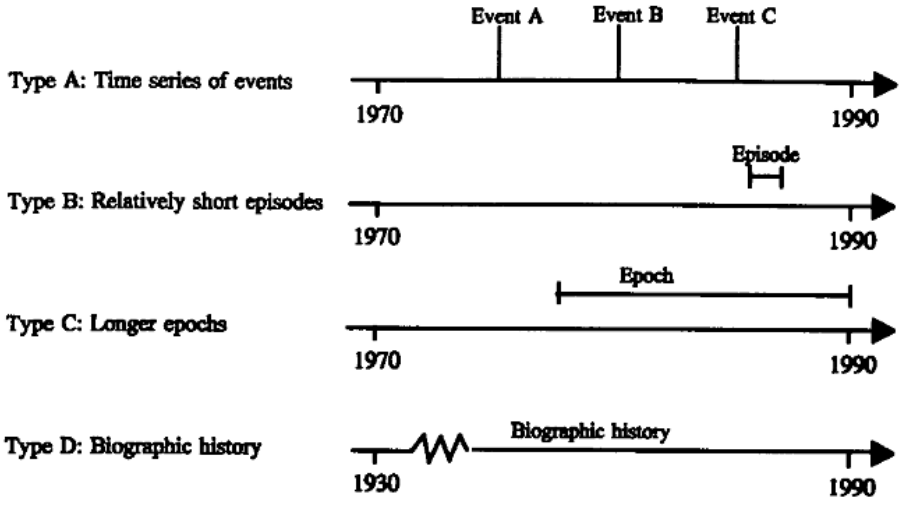
—In type D, process is seen as biographic history. Here the biography of a firm captures the whole development from the time of its founding to the present time, for example the classic case studies of Chandler. The time period may vary considerably but for large MNCs it will extend over several decades (ibid).

This process typology is used to characterize the process studies covered by review and to determine the types of process studies that might be desirable in future research on internationalization. A broad reading of empirical studies in the field indicates that longitudinal studies of internationalization processes representing types C and D are very infrequent (ibid).

According to Wilson descriptions of internationalization processes, as of other strategy processes, include information about change. The degree of change may differ from a state of more or less status quo to radical transformation. Between these extremes, we find three kinds of change: expanded reproduction, incremental change and evolutionary transition. Change must always be understood within a process context. Pettigrew stated that change concerns the dynamics in development over time. Change is implicitly related to content, in other words, some particular thing becomes different. When the longitudinal processes such as the internationalization process of a firm is studied, the focus should be

on content. The dichotomy of process vs. content in strategy research has been misleading and should be avoided in international management research (ibid).

Figure 3. Four types of process captured by different longitudinal approaches.



(Source: Melin, 1992).

There are two, somewhat overlapping, stage models of internationalisation:

- Uppsala internationalisation models (U-Models)
- Innovation-related models (I-Models)

U-Models

According to Johanson and Wiedersheim-Paul, companies enter international markets with greater psychic distance step by step. The psychic distance means factors (language, culture, politics, education, industrial development) preventing the flow of information from and to the market. In this sense, a lack of knowledge about foreign markets is considered as a barrier to internationalisation and knowledge about foreign markets can be obtained by internationalising companies themselves through experiential market knowledge (Podmetina, 2011, p.32).

Johanson and Vahlne presented U-models as one of the dominant approaches to internationalisation propose that companies internationalising in small, incremental steps and the internationalisation of the firm should be interpreted as an incremental learning

process. Johanson Wiedersheim-Paul described that the four different stages of internationalisation most commonly defined are: no exporting, exporting via intermediary (agent), establishing sales subsidiary, and establishing overseas manufacturing units. According to the dynamic model of Johanson and Vahlne, the market knowledge and commitment to the foreign market affect commitment decisions in a way that the firm changes its market knowledge and commitment (ibid).

Companies can gain market-specific knowledge via experience in the host market, while a company's internationalisation knowledge can be transferred from the home to the host market during the internationalisation process. However, larger companies have the opportunity to take larger internationalisation steps due to resource availability, and receiving the market knowledge depends on the stability and homogeneity of the environment. Welch and Luostarinen claim that patterns of internationalisation are country-dependent (ibid).

I-Models

The innovation-related models (I-Models) also consider internationalisation as stage processes. However, the amount and content of the stages is different from those in U-models. The I-models focus on the relationship of the learning process and the adoption of innovation. Bilkey and Tesar write on the six-stage process, Cavusgil decreases it to five stages, Czinkota presents again a six-stage process and Reid five-stage processes. These stages start with a purely domestically-oriented firm, and take them through several stages of involvement into export towards experienced exporters. I-models treat internationalisation as an innovation per se for the company and the process of internationalising is the learning process. According to I-models, the process of internationalisation will go differently for large and small companies (Podmetina, 2011, p.33).

The role of psychic distance is also considered in the I-models; companies start their internationalisation into countries closer from the psychic distance perspective, before expanding towards more distant countries. I Models originated from Roger's diffusion of innovations and innovation adoption process. In spite of the fact that these models have differences in the application of "push or pull" mechanisms during the earlier stages of

internationalisation and in companies' initial interest to start the exporting, Andersen describes them "more as semantic differences rather than real differences about the nature of internationalisation process" (ibid).

Petersen characterised both U-models and I-models by the following factors: market specific knowledge is important, knowledge can be acquired by learning-by-doing processes (experience-based knowledge); knowledge is associated with individuals and difficult to disseminate within the company; and market commitment increases proportionally according to market knowledge acquisition. Cook and Brown described knowledge as an object of possession, it can be acquired, transformed, integrated, used and stored, transferred, and integrated as strategic knowledge asset) and according to Buckley and Carter knowledge flow can be managed (Podmetina, 2011, p.34).

2.2.2. Internationalization in Russia

According to World Bank the share of foreign trade increased from the Soviet Union's 4% of GDP for exports and imports in 1985 to Russia's 28% of GDP for exports (31% in 2008) and 20% of GDP for imports (22% in 2008) in 2009. This development exposed Russian companies to increased international competition, both domestically and in export markets (Podmetina, 2011, p.48).

Generally, the Russian economy has shown a growth of about 4% in 2010, after the slowdown in 2009. The greater involvement of developing countries into international trade is seen in the significant growth in the share of multinational companies (MNC) in the total number of world MNCs; this share increased from 8% in 1992 to 28% in 2008 (ibid).

The inflow FDIs to South-eastern Europe and the Commonwealth of Independent States (CIS) decreased by 43 % in 2009, compared with 2008, the FDI flows to Russia almost halved, due to a decrease in local demand, and declining expected returns in projects related to natural resources. The outward FDIs decreased by 16% in the region. Russia is the largest source of outward FDIs in the region. Nevertheless, Russia is still ranked number six in the global ranking of top FDI locations (ibid).

According to Gorodnichenko globalisation has increased opportunities and pressures for domestic firms in emerging market economies to innovate and improve their competitive position. Exporting allows firms in developing countries to enlarge their markets and benefit from economies of scale. In addition, export and import operations are proven effective channels of technology transfer between countries. Bell and Pavitt presented a fact that some companies in developing countries establish R&D centres or acquire companies from developed countries in order to obtain skills and knowledge. The Russian economy is currently highly dependent on the export of natural resources, such as oil and gas. Over the last eight years, Russian gross domestic product (GDP) has been growing more than five percent annually, thanks to high oil and gas prices on world markets. FDIs and exports are important cooperation channels for developing countries and the rest of the world (ibid).

In order to keep the economic growth sustainable, Russia needs to refocus its economy and increase the competitiveness of knowledge-intensive sectors so that the economy will not solely rely on natural resources. Russia has relatively good prerequisites for increasing the innovation potential and absorptive capacity of companies. It has a substantial science base and education traditionally focuses on technology and the sciences. However, innovation activity has been modest thus far (Podmetina, 2011, p.49).

Theories of internationalisation in the Russian context

We cannot consider the Russian companies as the "new" and relatively young players in the international market. Russian international collaboration has more than hundred year's history.

Mineev emphasised the four main periods in Russian internationalisation history as follows: the first period is from 1887 to 1913, when active foreign capital flowed into tsarist's Russia. The second period (1920 – 1934) occurred when the Concession policy of the young Soviet state intensified foreign capital influx. During the third period (1935 -1986), the Soviet economy was isolated from foreign capital and the international division of labour development. This lead to international cooperation with the Council for Mutual Economic Assistance (CMEA) socialist countries. The final period (since

1987) when the transition period started in the Soviet Union and reforms of foreign trade liberalisation were implemented (ibid).

Kalotay described that there are notable obstacles to outward FDI from former centrally-planned economies, such as: ideological motives, low quality of tradable goods and central authorities' interference in the firm's investment decision. The internationalising companies either represent old Soviet company structures (state-owned or privatised companies) or new company structures (de-novo). Liuhto presented that the lengthy isolation from international business, centralisation of planning and the "state orders" system limited the internationalisation of Soviet companies. Foreign trade was the state prerogative in the Soviet era. Soviet companies used to be in the international cooperation mostly with the CMEA socialist countries. CMEA was established in 1949 for the purpose of current and prospective plan coordination. In fact, CMEA could be qualified as an attempt at common market creation, development of economic collaboration and mutual benefit partnership. The multilateral clearing system was implemented for payments in trade with foreign partners. All Union Industrial Associations (VPO), managed by the GOSPLAN (the main state planning body in the USSR), were located in the Soviet republics and in the CMEA countries. VPO associations were international organisations by nature. There were also Soviet companies with organisational and managerial structures common in multinational corporations (MNCs), however, they were not called MNCs because of political reasons. For example, INGOSSTRAKH (insurance agency) had subsidiaries, affiliates and associate firms in the USA, Netherlands, Great Britain, France, Germany and Austria. Also the state transnational company "NaftaMoskva" ("Sojuznefteexport" in the Soviet period) had subsidiaries in Finland, Belgium, Great Britain, Denmark, Italy, Switzerland and Germany (Podmetina, 2011, p.50).

The situation had changed significantly after the dissolution of the Soviet Union, and the last 10 years can be characterised by the increasing participation of Russian companies in world business. The liberalisation of foreign trade, caused by political and economic reforms, provided many Russian companies with new opportunities to participate in international business, export products to international markets, attract foreign

investments and establish joint ventures. The theories of internationalisation addressed in the modern literature have a limited applicability to the Russian setting. The Russian economy is characterised by some specific features influencing the applicability of internationalisation theories in the case of Russian firms (ibid).

Pchounetlev emphasised the weakness of the mentioned internationalisation theories when applied to the Russian setting and transition economies are partly explained by the basic assumptions lying behind them. However, the stage models indicating that internationalisation is linked with managerial learning can be tested on Russian companies. Then, internationalisation is defined as a step-by-step process from the simplest form (export) to manufacturing abroad according to Luostarinen. This process combines getting experience and knowledge and increasing resource commitment to a foreign market. Russian IT companies utilise their advantages on the CIS markets, which are the nearest and the most familiar markets (ibid).

Summary on internationalization.

Internationalization was defined as a major dimension of the ongoing strategy process of most business firms. The strategy process determines the ongoing development and change in the international firm in terms of scope, business idea, action orientation, organizing principles, nature of managerial work, dominating values and converging norms. The internationalization dimension is related to all these aspects of the strategy process.

According to Wilson descriptions of internationalization processes, as of other strategy processes, include information about change. The degree of change may differ from a state of more or less status quo to radical transformation.

There are two stage models of internationalisation:

- Uppsala internationalisation models (U-Models)
- Innovation-related models (I-Models)

Johanson and Vahlne presented U-models as one of the dominant approaches to internationalisation propose that companies internationalising in small, incremental steps

and the internationalisation of the firm should be interpreted as an incremental learning process. Johanson Wiedersheim-Paul described that the four different stages of internationalisation most commonly defined are: no exporting, exporting via intermediary (agent), establishing sales subsidiary, and establishing overseas manufacturing units. According to the dynamic model of Johanson and Vahlne, the market knowledge and commitment to the foreign market affect commitment decisions in a way that the firm changes its market knowledge and commitment.

I-models treat internationalisation as an innovation per se for the company and the process of internationalising is the learning process. According to I-models, the process of internationalisation will go differently for large and small companies.

Pchounetlev emphasised the weakness of the mentioned internationalisation theories when applied to the Russian setting and transition economies are partly explained by the basic assumptions lying behind them. However, the stage models indicating that internationalisation is linked with managerial learning can be tested on Russian companies. Then, internationalisation is defined as a step-by-step process from the simplest form (export) to manufacturing abroad. This process combines getting experience and knowledge and increasing resource commitment to a foreign market. Russian IT companies utilise their advantages on the CIS markets, which are the nearest and the most familiar markets.

3. METHODOLOGY

The empirical part of this thesis has been conducted with qualitative methods, a qualitative multiple case study. The research of the study consists of two parts. The first part was conducted by interviews with the representative from Tekes and representative of the project "Finnish-Russian Innovation Cooperation - Commercialization of Russian Innovations". The second part was also conducted by interviews, but with the representatives of the companies, who succeeded to commercialize their innovations in Finland.

Qualitative research in particular is conducted in this thesis because of the following reason: "qualitative methods permit the evaluator to study selected issues in depth and detail. Approaching field work without being constrained by predetermined categories of analysis contributes to the depth, openness, and detail of qualitative inquiry." (Patton, 1991, p.13).

Qualitative methods typically produce a wealth of detailed information about smaller amount of people and cases. This increase understanding of the cases and situations studied but reduce generalizability (Patton, 1991, p.14).

Qualitative methods consist of three kinds of data collection: in-depth, open ended interviews, direct observation, and written documents. The data from interviews consist of direct quotations from people about their experiences, opinions, feelings, knowledge. The data from observations consist of detailed descriptions of people's activities, behaviours, actions, and full range of interpersonal interactions and organizational processes that are part of observable human experience. Document analysis in qualitative inquiry yields excerpts, quotations, or entire passages from organizational, clinical, or program records; memoranda and correspondence; official publications and reports, personal diaries; and open-ended written responses to questionnaires and surveys (Patton, 1991, p.10).

3.1. Case studies

According to Punch, the basic idea is that one case (or perhaps a small number of cases) will be studied in detail, using whatever methods seem appropriate. While there may be

a variety of specific purposes and research questions, the general objective is to develop as full as understanding of that case as possible (Silverman, 2005, p.126).

As it was mentioned above, case studies can focus in one or small number of cases. Single-case method is an appropriate design under several circumstances, and five rationales are given below.

- When it presents the critical case in testing a well formulated theory.
- When the case represents extreme case or unique case.
- When it is the representative or typical case. Here the objective is to capture the circumstances and conditions of an everyday situation.
- When it is the revelatory case. This situation exists when an investigator has an opportunity to observe and analyse the phenomenon previously inaccessible.
- When it is the longitudinal case: studying the same single case at two or more different points in time (Yin, 2003, p.41-42).

Multiple case designs have distinct advantages and disadvantages in comparison to single- case designs. The evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust. At the same time, the rationale for single-case designs usually cannot be satisfied by multiple cases. Every case should serve a specific purpose within the overall scope of inquiry. Here, a major insights is to consider multiple cases as one would consider multiple experiments-that is, to follow a "replication" logic (Yin, 2003, p.46-47).

Case studies can be based either on qualitative or quantitative data and can be classified as intensive or extensive. The aim of intensive study research is to learn how a specific and unique case works. This is done through contextualized and "thick description" of one or few cases. Extensive case study design would not focus on any individuals as intrinsically interesting cases. Here, the focus would be on issues that could be studied by using several individuals as instruments in the study (Eriksson & Kovalainen 2008, p.117-122).

Stake (2000) has identified three different types of case study:

- The intrinsic case study where this case is of interest…in all its particularity and ordinariness. In the intrinsic case study, according to Stake, no attempt is made to generalize beyond the single case or even to build theories.
- The instrumental case study in which a case is examined mainly to provide insight into an issue or to revise a generalization. Although the case selected is studied in depth, the main focus is on something else.
- The collective case study where a number of cases studied in order to investigate some general phenomenon (Silverman, 2005, p.127).

As we discussed before, the research method of the thesis is qualitative, therefore we can conclude that the study is a multiple intensive case study. At the same time, the study also has some characteristics of a collective study. Case companies are studied in order to investigate what commercialization strategy is suitable for Russian SMEs.

3.2. Data collection

Qualitative methods consist of three kinds of data collection: in-depth, open ended interviews, direct observation, and written documents. The research data of this thesis was collected by conducting semi-structured interviews with open ended questions in the case companies and by utilizing written documents, provided by case companies. These sources of evidence are presented next.

3.2.1. Interviews

The empirical data was primarily gathered through interviews. In general, interviews consist of talk organized into a series of questions and answers. Interviews most often take place face to face, but they can also take place over telephone, or on-line (Eriksson & Kovalainen 2008, p.79).

Qualitative interviews, as used in scholarly research, are research vehicles, the purpose of which is to produce empirical materials for the study in questions (ibid).

There are different types of qualitative interviews:

- Structured and standardized- same standardized questions for all participants, mostly "what" questions.

- Guided and semi-standardized- outline of topics, issues, or themes, but variation in wording and sequence; both “what and how” questions.
- Unstructured, informal, open and narrative interviews-some guiding questions or core concepts to start with, but freedom to move the conversation in any direction of interest that may come up; both “what” and “how” questions (Eriksson & Kovalainen 2008, p.80).

Semi-structured interviews were used in the research process of the thesis, since the major advantage is that the materials are somewhat systematic and comprehensive, while the tone of interview is fairly conversational and informal (Eriksson & Kovalainen, 2008, p.82).

There are different types of interview questions:

- Open and closed: open questions encourage more speech.
- Simple and complex: simple questions are easier to understand and answer.
- Neutral and leading: neutral questions leave more choice for the participant.
- Direct and indirect: indirect questions are more suitable for sensitive issues
- Primary and secondary: a combination of both can be used when it is necessary to get a more complete account (Eriksson & Kovalainen, 2008, p.83).

Open questions were used in the interviews due to the reason that it gives the participant more control over what is talked about and usually produce more detailed responses.

3.2.2. Documents

In addition to the interviews, written documents were utilized as a secondary material in the research. For case studies, the most important use of documents is to corroborate and augment evidence from other sources. First, documents are helpful in verifying the correct spellings and titles or names of organizations that might have been mentioned in the interview. Second, documents can provide other specific details to corroborate information from other sources. Third, the researcher can make inferences from documents, for example, by observing the distribution list for a specific document (Yin, 2003, p.87).

The documents were important for the thesis due to two reasons. First, although the case interviews were designed comprehensive, the small number of interviewees created a call for augmenting sources of evidence. Second, due to lack of information about case companies' commercialization process and strategy, the documents provided by representative of one case company were found valuable. Specifically, the secondary material included market entry strategy document, development of international R&D projects strategy document and its appendix.

3.3. Data Analysis

The researcher actually starts the analysis of empirical data very early on their research. Even if methods book present data collection and data analysis as separate processes, in practice they seldom are so clearly separable from each other. (Eriksson & Kovalainen 2008, p.128). In the case of this thesis, the author carefully transcribed all interviews that were recorded.

The construction of the case often begins with organizing all empirical data into a primary resource package, which called a case record. This is advisable when you are using lots of unedited empirical data from several sources. The case record can be assembles either thematically or chronologically, the most important feature being its manageability (Eriksson & Kovalainen, 2008, p.128).

Every attempt to recode, organize and label your empirical data includes some kind of interpretation, which can be more or less systematic. Whereas all qualitative researchers pursue every day coding of their empirical data when making field notes and compiling their data record, thematic coding can also be used as a planned and systemized activity from the beginning of the study. Coding means that the features, instances, issues and themes in empirical data are classified and given a specific label, a code (ibid).

In case study research, preplanned systematic coding is most often used when the research is grounded in existing theory and attempts to improve the theory, or to test it. In this thesis, the author had an attempt to test the theory specifically for Russian SMEs and therefore improve the theory.

Qualitative and case study methods books offer a wide selection of analytic techniques, including content analysis, critical incident analysis, conversation analysis and others. However, there are also specific case study-related techniques that can be used (Eriksson & Kovalainen 2008, p.130).

One of these techniques specified for case analysis is cross-case analysis, which has been used in the thesis. The analysis most often begins with the analysis of each individual case separately, which has been done in this thesis. Firstly, Tekes, Finnish- Russian Innovation Center, then the case company 1 and 2 were presented. In the beginning of individual analysis processes the author carefully read through the data several times in order to understand commercialization process and its strategy and to identify different themes emerging from the data.

This phase is followed by cross-case, which entails some kind of comparison of cases in search for similarities and differences across cases and in contrast to theory. The same thing has been done in this study, the answers of interviewees, as well as two case companies were compared to each other in order to find similarities and next the findings were compared to the theory, which were presented in the literature review.

Besides coding, the individual case analysis often includes drafting a general description of the case, which may be structured either chronologically (emphasizing events, actors and action and processes) or thematically (emphasizing themes, issues, problems, and conceptual categories). The main purpose of this description is to construct for meaning by linking empirical patterns to each other to form a holistic configuration, the case (ibid).

4. THE EMPIRICAL STUDY. CONTEXT.

The chapter presents the empirical research of the thesis and its findings. Before answering research questions, the supplementary information should be provided. Thus, information about Russia, as a host country, Russian innovations system and Finland, as a country of destination and Finnish innovations system are presented in the chapter.

As it was mentioned above the research questions of the thesis are next:

- *What difficulties both sides face in the process?*
- *What are the steps and the challenges in commercialization process?*
- *What are the crucial factors influences Russian innovations' commercialization process?*
- *What strategies company uses in commercialization?*

The first question generates an overview of the difficulties of commercialization process for Russian and Finnish sides.

The answer to the second question of the steps and challenges in commercialization process creates the basis of the research. It gives basic information of how commercialization of Russian innovations process is going.

The third research question discusses the factors behind the success or failure of commercialization process.

The fourth question tries to identify strategies company uses in commercialization.

4.1. Russia as a home, country of origin

Russia ranks 58th among the 131st countries analysed in World Economic Forum's (WEF) global competitiveness report 2007-2008. Russia achieves a score of 4.19 from 7 in the global competitiveness index. The country's position improved compared to the previous year, rising from rank 62 in 2006-2007. However, Russia performs worse compared with other post-communist countries in Central and Eastern Europe, as well India and China, mainly due to weaknesses in the business environment and institutional framework. Russia's main problems are the worsening of protection of intellectual property rights and

doubts about the independence and administration of the judiciary system. Corruption and tax regulation are the most problematic factors for doing business in Russia. A major issue is the perceived lack of governmental efficiency, reforms are needed and the state sector should become more transparent and more efficient to improve the business environment. Similarly, the business ethics of private corporations are regarded as poor, with the 120th rank in this pillar (Krott, 2008, p.73).

The WEF classifies Russian as an efficiency enhancing economy. In this state of development, countries should focus on improving three areas: Higher Education and Training, Market Efficiency, and Technological Readiness. At the same time, it is important not to neglect the basic pillars, Institutions, Infrastructure, Macroeconomics, and Health and Primary Education to remain competitive (ibid).

In the area of higher Education and Training, despite the skills shortage, Russia performs fairly well due to high enrolment rates in secondary and tertiary education. In terms of Market Efficiency, Russia (rank 48) has still to catch up with the most competitive economies of the world. The policies are not fully supportive toward an efficient allocation of goods, improvements could be made i.e. by improving anti-trust policies, removing trade barriers, and liberalising regulations concerning foreign ownership (ibid).

The Russian business sector has a low ability to absorb technologies developed abroad. FDI are mainly concentrated in the energy sector characterised by low spillovers. Moreover, Russia does not have a high penetration rate for the latest technologies and shows low ranking in the area of technology transfer. All these factors explain a poor score in the Technological Readiness index where Russia is 72nd. This index is particularly important for Russia for the diversification of the economy and future growth. Therefore, it is important to improve Russia's absorptive capacity (Krott, 2008, p.74).

Russia can not compete with other emerging economies like China and India only with its natural resources and unskilled labour. Russia is not price-competitive due to the rising unit labour costs. In the long run, Russia cannot rely only on its natural resources to achieve long-term economic growth. These resources are finite and will not last for ever, therefore diversification is crucial issue for the future of the Russian economy. Diversification doesn't mean weakening the natural resources sector, but increasing

competitiveness and knowledge intensity of the non-commodity sectors. Therefore, Russia should improve the basic requirements: Institutions, Infrastructure, Macroeconomics and Health and Primary Education to improve its competitiveness. Russia should use the windfall revenues of natural resource exports to diversify the economy. Innovation capabilities, a strong high education sector and capacities to adopt new technologies will have key roles in the diversification process and will help Russia to move to the next step of development. Diversification is an important long-term goal for Russia, but its economy is bound to remain resource-based in the short and mid-term. Analysing the pillars important for countries in the innovation-driven stage in details, it can be concluded that Russia has still major challenges ahead. Russia ranks only 72nd in the technological readiness pillar. This pillar aims to evaluate the existing technological infrastructure and a country's capacity to absorb knowledge. Similarly, a 57th rank in the innovation pillar shows Russia's low performance. This pillar assesses the ability of an economy to produce brand new technologies. Russia ranks 88th in terms of business sophistication. This pillar assesses the quality of individual firm's operation and strategies. The poor performance in technological readiness, innovation, and business sophistication reveal that Russia is far from reaching the innovation-driven stage in the near future (ibid).

4.2. Innovation system of Russia

Russia's economic structure is distinctly different from that of most European countries with a predominance of large companies, concentration on mining and heavy industry, and an almost complete lack of high-tech, consumer goods industries. Therefore, Russia's innovation system also has a quite distinctive outlook (Figure 4).

The state bodies responsible for formulating fundamental innovation policy comprise legal bodies and executive authorities – federal ministries and agencies and corresponding regional bodies. In addition, the presidential council on Science and High Technologies and several departments of the Presidential Administration coordinate and direct the activity of the legal and executive power bodies. The Federal Assembly participates in innovation policy formulation through the Committee on Science, Education, Health and Ecology and by organizing discussions with expert panels for monitoring of current

policy and generating federal initiatives. The State Duma has several committees that discuss innovation policy. Government activity in the field of science, education and innovation comprises the following organizations (European Commission, 2007):

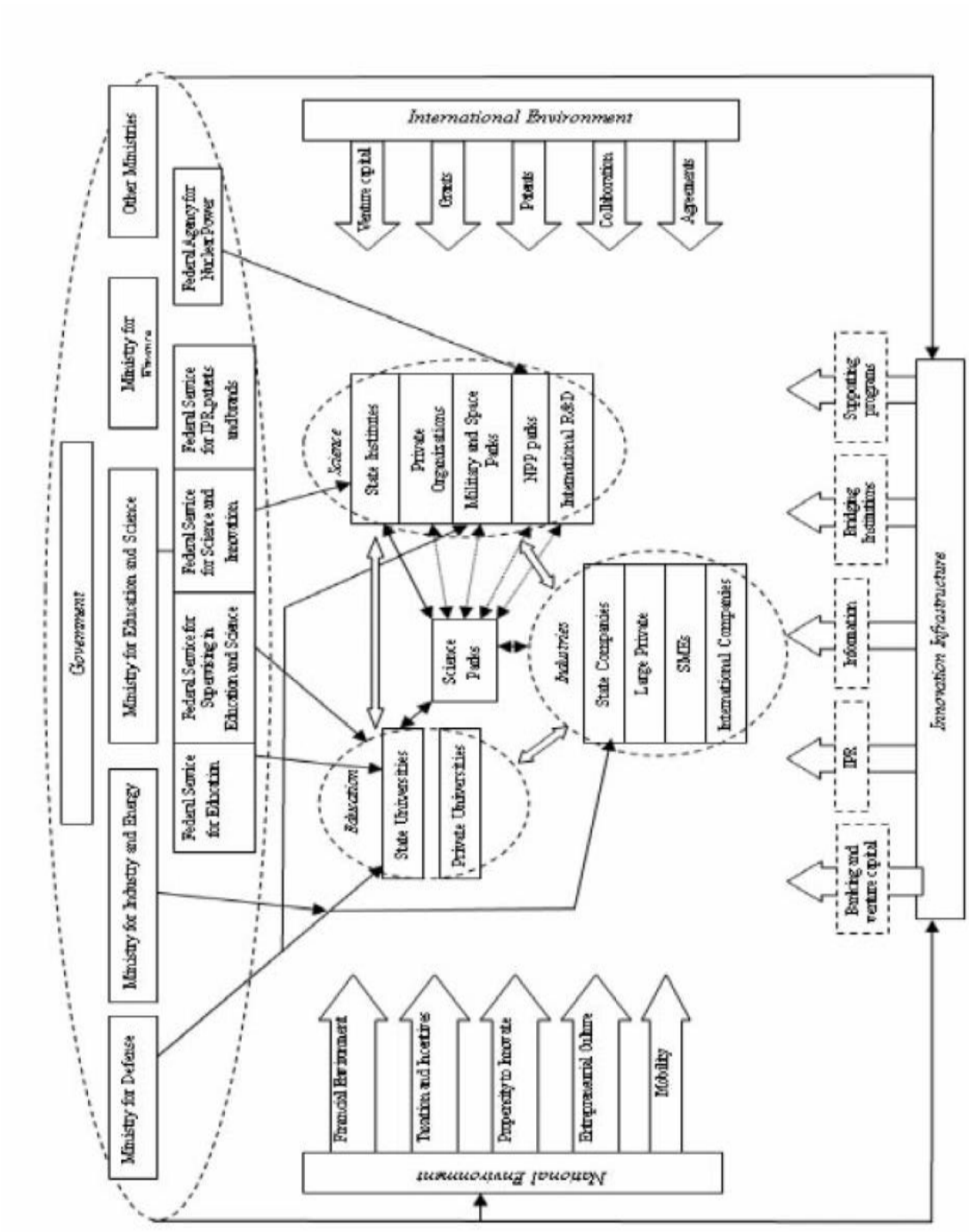
(a) policy-making and coordinating agencies: Ministry of Education and Science (MES), Ministry of Economic Development and Trade, Ministry of Information Technologies and Communication, Ministry of Industry and Energy, the Federal Agency for Science and Innovation, Russian Academy of Sciences and Russian Space Agency;

(b) financing agencies: financial support from the State budget is the principal source of funding for R&D. Most funds are distributed through R&D implementing agencies in the form of direct grants, although some competitive allocation of R&D resources takes place as well. There are three State budget funds: Russian Foundation for Basic Research (RFBR), Russian Foundation for Humanities (RFH) and The Foundation for Assistance to Small Innovative Enterprises (FASIE);

(c) regulatory agencies: The most important regulatory bodies are the Federal Service for Intellectual Property, Patents and Trade Marks (Rospatent), the Federal Agency for Technique Regulation and Metrology and the Federal Antimonopoly Service.

The four agencies that control most of the Civil State R&D budget are the Russian Academy of Sciences (RAS), the Russian Space Agency (Roskosmos), the Federal Agency of Industry, and the Federal Agency of Science and Innovation. The latter two agencies are executive branches of the Ministry of Industry and Energy and the Ministry of Education and Science, respectively. The Federal Agency of Industry supports R&D and innovation activities particularly related to the defense industry. It plays an important role in the procurement of defense orders from industry. The Federal Agency for Science and Innovation (FASI) implements government policy, provides governmental services, and manages state property in the sphere of scientific, technological, and innovative activities. This includes overseeing the activities of the federal centers of science and high technology, state-run scientific centers, the unique scientific facilities, the leading scientific schools, national IT research networks and supplying information on science, technology and innovation activities. (European Commission, 2007.)

Figure 4. Russian innovation system.



(Source: European Commission, 2007)

Table 6. SWOT- analysis of the Russian Innovation System.

Strong points	**Weak points**
1. Abundant natural mineral resources, extensive territory that may be effectively developed by innovation companies. 2. High growth rates in economics in 2000-2007. 3. Technical modernization of some industries being successful in the pre-crisis period. 4. Historically solid research and engineering culture, traditions and accumulated experience in organization and performance of researches and developments. 5. Qualified (higher than in China) and cheap (cheaper than in Europe) labor force and science and engineering personnel. 6. Soaring growth of the number and diversity of infrastructure in innovation area. 7. Relatively good equipment of the management body of companies with modern information and technological facilities. 8. Industry has moved rather far on the road of market reforms, the management quality has improved, in many sectors the process of corporate construction has completed.	1. High level of monopolization of the national and regional markets, domination of large companies from the raw material sector in the groups of leaders of Russian business. 2. Inadequate coordination between public and private sectors in development of priorities for research, engineering and innovation development and measures for their implementation. 3. Prevailing of the budget financing of all forms of research and innovation activity and innovation infrastructure. 4. Lack of a coordinated policy regarding transfer of knowledge and technologies. 5. A low level of support of small innovation organizations. 6. A low level of innovation activity of business. Prevailing of non-innovation methods for creation of competitive advantages in the majority of companies. 7. Outdated technological structure of the basic capital in many industries, reduction of possibilities for modernization in the face of modern crisis. 8. The crisis situation in industry and company's science, great inhomogeneity of the research sector, a gap between industry requirements and science. 9. Inadequate level of internal demand for innovation products. 10. A low level of innovation culture and lack of experience in innovation business enterprise
Possibilities	**Threats**
1. Possibilities for leapfrogging to higher levels of technology development in some sectors due to the effect of lagging development. 2. Soaring development of the global market of engineering services on which the Russian	1. Persisting technological lagging behind in some important monopolized sectors of economics. 2. Exhausting of advantages by the quality of the human capital and other components of the innovation potential.

companies and research organizations are positioned rather high. Areas of specialization are development of aerospace technologies, software and some fields of ICT. 3. Integration into the global technological chains in the traditional and high technology industries. 4. Enhanced competition on the domestic markets as stimulus for innovation activity 5. Joining VTO and lowering of barriers to the world markets.	3. Sharp cutting of expenditure on research and development in conditions of the global financial and economic crisis and growing backwardness of Russia in technology. 4. Intensification of the protection tendencies in conditions of the global financial and economic crisis. 5. Greater involvement of the state in economics and lowering of stimuli for business enterprise activity.

(Source: European Commission, 2007)

4.3. Finland as a host, place of destination

According to the most recent Business Environment Rankings published by the Economist Intelligence Unit (EIU 2009), Finland's business environment is the best in the world over. Finland achieved an overall score of 8.31 (on a 1-10 scale) based on scores for 91 indicators, reflecting the main criteria used by companies to formulate their global business strategies and investment location decisions. Finland overtook Singapore and Hong Kong to climb to the top of the global rankings.

According to the EIU report, "Despite the sharp contraction expected in 2009, Finland has the best business environment in the next five years". Finland's business environment was already ranked third best in the world in the previous Business Environment Rankings published for the period 2004–2008 (www.investinfinland.fi).

As one of the interviewee said: "most fundamental reason, or rather their two reasons: access to European funds for R&D projects and proximity to Russia, it is quite close to St. Petersburg."

There are few main factors why Finland can be viewed as a beneficial target for Russian entrepreneurs to establish their companies into (Vehviläinen, 2010). Firstly, Finland is advanced industrial economy and one of the most competitive and open economies in the world. Secondly, the country has rather stable and business-friendly environment with a strong system of government support. Thirdly, Finland provides highly skilled workforce

for companies operating in various industries. Fourthly, the country is one of the least corrupt countries in the world. According to Transparency International's Corruption Perceptions Index (CPI) 2011, Finland is ranked on the second place out of 183 countries (Transparency International, 2011). Fifthly, in Finland there is rather strong system of general SME support. This issue in particular relates to the fact that over 99 percent of Finnish companies are categorized as small and medium enterprises (SMEs) (European Commission, 2011). Companies registered in Finland (also foreign owned companies) are able to benefit from governmental investment incentives and access to the latest research from the extensive cooperation between Finnish universities and private sector. (Voltsek, 2013)

However, according to Interviewee 2:

> *"People, who have the experience, some capital, speak English well …they are not interested in Finland. It is easier to go to Germany or United States of America, or somewhere else."*

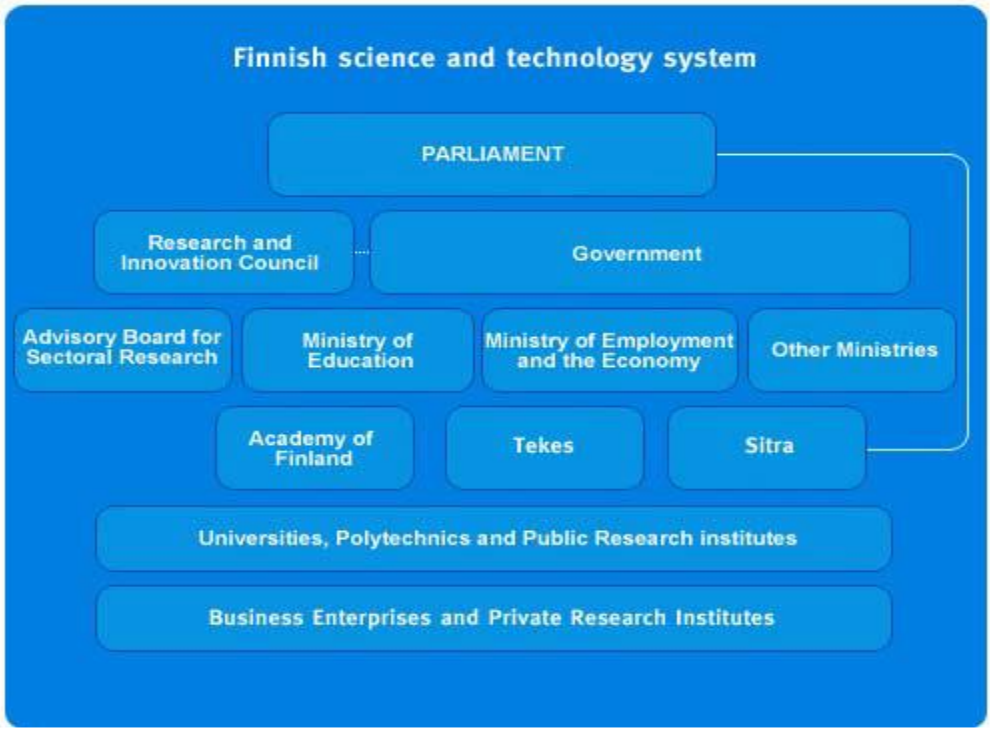
The reason behind it is that there is no venture capital in Finland.

4.4. Finnish innovation system

The Finnish innovation system encapsulates an extensive network of producers and users of new information, knowledge and know-how. At the core of the innovation system are education, research and product development, and knowledge-intensive business and industry. Figure 5 shows how Finland's national innovation system is structured (Sinno, 2012, p.6).

In Finland the formulation of national science, technology and innovation policies has been assigned to an expert body, the Research and Innovation Council (formerly known as Science and Technology Council), which is chaired by the Prime Minister. The Council advises the Government and its Ministries on important matters concerning research, technology, innovation and their utilisation and evaluation. It is responsible for the strategic development and coordination of the Finnish science and technology policy as well as the national innovation system as a whole (ibid).

Figure 5. Finnish Innovation System.



(Source: Sinno, 2012, p.6).

The foremost organisations responsible for science and technology policies are the Ministry of Education and the Ministry of Employment and the Economy. The Ministry of Education manages matters relating to education and training, science policy, universities and polytechnics, and the Academy of Finland. The Ministry of Employment and the Economy is in charge of matters pertaining to industrial and technology policies, the Finnish Funding Agency for Technology and Innovation (Tekes), and the VTT Technical Research Centre of Finland. Nearly 80 per cent of the government R&D funding is channelled through these two ministries. Besides them, there is the Advisory Board for Sectoral Research, a government level forum through which Finland's ministries jointly determine horizontal research topics. Led by the Ministry of Education, the board also discusses development needs related to research sectors in Finland (ibid).

Besides this, the Finnish Innovation System is characterized by the following institutions:

• Sitra, the Finnish Innovation Fund: founded in 1967 as a part of the Bank of Finland. Sitra is currently an independent public foundation which operates directly under the supervision of the Finnish Parliament, aimed at promoting the economic prosperity and the future success of Finland.

• Foundation for Finnish Inventions: since 1971, this foundation has screened and evaluated inventions and innovative ideas generated by private people and start-up companies, and helped to develop them into businesses.

• Learned Societies: these are organizations promoting an academic discipline/profession, such as the Actuarial Society of Finland, the Finnish Association of Graduate Engineers, Finnish Association of Architects, etc.

• CSC- the Finnish IT Center for Science: administered by the Ministry of Education and Culture, CSC provides IT support and resources for academia, research institutes and companies.

• Tekes - the Finnish Funding Agency for Technology and Innovation: this is the most important publicly-funded expert organisation for financing research, development and innovation in Finland. Tekes offers R&D funding and expert services and creates networks between companies and researchers.

• VTT Technical Research Center of Finland: this is a globally networked multi-technological contract research organisation. VTT provides high-end technology solutions and innovation services.

Moreover, the producers of new knowledge include universities and polytechnics, research institutes and business enterprises:

• Universities, University Networks and Polytechnics: There are 16 universities in the Ministry of Education and Culture sector; two of them are foundation universities1 and the rest are public corporations. University networks are mostly cooperative bodies for research and education units working in the same field. There are such networks, for instance, in the fields of communication, health sciences and women studies. There are 25 polytechnics in the Ministry of Education and Culture sector: four are run by local

authorities, seven by municipal education consortia and 14 by private organisations. In addition there is the Åland University of Applied Sciences in the self-governing Province of Åland and a Police College subordinate to the Ministry of the Interior (www.minedu.fi).

• State Research Institutes: Research institutes in the public sector have an important role not only in the higher education sector, but also in the innovation system as developers of knowledge-based society. On average, 52 per cent of the research institutes' financing comes from the state budget. The share of external funding is an estimate based on the institutes' target outcomes. In terms of research volume, the largest institutes are VTT2 in the Ministry of Employment and the Economy sector, the Forest Research Institute, MTT Agrifood Research in the Ministry of Agriculture and Forestry sector, and the National Institute for Health and Welfare in the Ministry of Social Affairs and Health sector (www.minedu.fi).

• Business enterprises: Finland has a highly industrialised, largely free-market economy. Trade is important, with exports accounting for over one-third of GDP in recent years. Finland is strongly competitive in manufacturing - principally in wood, metals, engineering, telecommunications, and electronics industries. Finland excels in high-tech exports such as mobile phones. With the exception of timber and several minerals, Finland depends on imports of raw materials, energy, and some components for manufactured goods. Due to the climate, agricultural development is limited to maintaining self-sufficiency in basic products. Forestry, an important export earner, provides a secondary occupation for the rural population (www.cia.gov).

4.4.1. Tekes

The first part of the empirical research was conducted by interviews with the representative from Tekes (Interviewee 1) and representative of the project "Finnish-Russian Innovation Cooperation - Commercialization of Russian Innovations" (Interviewee 2).

As it was mentioned above, Tekes is the Finnish Funding Agency for Technology and Innovation. Companies, research organisations and organisers of public services

operating in Finland can apply for Tekes funding. Tekes provides funding for research, development and innovation.

The first question to the interviewee 1 was about requirements for Russian companies to get funding, if there are any differences or not. According to the interviewee 1, the requirements are the same as for Finnish companies, as long as Russian innovative SME is registered in Finland, has real business operations and employees in Finland. However, interviewee 1 described that in many cases Russian entrepreneurs do the same mistake. They register company in Finland, but there is only 1 or even 0,5 employee actually working in Finland and Russian entrepreneurs think that it is enough in order to get funding, but it isn't. As interviewee 1 stated:

> *"We are investing Finnish tax payers money, so we just want to see that this money what we are investing will benefit Finnish society, more employees will be hired, taxes will be paid here in Finland."*

An important requirement, according to the interviewee 1, is innovativeness of the project, because Tekes is funding innovations. There must be something new or even old technologies, but used in a new different way, in innovative angle.

Tekes has a questionnaire (NABC) for the companies that they have to answer.

N- Need. What is the need?

A- Approach. What is the approach of the company? What are the needs and what are the solutions for it?

B- Benefits. What are the benefits of the solutions, who are the clients?

C- Competition. Who are the competitors in the market? What is the market situation?

Tekes started the cooperation with FASIE (Foundation for Assistance to Small Innovative Enterprises) in 2011. Tekes and FASIE support together small and medium-sized companies to improve their international competitiveness through international cooperation and technology transfer.

According to the Interviewee 1, the way the system works is next: Finnish companies apply for money from Tekes, and Russian companies apply for money in Fasie, but they have a joint project plan. The project idea might come from Russian or Finnish partner, but they just combine their knowledge and know –how in the project. Tekes received 54 applications in 2014, from which 16 projects was funded.

Tekes is funding companies from different sectors. In 2014, Tekes- Fasie has funded different kinds of companies, but mostly they were in Biomedicine, and not so many in ICT sector as they thought at first.

> *"Actually beforehand we thought that there might be more companies in ICT sector, but no, we didn't receive so many applications in this field".*

Besides funding, Tekes also provides informational support to the companies, according to the interviewee 1. If there is a project idea and a company would like to get a feedback, Tekes is ready to discuss the project, even though there is no application. This way Tekes is helping to companies to move the project forward. However, Tekes informational support is limited due to lack of resources, therefore Tekes can't help companies with questions from A to Z. Interviewee 1 described few examples, when companies ask information how to establish the company in Finland and ask how to write a business plan, in these cases Tekes suggests to use the help of other organizations' services.

The next question to the interviewee 1 was about business partner. If Tekes helps to find a Finnish (any other) business partner to Russian innovative SMEs. The answer to the question was next:

> *"In Fasie we have a lot of questions from the companies, like, can you find me a business partner? And if I pick some company as a representative of organization, and then I should do a decision about financing, it is not the way we work. And of course there could be cases, when I recommend some company and then they are applying for money from us, and then I say, no, we can't give you any grant. So it is not just our role as a financing institution."*

Regarding the question about difficulties what both sides face in the process of commercialization, the interviewee 1 mentioned that for small companies, the main

problem is often money. Tekes never give a fund for the whole project, only the part of it, for example, 50% of the costs of the project, and the company should have the other half. In many cases, the companies fail to show that they can finance the other half of the costs.

Another problem is the language. English is a must for Tekes, Ely center and other governmental organizations. For Tekes, project plans and other documents are accepted in English, but the main application form is in Finnish or in Swedish, therefore, there should be someone who speaks Finnish.

Other difficulties, which were described by interviewee 1, are the high prices comparing to Russia, for electricity, water, etc. and of course, the taxation is higher for employees.

Another interesting issue that was presented by interviewee 1 is about existence of the clusters in different areas of Finland and it is important that Russian entrepreneurs know about it before they establish a company, because then the company could get more support. Interviewee 1 summed up:

> *"Sometimes there isn't enough development in the area and companies don't have the support they need. For example this Biomedicine, there are clusters in Turku area, and Kuopio area, and when the companies come to that sector, they are planning to establish the company, they should know that there are these clusters, where similar companies are working, so there is network , support. If you are somewhere else, they don't know how to support these companies."*

4.4.2. Finnish–Russian Innovation Centre

The Finnish–Russian Innovation Centre assists companies with business support services including commercialization of innovations, protection of intellectual property rights (IPR's) and internationalization strategies to gear them towards global market.

The Centre serves both entrepreneurs and traditional companies entering the European or Russian markets, looking for R&D cooperation or fund-raising options. The Centre assists in turning the original business ideas into successful regional and global business cases.

Lappeenranta Innovation Ltd (earlier together with The Finnish-Russian Innovation Centre) was running a new project called "Finnish-Russian Innovation Cooperation - Commercialization of Russian Innovations." The project aimed to create an identification – and commercialization mechanism for Russian innovations. The goal for the project was to support Russian organizations and companies, wishing to bring their innovative ideas to European markets and at the same time create new business opportunities for Finnish companies by exploiting Russian innovations. The partnership was created to offer full scale support to Russian innovators on the way from idea development to its commercial implementation.

As it was already mentioned, the interviewee 2 was working in the project. Therefore, he and his colleague participated in various innovative events, competitions, in order to find interesting projects, communicate with people from these projects, and see if they are interested to take part in similar competitions in Finland. Out of these entrepreneurs, what they have met, at least 500 were interested, from different regions, from St. Petersburg and Moscow, of course, but also from Kazan, Nizhny Novgorod, and Rostov-on Don.

According to the Interviewee 2:

> *"We did not do much, in fact, we were just saying, if you have a registered company in Finland, it would be easier to enter the European market, to attract European funding."*

There were many companies that were interested in the project, around 500 applications were received, but only 8 companies have been registered in Finland in the end.

Interviewee 2 mentioned that there were many ICT companies, applying for the project, but it was not clear how to work with them.

> *"Well ICT companies, they are like free birds, they didn't want to register anything, but start to sell immediately. Well it is difficult for them to sell something right away. That is essentially meant that the company must start the activity, and we were just ready to provide the contacts, to make Finnish companies interested, and so on, but this did not succeed."*

In addition, interviewee 2 described that there were many companies from Saint-Petersburg that wanted to register a company just in case, if something comes suddenly. These companies didn't succeed either.

Regarding the questions about the steps and the challenges in commercialization process, interviewee 2 answered that there is no particular automated procedure in commercialization process.

> *"It would be strange if this procedure would be written somewhere, because each environment wants to develop the companies by themselves."*

However, Interviewee 2 mentioned that the steps of the commercialization process of Russian innovations in Finland should be the same steps as for Finnish companies. These steps are described in Keksintosäätiö website, how from the level of idea to go further, what should be done. Therefore, these steps are presented in the thesis below.

Tips for commercialization from Keksitösäätiö

1. Firstly there are different types of agreements, inventions related agreements. These agreements are:

- confidentiality agreement

A confidentiality agreement is to safeguard confidential information and materials on the preservation of secrecy. In addition, the agreement prevents the recipient of information from using confidential information for purposes other than the agreement to a specific purpose. Non-disclosure agreement provides, above all, what is the secret information, how -deposited confidential material should be handled and what purpose it may be used.

Enter into a contract in a good time.

Non-disclosure agreement should be established as early as possible, i.e. before the adoption of the confidential information. A separate non-disclosure agreement is most commonly used at the beginning of the negotiations, in which case the parties will discuss possible co-operation and exchange based on this confidential information.

Confidentiality Agreement may be unilateral or bilateral. One-sided non-disclosure agreement is suitable for situations in which only one of the parties discloses confidential information. Mutual Non-Disclosure Agreement is intended for situations in which both parties disclose confidential information to each other.

The invention Foundation has its own contract templates confidentiality agreements.

- license agreement

Licensing of the invention is a viable solution when the owner of the invention does not have sufficient resources for the commercialization of the invention. The inventor does not want, or the invention does not itself create a profitable business. Licensing is also a good solution when looking for international partners. It may be more advantageous to enter into a license agreement from country to country, and manufacture the products directly from the sale of the country.

In most cases, invention patents are licensed in the application stage, before the granting of patents. The earlier the invention is licensed, the better. The ability to influence the licensee to the countries in which the invention is patented and ensure that business-critical countries are taken into account.

- trade

When the invention is completely sold, all rights to the invention are transferred. After the sale, the invention is available for the buyer to utilize and develop. The invention trade agreed with the deed of sale.

Here is the sales and purchase agreement list.

This list is not exhaustive, but it is an indication only checklist. In practice, each case must be considered individually and the agreement shall take into account the situation in accordance with the conditions.

- ✓ The Parties
- ✓ The object of trade
- ✓ The purchase price

    - No lump sum
    - No initial fee and a royalty / commission on products sold (see further license agreement with a memory from the list)
- ✓ The time of payment of the purchase price at the transition of ownership
- ✓ Limitation of Liability agreement enters into force duration of contract
- ✓ Governing Law
- ✓ Settlement of disputes

- the option agreement

The option agreement is used when the potential commercialization company is interested in the invention and wants a preliminary study, for example the suitability of their business. The option agreement allow the company to commercialize the invention and give the privilege to explore the option to enter into a license agreement, or purchase the entire invention. The invention, the owner undertakes to refrain from negotiating options with other parties during the commercialization of the invention.

The option agreement must be recorded. The invention is all about, who are the parties to the agreement, and the length of time the option is valid, as well as what kind of compensation the owner receives if the invention of the stock option is granted.

2. Next steps what are described are patents, utility models, designs and trademarks. These are intellectual property rights that allow an inventor to obtain a competitive advantage for themselves. Industrial property means the exclusive rights for the protection of inventions, goods and services that are identified by markers that are used, among other things, as well as of the presentation of the geographical area in which the protection is sought. The most effective protection may be using different forms of protection flexibly together. The invention can be protected by patents and / or utility model. Design right protects the product itself or a part of the appearance of the trademark and product or service.

Legal protections of intellectual options are:

- patent

Patent related to an invention granted to the owner's application for a limited duration of the exclusive right to exclude others from their invention in their professional use. A patent can be granted for inventions, which are susceptible of industrial application, a new and substantially different from the previous inventions.

A patent is a national law and only valid in the country in which patent protection has been applied for and granted. None of the "world patent" does not exist but must apply for a patent an invention in each country separately.

The patent is intended to protect the so-called spiritual intangible property. Patenting can be a part of the company's business strategy. A patent can be used to protect against competitors and gain an advantage in relation to these. Competitors are often forced to look for alternative solutions to reach the same market.

Despite the patent product of the invention may be prepared by any person for his own use, if the product is not used commercially or professionally. A patent is a so-called a right of veto and the patent holder is itself controlled by patent violations.

The invention can be applied in parallel of a patent and a utility model. A utility model may be necessary in the beginning of the urgent need for a certificate of the registration to the invention violation of situations. According to the patent, it can change the utility, when it becomes apparent that the invention is not sufficiently inventive to obtain a patent.

- utility model

Many of the technical inventiveness include the ideas and solutions that may remain patent protection, as the patentability requirements are high. Patent protection, and the protection of the gap between the model that has been created to meet the utility model, also known as the so-called petty. Utility model is a protection issue to the applicant's application for a temporary exclusive right of the registered professional exploitation of the invention.

Utility Model Law is thus intended to provide protection for those technical ideas and solutions that do not reach the level of patentability. Utility model protection is also a potential option in respect of inventions for which patent protection for the invention or

the quality of the product life cycle short, it is too slow and expensive. A utility model patent protection may be faster, since the invention of novelty and inventive step are not examined.

The invention can be applied in parallel of the patent and a utility model. A utility model may be necessary in the beginning of the urgent need for a certificate of registration to the invention violation of situations. According to the patent, it can change the utility, when it becomes apparent that the invention is not sufficiently inventive to obtain a patent.

Utility Model Application and validity.

The utility model application shall be drawn up in a similar way as the patent application. The difference is that a utility model application is not connected summary. Utility model is applied for Patents and Registration Board application document attachments.

All utility model applications that fulfil the formal requirements imposed by law, shoud be registered. The registration is valid for four years from the filing in the application, and only by the issuing State. Registration could be renewed twice, in which case maximum protection - time will be ten years from the filing date. A utility model is valid for the countries in which it is applied for and granted.

- the design right

Design right or design right is intended to protect the appearance of the object, and it gives a temporary exclusive right to the use of the model. The model refers to a product or part of the external form of a product resulting from the features, such as the lines, contours, colors, shape, texture or material.

Model Application and validity

Model Law requires access to registration of the design. Designs are country-specific and require registration of the design in each country separately. The registration of the model is under the condition that it is new and unique. In Finland, the registrations authority is the National Board of Patents and Registration of Finland.

The same product can be applied as well as the design right, the patent and / or utility model. Design right protects the product or part of the appearance of the patent and utility model - self- invention. Design right is valid for five years from the filing date and can be renewed for four to five years at a time, or a maximum term of protection is 25 years.

The Community Model

Community design allows the product to be protected by a single application across the EU in the area. Design protection begins and ends throughout the Community and can not be shared so that it would be valid, for example, only a part of the States.

Unregistered Community design protection period is three years from the date on which the design was first made available to the Community. Unregistered design gives the holder the protection only against copying.

- trademark

A trademark is a symbol that distinguishes the company manufactured and produced goods and services for other companies. A trademark is a sign capable of being represented graphically. It may comprise pattern, one or more words, letters, numbers or the goods or their packaging the distinctive appearance. The mark can also be combined with patterns or word mark, a beep or a slogan.

Trademark is subject to the condition that the hallmark is distinctive, it should not be confused with other brands or business names and must not be misleading. The mark must not be either public policy or accepted principles of morality. The mark is different from the patent, so that trademarks are the product and its quality, describing the level of permanent rights, while patents are time-limited exclusive rights. The exclusive right to the trade mark means that the course of trade, by none other than the proprietor may not use their goods identified to be confused with characters.

How do you get a mark for a product?

The exclusive right to the trade mark could be obtained either by stabilizing or registering. The trade mark shall be deemed an established when it is more commonly known as the proprietor’s goods or services in the field of business-to- consumer level.

Applications for registration shall be made in writing to the Patent and Registration Board. The applicant must indicate the goods or services in the application. Registration advantage in comparison with the consolidation of the trademark right starting point, scale, and the precise contents are easily verifiable. These facts are important, for example, possible trademark dispute.

Trademark law, the term of protection is ten years of registration. Registration may be renewed for ten years at a time, as many times as desired.

Protection of trademarks abroad

International trademark protection options include the national registrations in each country, a Community trademark or the Madrid Protocol on the international registration. Geographically, large hedges used a combination of the options.

International protection should be taken into account of the potential markets and product piracy countries, as well as to determine whether the registration of a trademark in a particular country at all possible.

The results of your work can be protected by the copyright. Copyright protects intellectual creation, such as literature or artistic works. Copyright gives the author of a work the exclusive right to determine the work of the abuse.

Copyright protects literature and artistic works. The work must reflect the author's creative effort and must be independent and original. It must not be a copy or imitation of the earlier book. Copyright protection requires that the work exceeds the threshold work.

Copyright protection may be applied to, for example, literary or explanatory written or oral presentation, musical or dramatic works, cinematographic works, photographic works or other works of visual arts, architecture, arts and crafts or art products. Also, computer software can be the subject of protection. Copyright can not protect the subject, idea, method, principle, or the information content of the plot.

Copyright belongs to author of the work. The author is always a natural person. Community or the company can get a copyright agreement with the makers. In the case

of computer programs by copyright law arises directly to the employer. Copyright arises when a work over threshold work has been created. The copyright is not required to obtain a registration, notice or other form of provision. Copyright is valid for the work that is created from the author over a lifetime and for 70 years after his death.

Economic and moral rights

Copyright gives the author both economic and moral rights. Economic rights refer to the fact that the author has the exclusive right to the production of copies and available to the public, with or without modification, translation or as adaptation, in another literary or artistic discipline or another way people make use of it.

Moral rights of copyright content. When a work is published or presented, the author's name is mentioned. The author has, however; also have the right to ban the mention of his name in connection with the work. You may not distort, garble, or alter the author's literary and artistic value, originality offensive manner. It should also not be placed on the factors offensive to the general public in the form or context. The work license does not give the right to modify, but must be a separate authorization by the author.

Copyright may be transferred in whole or in part. Economic rights are transferable, but it will always retain the moral rights of the author, with the exception of the limited individual cases.

These steps were described in Keksintösäätiö as procedures of commercialization process, however, according to the Interviewee 2, these procedures are convenient for those who live in Finland. For those who do not live in Finland, in principle, it does not work, since immediate requirement is registered company, and intellectual property of the company. These procedures take a lot of time, decisions making process is long. Therefore, they are not suitable for Russian companies.

Interviewee 2 presented also a problem of misunderstanding between Russians and Finns. In Finnish mentality, there is no direct criticism, “no” means “no” and everything is on a silent level, while Russians do not understand that, for them there “no” means “no” because of some reason and “no” can turn to “yes” if something is improved. Quiet often

this misunderstanding leads Russians to a clue that Finns do not like them and that is why Russian companies can't succeed in Finnish market.

As interviewee 2 mentioned, in order to do things quickly, entrepreneur must have some capital, experience, good English, and understand the procedures that occur. Such people are usually not interested in Finland. It is easier for them to go to Germany or United States, or somewhere else. On the other hand, for Finnish financial institutions it is difficult to decide whom to support with money, because Russian company at any time could leave. Therefore, the commercialization process is very slow.

> *"No one wants to do much and quickly for someone, who can just take it and leave. So there is no structure, which is clear and understandable. And basically it cannot be."*

Interviewee 2 described that even though there is a support infrastructure in Finland, it seems that Finnish entrepreneurs themselves really do not use it, it is used by people who does business for the first time. Interviewee 2 summed up:

> *"Finnish entrepreneurs they do not even use money from Tekes, because everything is complicated. "*

Regarding the question about the main problems that Russian innovative SMEs usually face in Finland, interviewee 2 described that the companies lack such thing as "smart money". According to the interviewee 2, it is the money that is connected with business experience and angel money. In many areas, such business angels are present. In IT sector in Russia, everything is going well. Nevertheless, in the field of bio-, nano- spheres, in the areas, where a company wants to build something and not just to create some programs, there isn't so much of this "smart money". That means companies require contacts, experts or partners and all of these companies are in search of these three elements. Interviewee 2 stated:

> *"When a company comes to Finland, where the competition is much higher to get the money, experts and contacts, the company needs to be already in a serious level of development and have experience. If a company has some sort of a crazy idea, which isn't ready, no one will work with this company and this is the biggest problem."*

Therefore, according to the interviewee 2, when not everything on the level of development is clear, people are not experienced and not ready immediately to discuss business at a practical level no one will work with these companies. Venture group is very small in Finland and it can be easy to get to know them, but if there is no ready product, they will not work with these kind of companies.

Interviewee 2 described some stories about the companies, that didn't succeed. In most cases, these companies had the same problems or the same attitude. The companies did not find the partners and after that, they didn't know what to do. As it was mentioned by interviewee 2, these companies thought they have an interesting idea, had some conversation about it with someone, but later after being couple of times in Finland and not getting any offers, they just left. Interviewee 2 summed it:

> *"A man sits at home and thinks why nothing is working out?"*

According to Interviewee 2, if the company needs to develop technology, the company has to work day and night, with no results, and then something might happen. So if the companies were in Finland just a few times and then left, Finnish companies would think why should they work with these companies, if they left?

> *"Both sides are right, but it is difficult to explain. If Russian companies already have a business in Russia, even if it is not so big, why would they go to Finland and take risks. It might not work at all. So that's the decision made individually."*

4.4.3. Case company 1.

The second part was also conducted by interviews, but with the representatives of the companies, who succeeded to commercialize their innovations in Finland.

The first case company is Vitim Oy. A specialist in speech technologies, it is a European software company and a leading developer of biometric solutions. Vitim Oy works with products and solutions which are global technological leaders in a number of the fastest growing voice-based technology sectors.

Originally it was a project of Speech Technology Center to enter European market. Now, it is independent company, which is an integrator and main European partner of the

Speech Technology Center with the right of access to technologies, solutions and human resources of Speech Technology Center.

The main reasons why did the company decide to enter Finnish market are access to European funds for R&D projects and proximity to Russia.

Since in Finland the network of partners has been already established in the field of product development and because Finland is a European leader in the degree of development of the IT infrastructure, Finland was advised as a destination country where the company can develop all kinds of products in conjunction with partners.

Interviewee 3 mentioned that Vitim Oy both chronologically and in terms of information support was a part of the project "Finnish-Russian Innovation Cooperation - Commercialization of Russian Innovations". As interviewee 3 stated:

> *"There was a Russian-European Information Forum in Lappeenranta, there the management got to know the possibilities in Finnish market, and got interested".*

According to Interviewee 3**,** commercialization process was chaotic, and the company more or less used the way of trial and errors.

The first year was idle without any turnover at all, mostly concentrated on strategy development, market research and web site development. The second year was the formation of some stars in terms of products. It was an attempt to enter the stable development of some steady income. By the end of the second year, the company has managed to get into the path of paying off, but with a support from Speech Technology Center. Interviewee 3 summed:

> *"At the moment the company has one big project, to which we were preparing for three years. That is how we have a stable income now. The profit is minimal, but nevertheless. It is very difficult to be a young company, and not having a steady income, even to get some grants from Tekes."*

Vitim Oy applied for Tekes grant, but unfortunately couldn't get it. So in general the company got informational support from Tekes.

According to the interviewee 3, the market in Finland is closed and very small by itself, so any flow and changes can be felt immediately. But on the other hand, to get into the market and be a part of it is difficult. The interviewee 3 mentioned:

> *"I'm not sure that we're part of the Finnish market, we are probably more focused on Europe with the Finnish company that is registered in Europe, a country which has an innovative image and stability, well, or vice versa Russia."*

The company had a business plan on which the company proposed to specialize in biometric security systems, due to the fact that in Finland there is a great demand for security in both B2B and B2C segments. However, at the same time company was focused on the market, therefore the business plan was reconsidered many times, since the market was not clear.

According to Interviewee 3, the main problems what they faced in Finnish market were lack of knowledge about taxation system and lack of resources, because on one hand, the company is an integrator and representative of the Speech Technology, but on the other it is not. Another problem was specificity of the market, since technology itself is very specific.

The company has solved these problems the following way: firstly, by hiring a bookkeeper in the outsourcing company, secondly by doing small work for Speech Technology Center, like transcribing or making the record layout. Now Vitim Oy has some partners, but mostly in marketing and sales.

According to Interviewee 3, the crucial factors for the company's development is a good marketing plan and a good technology. Interviewee 3 stated:

> *"Each product has its own competition, its own distributors. There is an integrator and there is a developer. But the technology is a real bonus that really helped us."*

Interviewee 3 mentioned other important factors, which helped Vitim Oy to develop, such as: perseverance, faith in technology, faith in the company and the circumstances that 1 of 30 start-ups survives. The most difficult part is to survive the first 3-5 years.

Regarding the question, if the company is planning to stay in the Finnish market or go to another European market, interviewee 3 stated that perhaps it will be done in parallel, because Finland is a very complicated country. However the company is flexible in this regard.

Recommendation from Interviewee 3 to the companies that are planning to commercialize their innovations in Finland is to internationalization process better, as it was mentioned make a good marketing plan and a proper market research. In Russia, these factors unfortunately are not so important and many Russian companies don't pay enough attention to it.

As interviewee 3 described, that Vitim Oy in the beginning had a lack of knowledge on the market, due to the specificity of the market, so after the registration of the company, it wasn't possible to start working right away, since the company didn't have resources. Interviewee 3 stated:

> *"I believe that if we had a good marketing plan, a good market research of the competitors, everything would be better."*

Another recommendation from interviewee 3 is to make an investment plan for the company. Vitim Oy has the first year of inactivity, since there were no investments. Thus, interviewee 3 summed:

> *"It is better not to register a company, if you don't have a clue how to keep it first year, before there will be a profit."*

The answer to the question what strategy the company used in commercialization process, interviewee 3 described that commercialization process was chaotic. Vitim Oy had a business plan, according to which, main focus was biometrics, but at the same time the company was very oriented on the market, therefore the structure and the strategy were changing all the time, because of the lack of knowledge on the market.

Interviewee 3 also provided extra materials about the entry strategy of the company, PEST (Table 7) and SWOT (Table 8) analyses, as well as recommendations, which are presented below.

Table 7. PEST analysis of Speech Technology Center.

P	Due to the growing influence of various nationalist parties, the company should create alliances and partnerships with local companies, as it will allow access to the market and bypass restrictions on foreign products.
E	Reduced funding and the average cost of R & D mean that it is necessary to look for new sources of funding.
S	Aging population in selected countries (Germany and Finland) will allow the company to develop in the future in the market due to its applications in the health sector. Production and development will have to be transferred to developing countries.
T	The fact, that investments in R & D are reduced to the most attractive markets, means that it is necessary to seek funding and other countries, and implement products to selected markets.

(Source: Interview 3)

Table 8. SWOT analysis of Speech Technology Center.

Strengths	**Weaknesses**
1. Unique developments and products in the field of voice biometrics; 2. Own university department for training the personnel; 3. High product quality, confirmed by international certificates. 4.Interaction with foreign universities	1. Limited financial resources of the company; 2. Difficulties in promoting a new product in the field of voice biometrics because of the high specificity; 3. Continuous training - as sales agents and developers; 4. Lack of foreign investor
Opportunities	**Threats**
1. Tendency to develop partnerships between companies competing in the market of biometric applications; 2. Trend towards narrowing the specialization of companies producing software; 3. Actively improving the quality of education and service in the field of medicine in European countries; 4. Switching to remote access and control.	1. Development of software suppliers companies with open source; 2. Government restrictions on foreign development and implementation of security systems; 3. Existing trust to other types of biometrics.

(Source: Interview 3)

Based on SWOT and PEST analysis, the company has created recommendations for internationalization strategy (Table 9).

Table 9. Recommendations for entry strategy.

	Opportunities 1. Tendency to develop partnerships between companies competing in the market of biometric applications; 2. Trend towards narrowing the specialization of companies producing software; 3. Actively improving the quality of education and service in the field of medicine in European countries; 4. Switching to remote access and control	**Threats** 1. Development of software suppliers companies with open source; 2. Government restrictions on foreign development and implementation of security systems; 3. Existing trust to other types of biometrics.
Strengths 1. Unique developments and products in the field of voice biometrics; 2. Own university department for training the personnel; 3. High product quality, confirmed by international certificates. 4.Interaction with foreign universities	**SO** 1. Creating a partnership with a European company specializing in security systems, other types of biometrics, EMR and EHR production systems (S1S3O1O2); 2. Launch to European markets applications for training and health (S1S3O3O4).	**ST** 1. Creating a partnership with a European company specializing in security systems, biometrics and other types of production systems EMR and EHR (S1S3T2T3); 2. Implementation of search engines and social programs (S1T1T2).
Weaknesses 1. Limited financial resources of the company; 2. Difficulties in promoting a new product in the field of voice biometrics because of the high specificity; 3. Continuous training - as sales agents and developers; 4. Lack of foreign investor	**WO** 1. Distance training of the client companies' employees (W2O4); 2. Use the grants and personnel provided by local government to European partner in joint projects (W1W3O2)	**WT** 1. Partnership with the European company as a way to get the grants and bypass government restrictions (W1T2)

(Source: Interview 3)

Summing up the experience, some recommendations were provided to ensure the continued presence of "Speech Technology Center" on the European market. The four steps basic tools were proposed to use.

Step 1. Expand the network of partners and establish a joint venture with a European company specializing in biometrics or other types of production ERM, EHR and LMS (Learning management system) systems (SWOT-analysis piecemeal strategies SO1, WT1 and ST1) . This will bypass the restrictions on FDI, the introduction of foreign and security systems for financial and personnel support from European governments.

Step 2. Use grants from European partner or a foreign government support funds for technical developments in joint projects. Speech Technology Center created a partnership with the Finnish company Vitim Oy, and the quality of the products is confirmed by international certificates, therefore Speech Technology Center should not refuse to participate in European programs to promote the business.

Step 3. Organize training program for administrators and employees of the client companies. In order to do this, company needs to create a training module developed through a distance learning system. First, it will show the effectiveness of the system, and secondly, it will provide advertising and help customers in practice to get acquainted with the system. Suggestion is to use in this case Vitim partners.

Step 4. Organize a direct link and mailing of commercial offers for pharmaceutical companies, manufacturers of dietary supplements, as well as networks of clinics and nursing homes. This step will help to expand the target audience and get direct access to customers, and in fact, combines strategy «pull» and «push». Implementation of CRM system in Vitim is possible with a help of distribution.

From the steps that are described above, we can conclude that case company 1 were using the strategy of cooperation. Speech Technology Center’s technology was protected by strong intellectual property rights, therefore the company commercialized it in collaboration with a partner, Vitim Oy, who has a role of an integrator. Vitim Oy is also doing some small work for Speech Technology Center, as it was mentioned before, which helps to Vitim Oy to have a stable turnover.

This strategy is composed of identifying and concluding contractual agreements with other firms who serve as intermediary for commercializing the innovation to the market.

As it was mentioned above, the biggest problem in cooperation strategy is so-called disclosure problem. It occurs when the innovator shows a potential partner the content and nature of the innovation in order to engage in a partnership. After the disclosure, the partner could use the innovation without compensating the innovator for its efforts. Therefore, innovators are sometimes reluctant to choose the cooperation strategy. In case of Speech Technology Center and Vitim Oy, the situation was different, since Vitim Oy was originally a project of Speech Technology center to enter European market. Therefore, there weren't the disclosure problems.

4.4.4. Case company 2

The second case company is Eltechnika Finland Oy, a metal and electrical components manufacturer with a Russian parental company Eltechnika, located in Saint-Petersburg. The parental company used the help of the company Wirma Lappeenranta to find the CEO for Eltechnika Finland Oy, the interviewee 4. The company has been already registered about half a year, when the CEO has been found.

The reasons why did the company choose Finland, according to the interviewee 4, are:

- Investing in Finland is a great deal cheaper than in Russia, thanks to the lower interest rates available here.
- The quality of Finnish steel is better. Even though the Finnish raw materials might be more expensive than Russian, overall the benefit derives from the evenness of the quality and the reliability of the delivery.
- Another reason, that has been mentioned, is if the parental company wants to sell Eltechnika Finland Oy in Europe, as a Finnish company it will have more value.

Interviewee 4 stated:

> *"When a Russian company does its production in Finland, it also qualifies for the Finnish quality label, which is a good selling point on the international markets."*

Interviewee 4 mentioned that relatively easier ways of doing business and the fewer levels of bureaucracy in Finland have appealed to Aleksei Argunov, CEO of the Russian parent company Eltechnika. He was convinced that the stable society and the quality of workmanship and raw materials make Finland an interesting investment target not only for Eltechnika, but also for the other Russian companies.

According to Interviewee 4, in the beginning there were nothing, but financial resources and some instructions.

> *"Actually I got about 1 million euros, and A 4 paper, where it was written: "buy these machines". Then I have empty buildings, which I have to repair … and then I started to look for personnel."*

The company got a financial support also from the ELY centres' (The centres for Economic Development, Transport and The Economy).

Even though in the beginning there were 4 personnel and CEO, within less than 3 months the company started the production.

The company has manufactured electrical components since 2010 for installation in the final products of its parent company in St. Petersburg. The production line initially consisted of power switches and switchboards made of sheet metal. Now the staff of Eltechnika Finland is double, the range has increased and the value added factor has grown along with the turnover - from EUR 90 000 in 2010 to being EUR 1.6 million in 2012.

The answer to the question, if there was some strategy of commercialization, which has been given by parental company, interviewee 4 described that there were mostly some ideas to produce some amount, and it approximate estimation of the costs. Therefore, it was mostly calculations of the product, basic investments, but not a plan or strategy, so the CEO has to create everything himself. Even though there was a support and some recommendations were given, the parental company had a lack of knowledge about Finnish market, that's a local CEO was hired. Therefore, interviewee 4 has a lot of freedom in decision making. As he mentioned:

"So when I think something isn't a good idea, I do as I thought. So if they tell me to do something, and I think it is not relevant, I don't do it."

Regarding the question of main challenges in commercialization process, interviewee 4 mentioned some differences between Russian and Finnish way of doing business:

"Russians are very fast. I have been told, that in Finland we are thinking too much. That they would have done the factory and then think what to do. That's the Russian way. So Finnish way is to plan everything and then do. Step by step. So in the beginning we know what will be in the end. It is safer and slower. I am not sure if it is more effective or cheaper."

The second challenge was the difference an accounting system. Parental company had some problems with accounting, due to this reason interviewee 4 had to check the accounting himself. Therefore, double accounting was used by the company. This was the way of year budget calculation as well.

Another challenge that was mentioned by interviewee 4 is Russian customs. It requires that each product has a document with a detailed explanation.

For case company 2, commercialization process seemed to be easier, since the company had enough finances and a local CEO, who knew the Finnish market and system. The representative of case company 2 described that there were no specific steps for commercialization process given by parental company, but mostly some ideas about the amount of production, and its' costs. Thus, it was just calculations of the product, basic investments, but not specific steps or plan.

Even though the interviewee 4 didn't mention any specific steps or strategy, it was easy to identify that the company used "cooperation strategy" as well. Eltechnika in Russia is a parental company, which gave access to their technology to Eltechnika Finland Oy. Also it seems that Eltechnika Finland Oy produces only the parts, which are delivered to the parental company in Saint-Petersburg, therefore, parental company is the "main customer" or "partner".

5. DISCUSSIONS

5.1. Cross-case analysis

In this section the findings from a cross-case analysis, conducted on the case studies, are presented.

Firstly, let's present the difficulties what both sides faced in commercialization process. The interviewee 1 mentioned that for small companies, the main problem is often lack of money. Tekes never give a fund for the whole project, only the part of it, for example, 50% of the costs of the project, and the company should have the other half. In many cases, the companies fail to show that they can finance the other half of the costs.

According to the interviewee 1 another difficulty for the companies is lack of personnel. In many cases Russian entrepreneurs do the same mistake. They register company in Finland, but there is only 1 or even 0,5 employee actually working in Finland and Russian entrepreneurs think that it is enough in order to get funding, but it isn't.

Another problem that was mentioned by interviewee 1 is the language. English and Finnish languages are a must. For Tekes, project plans and other documents are accepted in English, but the main application form is in Finnish or in Swedish, therefore, there should be someone in the company, who speaks Finnish.

Other difficulties, which were described by interviewee 1, are the high prices comparing to Russia, for electricity, water, etc. and of course, the taxation is higher for employees.

According to representative of the project "Commercialization of Russian Innovations" the main difficulty that Russian companies face in the process is a lack "smart money", money which is connected to business experience. Contacts, experts or partners, these are the key elements that all companies are searching for.

From the point of view of the case companies, the main difficulty was with taxation system. For case company 1, lack of knowledge about the taxation system of Finland, for case company 2 – differences between Finnish and Russian taxation systems.

Other difficulties were lack of resources, specificity of the market, differences between Russian and Finnish ways of doing business.

Therefore, when the main difficulties are identified as, lack of human resources, lack of money (or investments) and difference in taxation systems between Russia and Finland.

Now let's move to the second part of the empirical study and discuss the steps, the crucial factors and the strategy what companies use in commercialization process. The results of the research showed that there is no particular automated procedure or specific steps in commercialization process. It is chaotic, and the company more or less used the way of trial and errors.

Some steps were described by one of the interviewees, which are mentioned in Keksitosaatio. These steps describe firstly different types of agreements, inventions related agreements a company could use. Secondly, intellectual property rights that allow an inventor to obtain a competitive advantage for themselves, such as patents, utility models, designs or trademarks.

However, these steps are not suitable, according to the interviewee 2, for those who doesn't live in Finland, therefore they aren't suitable for Russian companies.

Case company 1 described some steps in commercialization process as well. These steps were based on SWOT and PEST analyses of the case company.

Step 1. Expand the network of partners and establish a joint venture with a European company.

Step 2. Use grants from European partner or a foreign government support funds for technical developments in joint projects.

Step 3. Organize training program for administrators and employees of the client companies.

Step 4. Expand the target audience and get direct access to customers, and in fact, combines strategy «pull» and «push» by organizing a direct link and mailing of commercial offers for pharmaceutical companies, manufacturers of dietary supplements, as well as networks of clinics and nursing homes.

However, as it was mentioned above the commercialization process was chaotic and has been done in a way of trials and mistakes. So these steps, as well as the whole strategy were changed many times.

Therefore, we can conclude that the commercialization process is complex and not clear. The way of trials and fails are required.

The crucial factors that influence Russian innovations' commercialization process according to the representative of the case company 1 are: good marketing plan, good technology and of course enough investments to survive for the first 3 years.

From the interviews and documents provided by case company 1, we can conclude that cooperation commercialization strategy was used by the company. Speech Technology Center's technology was protected by strong intellectual property rights, therefore the company commercialized it in collaboration with a partner, Vitim Oy, who has a role of an integrator. Vitim Oy is also doing some small work for Speech Technology Center, as it was mentioned before, which helps to Vitim Oy to have a stable turnover.

This strategy is composed of identifying and concluding contractual agreements with other firms who serve as intermediary for commercializing the innovation to the market.

Recommendation from Interviewee 3 to the companies that are planning to commercialize their innovations in Finland is to internationalization process better, as it was mentioned make a good marketing plan and a proper market research.

Regarding the case company 2, commercialization process seemed to be easier, since the company had enough financial resources and a local CEO, who knew the Finnish market. The representative of case company 2 described that there were no specific steps for commercialization process given by parental company, but mostly some ideas about the amount of production, and its' costs. As it was mentioned above, the interviewee 4 had to create everything himself.

Despite the fact that the interviewee 4 didn't mention any specific steps or strategy, it was easy to identify that the company used "cooperation strategy" as well. Eltechnika in Russia is a parental company, which gave access to their technology to Eltechnika Finland

Oy. Also it seems that Eltechnika Finland Oy produces only the parts, which are delivered to the parental company in Saint-Petersburg, therefore, parental company is the “main customer” or “partner”.

Therefore, cooperation strategy seems to be the most suitable for Russian SMEs that would like to commercialize their innovations in Finland.

From the empirical part of the thesis, the following steps for commercialization process in Finland were suggested by the author:

Step 1. Establish a joint venture with a European company. In practice it means, Russian innovative SME register a separate company in Finland and create a joint venture.

Step 2. Hire a local CEO or a book-keeper. This step will reduce the problems with taxation system and budgeting.

Step 3. Prepare an investment plan. This step will assist companies to calculate their financial resources, which will help them to survive for the first years without profit.

Step 4. Create projects inside joint venture. This step will allow companies to do some small work and create an income.

6. CONCLUSIONS

This part describes research summary, managerial implication and recommendations for further research.

6.1. Research Summary

The research problem of the thesis is to find the strategy that Russian companies could use in order to commercialize their innovations in Finland and if this strategy depends on some factors?

Therefore research question of the thesis is:

- *How Russian companies commercialize their innovations in Finland?*

From the main research questions, the sub questions are constructed:

- *What difficulties both sides face in the process?*
- *What are the steps and the challenges?*
- *What are the crucial factors influences Russian innovations' commercialization process?*
- *What strategies company uses in commercialization?*

To acquaintance the reader to the wider theoretical context of the study, the concepts of commercialization and internationalization as a strategy by providing theoretical background to the issue are presented in chapter 2

As the stage of the innovation process, commercialization was described, as a stage that takes possible ideas and creates internal or external market value, creating parameters within which value can be expressed or shared in a coherent fashion.

Among many definitions of commercialization, the author chose the most suitable one in the context of the thesis: "commercialization is to cause something having only a potential income-producing value to be sold, manufactured, displayed or utilized so as to yield income or raise capital".

Commercialization process was presented in the chapter as well. One important aspect of it, that it will often undergo a change from a mainly technology-driven process to a process, which is mainly market-driven.

There are several characteristics of commercialization process: complex, involving multiple phases, processes and participants, broad, multi-faceted, risky and time consuming.

According to Teece during the commercialization process, the innovator has to make a basic strategic choice between cooperation strategy, which is composed of identifying and concluding contractual agreements with other firms who serve as intermediary for commercializing the innovation to the market, or competition strategy, when the innovator wants to launch a new product independently and compete on the market with other firms in introducing the innovation to the market.

Internationalization was defined as a major dimension of the ongoing strategy process of most business firms. The strategy process determines the ongoing development and change in the international firm in terms of scope, business idea, action orientation, organizing principles, nature of managerial work, dominating values and converging norms.

There are two stage models of internationalisation:

- Uppsala internationalisation models (U-Models)
- Innovation-related models (I-Models)

Johanson and Vahlne presented U-models as one of the dominant approaches to internationalisation propose that companies internationalising in small, incremental steps and the internationalisation of the firm should be interpreted as an incremental learning process.

I-models treat internationalisation as an innovation per se for the company and the process of internationalising is the learning process. According to I-models, the process of internationalisation will go differently for large and small companies.

Pchounetlev emphasised the weakness of the mentioned internationalisation theories when applied to the Russian setting and transition economies are partly explained by the basic assumptions lying behind them.

The empirical part of this thesis has been conducted with qualitative methods, a qualitative multiple case study. The research of the study consists of two parts. The first part was conducted by interviews with the representative from Tekes and representative of the project "Finnish-Russian Innovation Cooperation - Commercialization of Russian Innovations". The second part was also conducted by interviews, but with the representatives of the companies, who succeeded to commercialize their innovations in Finland.

Based on the empirical study, the author identified certain features. Firstly, the reason why Russian companies need to commercialize their innovations in Finland was found out, it is due to the obstacles in Russian innovation system, Finnish innovation system looks more attractive to Russian companies. Secondly, the empirical research provided also several new insights with regard to the main steps and challenges what Russian companies face in Finland. Regarding to the steps, there are no clear steps, but the following ones are suggested by the author: establish a joint venture, hire a local CEO or a book-keeper, prepare an investment plan, and create projects inside joint venture. Regarding the main challenges for Russian companies in Finland are: lack of human resources, lack of money (or investments), difference in taxation systems. The crucial factors, influence Russian innovations' commercialization process, are good marketing plan and a good technology. Thirdly, cooperation commercialization strategy seems to be the most suitable for Russian innovative companies that would like to commercialize their innovations in Finland.

Finally, the research identified that the choice of internationalization strategy effects the commercialization strategy. The choice of internationalization strategy effects the steps of the company, these steps lead to the certain challenges, so through these challenges Russian companies identify the right commercialization strategy for them.

6.2. Recommendations for further research

As the thesis findings show the commercialization process is highly complex, and its profound study requires extensive knowledge and insight on the subject. This study found out which commercialization strategy is suitable for Russian companies in order to commercialize their innovations and proposed few tips by looking into the most obvious issues and topics related to the commercialization process.

The study had been conducted only on two case companies, as there are not too many Russian companies that successfully commercialized their innovations in Finland. For future research, more companies and some experts who have studied the field of commercialization of innovations could also be relevant sources for narrative information related to the topic.

The research has suggested few steps in commercialization process. By studying commercialization process steps and structure further, a model of commercialization process could be generated. The aim of this model would be to attract more Russian companies and innovators to commercialize their innovations in Finland.

REFERENCES

Abetti, P. A., & Stuart, R. W. (1988). Evaluating New Product Risk. Research Technology Management, 31 (3), 40-43.

Agarwal, R., & Bayus, B. L. (2002). The Market Evolution and Sales Takeoff of Product Innovations. Management Science, 48 (8), 1024-1041.

Andersen, O., 1993. On the internationalization process of firms: a critical analysis. Journal of International Business Studies, 24(2), pp. 209-231

Arora, A., Fosfuri, A., & Gambardella, A. (2001). Markets for Technology. The Economics of Innovation and Corporate Strategy. The MIT Press, Cambridge, Massachusetts

Bell, R.M. and Pavitt, K., 1993. Technological Accumulation and Industrial Growth: contrasts between Developed and Developing Countries. Industrial and Corporate Change, 2(2), pp. 157-211.

Bilkey, W.J. and Tesar, G., 1977. The export behaviour of smaller sized Wisconsin manufacturing firms. Journal of International Business Studies, 8, pp. 93−98

Buckley, P.J. and Carter, M.J., 1999. Managing cross-border complementary knowledge: conceptual development in business process approach to knowledge management in multinational firms. International Studies of Management and Organization, 29(1), pp. 80-104.

Cavusgil, S. T., 1980. On the internationalisation process of the firm. European Research, 8(6), pp. 273−281.

Chiesa, V. & Frattini, F. (2011). Commercializing Technological Innovation: Learning from Failures in High-Tech Markets. Journal of Product Innovation Management, 28, 437–454.

Cook, H., E. (1997). Product Management. Chapman & Hall, Cornwall, Great Britain

Cook, J. and Brown, J.S., 1999. Bridging epistemologies: The generative dance between organizational knowledge and organizational knowing. Organization Science, 10(4), pp. 381-400.

Cooper, R. G. (1993), Winning at New Products - Accelerating the Products from Idea to Launch. 2nd ed., MA Addison-Wesley, Reading.

Czinkota, M.R., 1982, Export development strategies: U.S. promotion policy, New York, N.Y.: Praeger.

Desouza et al, 2009. Crafting organizational innovation processes. INNOVATION: MANAGEMENT, POLICY & PRACTICE. Volume 11, Issue 1, April 2009.

Dezhina , I. & Zashev, P. (2007). Linkages in innovation system in Russia – Current status and opportunities for Russian-Finnish collaboration. Electronic Publications of Pan-European Institute

Eriksson, Päivi & Kovalainen, Anne (2008). Qualitative methods in business research. London: SAGE Publications

Gans, J. S., & Stern, S. (2003). The product market and the market for "ideas": commercialization strategies for technology entrepreneurs. Research Policy, 32 (2), 333-350.

Gomez-Mejia, L. (1992). 'Structure and process of diversification, compensation strategy, and firm performance'. Strategic Management Journal, 13(5), pp. 381-397.

Gorodnichenko,Y., Svejnar, J., and Terrell, K., 2008. Globalization and Innovation in Emerging Markets, IZA Working Paper No. 3299.

Grant, R. M. (2002). Contemporary Strategy Analysis. Concepts, Techniques, Applications. 4th ed. Blackwell Publishers. Great Britain

Habib, M. and B. Victor (1991). 'Strategy, structure, and performance of U.S. manufacturing and service MNCs: A comparative analysis'. Strategic Management Journal, 12(8), pp. 589-606

Haspeslagh, P. and D. Jemison (1991). Managing Acquisitions: Creating Value through Corporate Renewal. The Free Press, New York.

Johanson, J. and Vahlne, J-E., 1977. The Internationalization Process of the Firm - A Model of Knowledge Development and Increasing Market Commitment. Journal of International Business Studies, 8(1), pp. 23-32.

Johanson, J. and Weidersheim-Paul, F., 1975. The internationalisation of the firm — Four Swedish case studies. Journal of Management Studies, 12, pp. 305−322

Jolly, V. K. (1997). Commercializing New Technologies. Harvard School Press, Boston, Massachusetts.

Kalotay, K., 2008. How to explain the foreign expansion of Russian firms, Journal of Financial Transformation, 24, pp. 53-61.

Kotler, P., & Keller, K. L. (2009). Marketing Management 13th ed., Pearson Education Inc., New Jersey.

Krott, P. (2008). The Russian Innovation System- An International Perspective. Lappenranta University of Technology

Lundvall, B. A. (ed), (1992). National Systems of Innovation: Toward a Theory of Innovation and Interactive Learning, Printer, London.

Luostarinen, R. (1991). 'Development of strategic thinking in international business'. In J. Nasi, Arenas of Strategic Thinking. Foundation for Economic Education, Helsinki.

Lyles, M. (1990). 'A research agenda for strategic management in the 1990s', Journal of Management Studies, 27(4), pp. 363-375.

Melin, L. (1992). INTERNATIONALIZATION AS A STRATEGY PROCESS. Strategic Management Journal, Vol. 13, 99-11

Miller, D. and P. H. Friesen (1982). 'The longitudinal analysis of organizations: A methodological perspective'. Management Science, 28(9), pp. 1013-1034

Mintzberg, H. (Fall 1987). 'The strategy concept I: Five PS for strategy'. California Management Review, 30, pp. 11-23.

Palmberg, C. (2002). Successful innovation - The determinants of commercialization and break-even times of innovation. VTT publications, 486. Espoo.

Parker, K., & Mainelli M. (2001). Great mistakes in technology commercialization. Strategic Change, 10 (7), 338-390.

Patton, Michael Quinn (2002). Qualitative research & evaluation methods, 3rd edition. Thousand Oaks, California: Sage Publications

Pavitt, K. (2006). "Innovation Process" in Fagerberg et al (eds). "The Oxford Handbook on Innovation". Oxford University Press.

Pettigrew, A. M. (1985b). 'Examining change in the long-term context of culture and polities'. In J. Pennings (ed.). Organizational Strategy and Change. Jossey-Bass, San Francisco, CA, pp. 269-318.

Podmetina, D. 2011. Innovation and Internationalization in Russian Companies: Challenges and Opportunities for Open Innovation and Cooperation. Lappeenranta University of Technology

Ravi Ramamurti, Jitendra V. Singh. 2009. Emerging multinationals in emerging markets

Reid, S. D., 1981. The decision maker and export entry and expansion. Journal of International Business Studies, 12(2), pp. 101−112.

Rogers, E. M., 2003. Diffusion of Innovations 5th ed. New York: Free Press.

Rogers, E.M. (2003), Diffusion of Innovations, 5th ed. Free Press, New York.

Rogers, E.M., 1962. Diffusion of Innovation. New York: Free Press.

Silverman, D. 2005. Doing qualitative research, Second Edition.

Simula, H. (2012). Management of Commercialization. Aalto University publications series.

Teece, D. J. (1986). Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. Research Policy, 15, 285-305.

Welch, L. S. and R. Luostarinen (1988). 'Internationalization: Evolution of a concept'. Journal of General Management, 14(2), pp. 34-55.

Wilson, D. (1992). A Strategy of Change: Concepts and Controversies in the Management of Change. Routledge, London.

Yin, Robert K. (2003). Case study research: Design and methods. Thousand Oaks (California): SAGE Publications

Zahra, S.A.& Nielsen, A.P. (2002). Sources of capabilities, Integration and Technology Commercialization. Strategic Management Journal, 23 (5), 377-398

APPENDICES

Appendix 1. Interview questions for case companies

1. How did the idea of establishing a company in Finland get generated?
2. How was the name for the company created?
3. Who was responsible for managing the process of establishing the company?
4. How did the process get started, and how long did it take altogether?
5. What kind of support was provided to the company, and by whom?
6. How did the company get familiarized with these parties which provide their support?
7. Who participated altogether in the process of establishing the company in Finland?
8. What kind of experiences and perceptions did the company gain while the process was on?
9. Could you describe the process as a continuum (who was involved, what kind of decisions were made, what kind of opportunities were provided, etc.)?
10. Were there any problems which you faced during this process?
11. How did you overcome these problems?
12. Are there any kinds of problems that you face now, after the company is already established?
13. How company's business operations are planned to be carried out in the future?

Appendix 2. Interview questions for Tekes

1. What do you think about innovation process nowadays? How important do you think it is for the world (Finland) to develop innovations?
2. What do you think in general about innovation ideas, which come from Russia?
3. How many project ideas do you get in a year from Russia?
4. What are the most important requirements for you to give a fund to Russian innovative SMEs?
5. What kinds of companies are now sponsored by Tekes at the moment, why did you choose these companies?
6. Is there any other support, except funding, that Tekes provides to Russian innovative SMEs?

a. If yes, could you please, describe them in details?

7. Does Tekes help to find a Finnish (any other) business partner to Russian innovative SMEs or how does this process go?
8. How is the process of commercialization going on in general? Is there some kind of structure/ mechanism?
    a. What should be done first in this process?
    b. How do you monitor the process?
9. Is there any strategy that you use for commercialization of Russian Innovations?
10. What are the main problems that Russian innovative SMEs usually facing in Finland?