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**INNOVATION AS A RESULT OF STRATEGIC  
DECISIONS IN THE CONTEXT OF ORGANIZATIONAL  
ENVIRONMENT: THE CASE OF ESTONIAN  
INFORMATION AND COMMUNICATION  
TECHNOLOGY COMPANIES**

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## **INTRODUCTION**

Innovation is not just a matter of a competitive advantage anymore, but a matter of survival. Companies' sustainability can be achieved only by thinking ahead and finding new solutions, which include organizational developments as well as developing new products. But it is very hard to predict what products and services assure increase in the number of customers, what the business strategy should be in the dynamic and complex external environment, which causes uncertainty about the future.

Looking back to the period since 1991 when Estonia regained its independence, Estonia's economy has done major leaps to catch up the level of West-Europe in its development. In the present thesis information and communication technology (ICT) as one of Estonia's most developed parts of economy is taken as the context of analyzing innovation. Before the year 1991 the development of the ICT had very small global influence due to the restrictions of the Soviet Union that prohibited communication with the rest of the world. Thus, when Estonia achieved its independency in 1991, the changes that occurred in the ICT sector were immense.

In the present thesis the author studies the threads between strategic decision making and innovation to find out what kind of factors influence strategic decisions that lead an organization into innovation in order to show the significant role of organizational environment on innovation. So far we have seen the innovation mainly in well-known manifestations like mobile parking, e-elections, Skype, online entrepreneurship etc, solutions achieved in this century. But how has innovation developed in companies that were established already at the beginning of 1990s, what have been the main sources for innovation there, this is the issue in the present thesis. The 1990s and the beginning of the 2000s is an interesting period to observe because the quick development of technology has introduced the comprehension among economists and publicity that ICT

is one of the technologies that at the present time leads the shift of world's technologic-economic paradigm (Kalvet *et al* 2002).

The period of the 1990s was a time for rapid change in Estonia. Especially the ICT companies had to be quick and aggressive in their decisions to catch up with the standard in the world's ICT developments. At that time the companies made their strategic decisions naturally according to the circumstances rather than on innovation reasons. The strategic decision making has to be quicker in the ICT field than in traditional companies because the development of the world's ICT is immense. Because of that, the effect of strategic decisions on innovation should appear much faster than in a traditional company. Today many Estonian ICT companies think they are most innovative in the region of any type of innovation and that makes it more difficult to get an objective estimation of innovation from these companies.

Therefore it would be reasonable to study ICT companies that were established already at the beginning of the 1990s when innovation was not yet conscious in these companies. This allows estimating how innovation has evolved in Estonian ICT companies and analyzing the strategic decisions and their influencing factors more impersonally.

Consequently from the previous discussion the aim of the present master's thesis is to find out how strategic decisions have resulted in innovation in the context of the organizational environment, using the examples of the Estonian ICT companies. To accomplish the posed aim, the following assignments need to be fulfilled:

1. Analyzing the theoretical framework of innovation and the types of innovation;
2. Bringing out important aspects of strategic decision making, including the explanation of the role of organization's external and internal environment;
3. Conducting an empirical study on the cases of three Estonian IT companies: MicroLink, Regio and Ordi;
4. Analyzing the development of the case companies;
5. Bringing out the main aspects how strategic decisions have evolved and resulted in innovation and what have been the influencing factors of the organizational environment, based on the analysis of the three case studies.

Guided by these assignments the present thesis consists of two parts: the first part creates the theoretical framework for the research and the second part is the empirical research on the developments of three Estonian ICT companies. The theoretical part explains the concept of innovation, strategic decisions, organizational environment and the characteristics of the ICT companies. There is a closer insight to different approaches of the types of innovation, mainly focusing on the classification of the OECD Oslo Manual (Onodera 2008): product, process, marketing and organizational innovation. The nature of strategic decisions is analyzed through the strategic management process, including the essence of organizational environment and its impact on decision making. Finally, a conceptual model is derived to illustrate the process of strategic decisions resulting in innovation. In the first part the author also develops some research propositions to analyze the applicability of different theoretical approaches in the context of the Estonian ICT companies.

The empirical part of the thesis gives first, a brief overview of the history of Estonian ICT sector and an introduction to the methodology and research outline. Second, three Estonian ICT companies, MicroLink, Regio and Ordi are used for conducting the case studies in order to analyze their development in the context of strategic decisions and innovation. These three companies were selected because they give the best overview of an Estonian ICT company's profile (both hardware and software) that has started its business in the early 1990s and is now still active.

Consequently, from the analysis of the case studies the results and implications are brought out. The empirical research is based on the available material from public sources, yearbooks and interviews with the CEOs and other important members of the case companies. The interviews were conducted in February 2007 with previous CEOs and in April-May 2010 with present CEOs of MicroLink, Regio and Ordi.

Hereby, the author of the present master's thesis would like to acknowledge her supervisor, Professor Maaja Vadi, for her support and commitment; the interviewees, Allan Martinson, Rivo Noorkõiv, Sulev Sisask, Enn Saar and Teet Jagomägi for their time and contribution; pre-reviewers, Rebekka Vedina and Kalev Kaarna, for their relevant remarks; Tiia Krass for the linguistic correction, and Marek Tiits for the additional material and for his comments about Estonian ICT sector.

# **1. THE THEORETICAL FRAMEWORK OF INNOVATION, STRATEGIC DECISIONS, ORGANIZATIONAL ENVIRONMENT AND THEIR INTERACTION FROM THE PERSPECTIVE OF ICT COMPANIES**

## **1.1. The concept of innovation and the characteristics of ICT companies**

### **1.1.1. Different approaches to the concept of innovation**

The chapter 1.1 gives a closer look to the definition of innovation from the perspective of three different aspects: what does *new* mean in the sense of innovation, what are the perception levels of innovation, and what is the role of adoption of innovation. After that different approaches to the types of innovation will be analyzed, which also help to open the essence of innovation, and finally the characteristics of ICT companies will be brought out in order to see the peculiarity of innovation in ICT companies.

One source of the high level of risk in innovating arises from some common failures to accurately identify the nature and role of innovation in business. For example, it is thought that innovation is expensive and takes time, or that innovation requires hundreds of product ideas because the failure rates are high (see appendix 1 to know more about common myths about innovation). It all starts from a proper definition of innovation, and yet there exists a dilemma how to define innovation accurately. Is a new idea already an innovation or is there more assumed when speaking of innovation? The origin of the term innovation comes from Schumpeter's (1942) introduction of five kinds of possible new approaches by entrepreneurs: new products, new production processes (technologies), new markets, new organizations, and new inputs. So it has to be something that results in some visible or perceived change. Change generally implies

innovation, in the basic sense of introducing something new into an environment. This includes the rearrangement of jobs, roles, and structures. It also includes rearranging systems, since the process of change itself is an innovation (Cole 1994: 137). Van de Ven (1986: 591) says that according to Zaltman, Duncan and Holbek (1973, in Van de Ven 1986) an innovation is a *new idea*, which may be a recombination of old ideas. As long as the idea is perceived as new to the people involved, it is an “innovation”, even though it may appear to others to be an “imitation” of something that exists elsewhere. But what if innovation in this case remains to be just an idea? Then there’s no distinguishable change and it is not accurate to say it is an innovation *per se*.

The approach of Pettigrew and Fenton (2000) encompass the approaches of Cole (1994) and Van de Ven (1986) by defining innovation as a change that results in new knowledge through a combination of new ideas, which could mean organizational innovation, new organizational processes and/or structures or a recombination of existing processes and structures. Pettigrew and Fenton like Van de Ven emphasize that these organizational changes should be perceived as new by the members of organization. But again is it enough that only members of organization perceive these changes as new? Westland (2008: 6) brings out one important aspect of innovation perception: “An innovation is a product or service with a bundle of features that is – as a whole – new in the market, or that is commercialized in some new way that opens up new uses and consumer groups for it”. So when talking about, for example, product innovation, it should not just be the members of organization but also consumers who perceive the change as new. Westland opens a different aspect beyond this very general definition and emphasizes that different professions perceive innovation in vastly different ways, and each profession tends to define innovation in terms of the parts with which its members are familiar (*ibid*). Thus, whatever the innovation is, it should be perceived as new at least on one perception level, organizational, local or global.

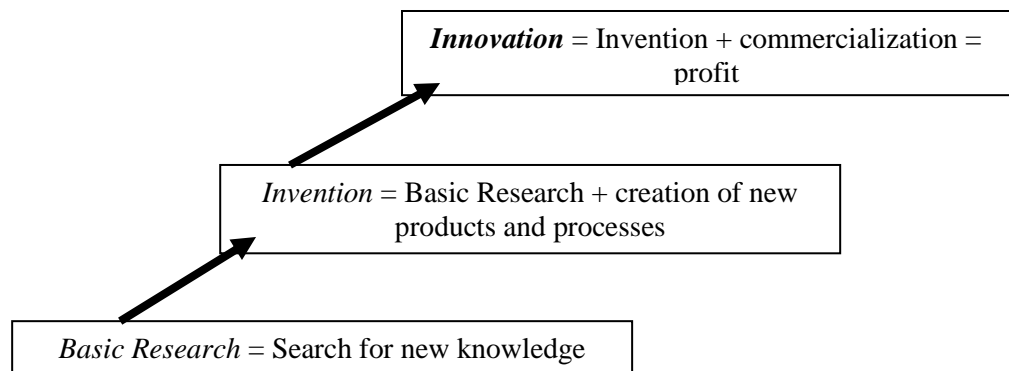
Holbrook and Hughes (2000) emphasize innovation on local level, calling it market innovation. They argue that “new to the firm”, meaning organizational level in the present thesis, should not be considered the entry point for innovation, because in many cases it is exactly the opposite – restoring the stability to an economy destabilized by innovators. Instead, market with the potential customers and competitors of the firm is



the environment where innovation occurs, and where innovation must therefore be studied. But the author does not agree with that because innovation is no longer optional, but necessary activity in every competitive and sustainable organization; and the first one who should perceive innovation should be the organization itself. Another issue is with global perception level, which means that innovation should be something “new” (for example a new product) in the world context. But examining new product introductions typically suggests that only a small percentage of all new products are “new to the world products” – about 10% in some surveys (Wind and Mahajan 1997: 3).

Companies are continually developing and changing in order to assure their sustainability. Therefore, innovation cannot be just an idea; they definitely have to introduce the idea into real distinguishable innovation: a new product, a new structure, a new process etc. Knight (1967: 478) denotes that “innovation is the adoption of a change which is new to an organization and to the relevant environment.” Also Damanpour (1991: 556) uses the definition of “adoption of innovation” to encompass generation, development and implementation of new ideas and behavior. He refers to innovation as the means of changing organization, whether as a response to changes in its internal or external environment or as a pre-emptive action taken to influence environment. Both Knight and Damanpour include the term “adoption” in the definition to imply that the organization has gone beyond the conception of a new idea and begun to apply it. In the present thesis the implementation process of innovation is not in focus, but instead it is important how an organization develops towards innovation and therefore, the focus is on influencing factors of that development.

So far the discussion over innovation and its definitions has focused on the phenomenon *new*, which is necessary but not sufficient for innovation. It is important to understand how innovation evolves and what important aspects are included in the development. Schoen *et al* (2005: 4) bring out the steps to innovation illustrated in the figure 1.



**Figure 1.** The development from basic research to innovation (compiled by the author, based on Schoen *et al* 2005).

Basic research is a long-term investment in general knowledge creation, having little thought about commercial applications and therefore having more unpredictable practical consequences (Henard and McFadyen 2005: 503, Schoen *et al* 2005: 4). Invention, in turn, uses the created knowledge or new combinations of existing knowledge to create new products and processes, whereby most inventions are the result of novel applications of existing knowledge (Grant 2002). This may also be called applied research, which by contrast to the basic research has fairly immediate practical, and presumably profitable, ramifications. (Henard and McFadyen 2005: 503). Grant (2002) denotes that innovation may be the result of a single invention or it may combine many inventions, but what is the most important aspect for invention to become innovation is the business model used to commercialize the product. Moreover, this business model has to be successful, including a positive change in company's profitability; otherwise there is no innovation, just invention (Hamel 2000, in Schoen *et al* 2005: 4).

Holbrook and Hughes (2000: 4) suggest that innovation should not be considered in isolation from the competitive environment in which the organization exists, because innovation occurs within a competitive milieu. Hence, innovation should be noticed first on the organizational level and then put in the competitive environment, making innovation a tool to stay ahead of competitors. In conclusion, table 1 gives an overview of important characteristics that are related to the definition of innovation and are necessary to notice when speaking of innovation.

**Table 1.** The characteristics of innovation.

<b>Characteristic</b>	<b>Explanation</b>
New	The assumption for innovation to occur is the development of new ideas or recombination of old ideas, new knowledge, new organizational processes, structures or recombination of existing processes and structures.
Perceived	Innovation has to be perceived as new at least on one level: organizational (members of organization), local (local markets) or global (the whole global environment).
Adopted	Innovation actually starts when new ideas or knowledge are implemented in the organization.
Commercialized	Business model that “sells” the innovation.
Supportive	Innovation is a tool that should give a competitive advantage and helps to cope with organization’s external environment
Profitable	Innovation has to be profitable and result in some positive change.

Source: compiled by the author, based on Van de Ven 1986, Damanpour 1991, Henard and McFadyen 2005.

It is important to keep in mind that innovation has to include all these characteristics, starting from the development of a new idea that is perceived as new on the organizational, local or/and global level. Then implementing the new idea into real business and commercializing it in accordance with the organization’s external environment and it all has to result in profitability for the organization.

### **1.1.2. Theoretical approaches to the types of innovation**

Besides the definition of innovation, it is also important to recognize different typologies of innovation to understand the essence of innovation better. The typologies detailed in the literature are guided by several aspects, like the range of innovation, orientation to market or technology, or organizational features (product, process, structure, people etc). Subsequently, the main typologies are brought out to show how innovation may appear.

Henderson and Clark (1990) argue about the role of technical innovations that involve apparently some modest changes to the existing technology, but that have quite important competitive consequences. Their intention is to show different ways in which

innovations differ from each other. Therefore, they distinct between “the product as a system and the product as a set of components” referring that successful product development should concern two dimensions (see the figure 2). First, component knowledge, or knowledge about each of the core design concepts and the way in which they are implemented in a particular component; and second, architectural knowledge or knowledge about the ways in which the components are integrated and linked together into a coherent whole (Henderson and Clark 1990: 2).

Architectural Knowledge		
<i>Preserved</i>	<i>Destroyed</i>	
Incremental	Architectural	<i>Preserved</i>
Modular	Radical	Component Knowledge
		<i>Destroyed</i>

**Figure 2.** Types of innovation by Henderson-Clark (1990: 12) classification.

According to the figure 2 incremental and radical innovations are extreme points along both dimensions. Incremental innovations preserve both aspects of the organization’s production and marketing by refining and extending an established design. Improvement occurs in the individual components, but the underlying core design concepts, and the links between them, remain the same (*ibid*: 11). Incremental technological innovations and innovations designed to meet the needs of existing customers are exploitative and build upon existing organizational knowledge (Benner and Tushman 2003: 243). Radical innovations, on the other hand, are exploratory since they require new knowledge or departures from existing skills (Levinthal and March 1993: 97). So both organization’s production and marketing are destroyed, forcing the firm to move on to new products and to establish a new dominant design.

In the case of modular innovations the product’s core design concept changes without changing the product’s architecture. When talking about production and marketing channels, modular innovation keeps them intact, as long as the firm can acquire the

component expertise needed to produce the innovation (Westland 2008: 42). The essence of an architectural innovation is the reconfiguration of an established system to link together existing components in a new way (Henderson and Clark 1990: 12). It may arise in response to the loss of demand for products, when the organization rearranges components to come up with an ostensibly different product serving a different customer base. The important point is that the core design concept behind each component – and the associated scientific and engineering knowledge – remains the same.

Most of the literature distinguishes mainly between radical and incremental innovation, leaving out modular and architectural innovation. What is also important in the present thesis is to notice the technological aspect of innovation and how it determines the types of innovation. If the innovation incorporates technology that is clear, risky departure from existing practice or if it requires both, throughput (process) as well as output (product or service) change, it is defined as radical innovation. Incremental innovation would be the opposite (Ettlie *et al* 1984: 683). Wind and Mahajan (1997: 3-4) also handle the technological aspect and talk about incremental and breakthrough innovations. Incremental innovations refer to minor changes in technology, simple product improvements, or line extensions that minimally improve the existing performance. In contrast, breakthrough innovations are novel, unique, or state-of-the-art technological advances in a product category that significantly alter the consumption patterns of the market.

Recent studies further differentiate two types of breakthrough innovations on the basis of their (1) advances of existing technology and (2) departure from the existing market segment (Benner and Tushman 2003: 242-243). Zhou *et al* (2003: 43) define the first type as “technology-based innovations”, which adopts new and advanced technologies and improves customer benefits relative to existing products for customers in existing markets. These innovations are also called as previously introduced radical innovations (Chandy and Tellis 1998). The second type is defined as “market-based innovations,” which departs from serving existing, mainstream markets. Market-based innovations involve new and different technologies and create a set of fringe, and usually new, customer values for emerging markets. Market-based innovations that improve

performance through subsequent development to a level superior to existing products and that eventually overtake existing products in mainstream markets are called “disruptive innovations” (Bower and Christensen 1995: 45-46).

The previous discussion about radical, incremental, modular and architectural innovation showed that for a product or process to be innovative, it is not assumed that every innovation must be the first in the world. But what an innovation must have is a sense of uniqueness to it, and if not radically, then incrementally a product or process has to improve over time.

A different typology from previous is given by Knight (1967) who distinguishes between four major types of innovations that could have either positive or negative impact on the goal achievement of an organization:

1. Product or service innovations – introduction of new products or services which the organization produces, sells, or gives away;
2. Production-process innovations – introduction of new elements in the organization’s task, decision, and information system or its physical production or service operations, the advances in the technology of the company;
3. Organizational-structure innovation – introduction of altered work assignments, authority relations, communication systems, or formal rewards systems into the organization. Knight adds that this category is in part complementary to the previous category since it includes the formal interactions and authority relations among the participants in the organization that are established to form the production process. Organizational-structure innovation includes the other aspects of formal interaction among the people in the organization;
4. People innovation – changes in the people within the organization by first, altering the personnel by dismissing and/or hiring, and second, modifying the behavior or beliefs of the people in the organization via techniques such as education or psychoanalysis.

As one can see, Knight considers innovation having either positive or negative impact on the goal achievement of an organization, but in the present thesis profitability has been taken as an important keyword when defining innovation. Therefore, the type “people innovation” is not very obvious, because people may change in the organization

all the time and it may be hard to determine how dismissing/hiring people acts as an innovation and turns into profitability. In general, Knight’s classification is very similar to the types of innovation brought out by the Oslo Manual (Onodera 2008) that will be considered in the empirical part of the present thesis (see table 2 for an overview).

**Table 2.** Main types of innovation.

<b>Main type of Innovation</b>	<b>Explanation</b>	<b>Examples on IT solutions</b>
Product Innovation	Introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses, including technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics in a product.	Nokia – sharp design, changes models rapidly, and adds features effortlessly, based on a close reading of customer desires. Apple – introducing iPod MP3 player
Process Innovation	Implementation of a new or significantly improved production or delivery method.	Wal-Mart using radio-frequency identification (RFID) as an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders.
Marketing Innovation	Implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.	Amazon – overturned retail distribution with internet technology and a focus on the consumer experience. eBay – forged a new retail business model based on customer power, cheap prices and community.
Organizational Innovation	Implementation of a new organizational method in the firm’s business practices, workplace organization or external relations.	Dell – superior business-process model built on ruthless cost-cutting and innovative in supply-chain management.

Source : Onodera (2008) with authors’ supplements, based on Westland (2008)

Originating from product, process, marketing and organizational innovation types, Oslo Manual defines innovation as follows: “innovation is an implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations”. Product innovation is defined as new products or services introduced to meet an external user or market need, and process innovation is defined as new

elements introduced into an organization's production or service operations (e.g input materials, task specifications, work and information flow mechanisms, and equipment) to produce a product or render a service (Damanpour and Gopalakrishnan 2001: 47-48). Knight (1967: 479) emphasizes that the innovation of a new product occurs when the product is conceived, produced, and used and the innovation of a production process is complete only after it is in operation.

The types of product and process innovation are usually handled together, because developing a new product often needs developments also in processes through which the product is produced. As Hill and Utterback (1980: 15) denote, demands for greater sophistication, uniformity, and lower cost in the product create an ongoing demand for development and improvement of both product and process. This in turn means that product design and process design become more closely interdependent as a line of business develops. While it has been established that product and process innovations affect each other, their pattern of interaction at the firm level is unclear. When, for example, process innovation derives from product innovation, they may occur sequentially; they may also complement each other and can occur simultaneously (Tornatzky and Fleischer 1990, in Damanpour and Gopalakrishnan 2001: 48). At the same time, the distinction between product and process innovations is important, because their adoption requires different organizational skills. Product innovations require that firms assimilate customer need patterns, design, and manufacture the product; process innovations require firms to apply technology to improve the efficiency of product development and commercialization (Damanpour and Gopalakrishnan 2001: 48).

In addition to innovations in products and production processes, there are also innovations in the marketing of products. The development of new marketing tools and methods plays an important role in the evolution of industries. In recent years, for instance, new ways of gathering consumer information through innovative marketing programs and technologies have enabled firms to reach consumers more effectively and use pricing strategies that were previously not feasible; new trading formats and techniques (online stores, online ordering), have expanded the market for many firms and potentially reduced consumer transaction costs (Chen 2006: 101). Marketing



innovation can also be defined as commercial innovation (Trott 2002: 20) meaning, for example, new financing arrangements and new sales approach.

The literature about the fourth type of innovation, organizational innovation is rather confusing. Most of the authors take organizational innovation as the broad concept of innovation and define it accordingly (e.g. Budros 2000, Fichman 2001, Hage 1999). Damanpour (1996: 694) defines organizational innovation as a meaning on the organizational level: the adoption of an idea or behavior is new to the adopting organization. He also denotes that innovation is conceived as a means of changing an organization, its organizational structures or administrative systems, or new plans or programs pertaining to organizational members. This is closest to the definition of organizational innovation given by Oslo Manual, where it is defined as the implementation of a new organizational method in the firm's business practices, workplace organization or external relations (Onodera 2008: 7).

Alänge *et al* (1998: 7) say that organizational innovation can mean innovations in management practices, innovations in the administrative processes or innovations in the formal organizational structure. But, it can also be a new venture division, a new internal communication system, or an introduction of a new accounting procedure (Trott 2002: 14). All these mentioned features refer to organizational change, but for organizational innovation to occur, the change emerging has to cover the keywords of innovation definition discussed before. Organizational change is usually characterized by three dimensions (Dawson 2003: 18):

1. The timeframe of transition from a present state to a future state – is the change occurring quickly or over a longer period of time,
2. The scale of change – from small incremental change to large-scale radical change,
3. The political dimension of change – is change accepted by organization members or is it perceived as a threat and hence challenged.

Hence, the change should be handled as innovation if the change from the present state to the future state occurs quickly, is large-scale and radical, and accepted by all organization members. According to the characteristics of innovation, the issue is larger than that. Besides these previous features organizational innovation should also be

accompanied with some new knowledge that is unique and perceived as new by the members of organization and it should be adopted and result in some profitable measurement. When talking about organizational change, it is not necessarily adopted or noticed as something new; it may also not be accompanied with any new knowledge or profitability. Table 3 summarizes the difference between organizational change and innovation.

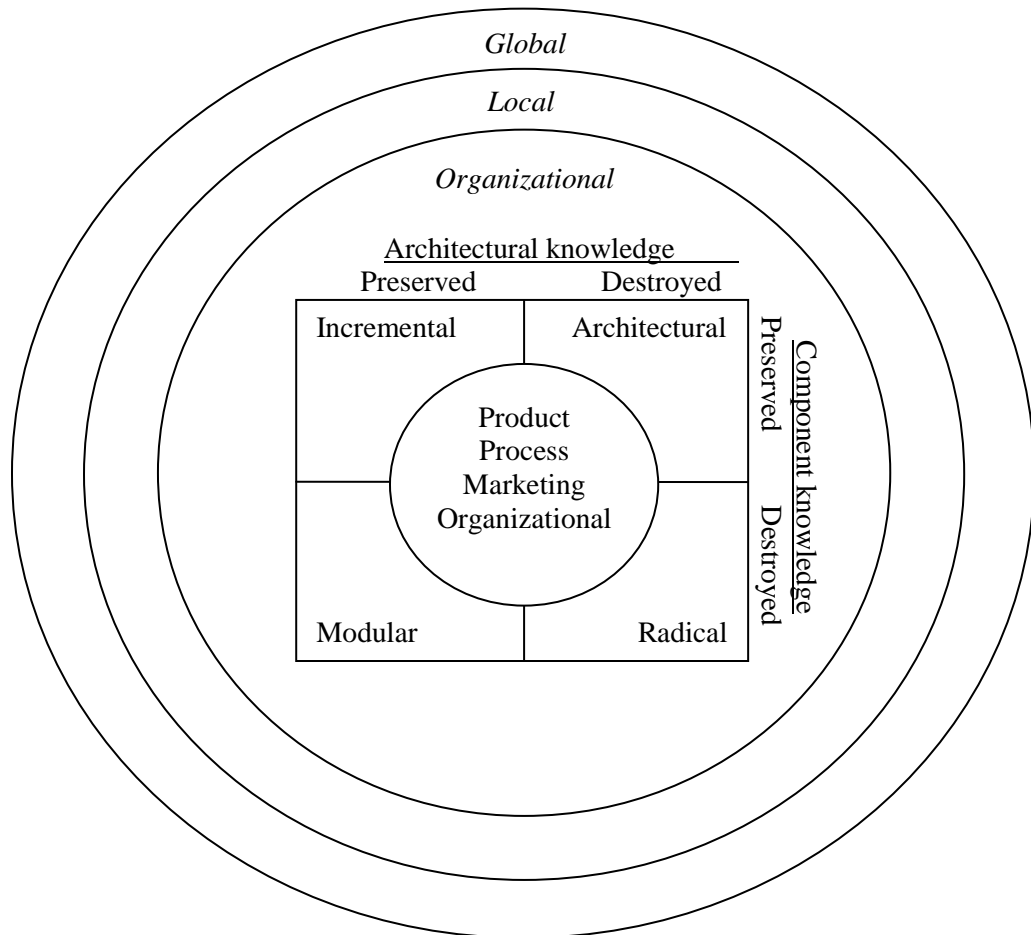
**Table 3.** Dimensions of the differences between organizational change and innovation.

<b>Dimension</b>	<b>Change</b>	<b>Innovation</b>
Timeframe	Longer period	Quickly
Scale	Incremental	Incremental to Radical
Political dimension	Accepted or challenged	Accepted
Knowledge	Not necessarily new	New
Adoption	Not necessarily adopted	Adopted
Perception	Not noticed or new	New
Profitability	Not necessarily profitable	Profitable

Source: compiled by the author, based on Dawson 2003, Damanpour 1991.

The previous analysis about marketing and organizational innovation contributes to better understanding of their content because, despite their obvious importance, and unlike product or process innovation, marketing and organizational innovation have received little attention in the economics literature. As Levitt (1960: 1) denoted already in 1960 and which is still the attitude of many organizations, it is a rare organization that follows up with a solidly systematic program of marketing experimentation and innovation. Marketing seldom gets the kind of active and continuing experimental support that other corporate functions are so abundantly getting. „Where are the marketing equivalents of the product-research-and-development departments – departments specifically charged with inventing and developing marketing innovations“, asks Levitt (*ibid*). Especially in the present conditions of economic decrease many organization downsize first of all their marketing expenditures, which in turn may keep the opportunities for marketing innovation rather modest. On the other hand, it may also lead to new ideas, how to most effectively market a product when there is not much money to do expensive campaigns, and this may result in marketing innovation. But cutting costs works for a shorter time-scale, especially, if in longer time-scale organization needs extra financing to maintain sustainability.

As seen from the figure 3, the interest in the present thesis is to combine together the approaches of Henderson-Clark and Oslo Manual, and to analyze the occurrence of radical, incremental, modular and architectural innovation in case of product, process, marketing and organizational innovation. The combination of these types will be handled on the organizational, local and global level.



**Figure 3.** Combination of innovation types of Henderson-Clark approach and Oslo Manual approach in the context of the organizational, local and global perception level (compiled by the author, based on Henderson and Clark 1990, Onodera 2008).

An important aspect is how to understand marketing and organizational innovation in the dimensions of component and architectural knowledge. As the modular innovation requires new knowledge for one or more components, leaving the architectural knowledge unchanged, then in the context of marketing innovation it means that, for example, an organization that uses its homepage as a marketing tool adds a feature of

online sales to it. For organizational innovation to be modular the basic design and structure of an organization remains the same, but there are new divisions, like the R&D added.

In case of architectural innovation the situation is the opposite; components remain unchanged, but the architectural knowledge changes. In the context of marketing innovation the components of a homepage remain the same, but depending on the status of a customer visiting the homepage, there will be a selection of components appearing, which means that the linkages between different components change. When organizational innovation is architectural, then the changes happen in the organization's design. For example, all the functions remain the same, but some divisions are allowed to have home-offices, which means that the linkage between the functions is changed.

According to the Henderson-Clark (1990) model an incremental innovation will build upon existing component and architectural knowledge. If marketing is considered, improvements in speed of information rotation represent one example of incremental innovation. A new information exchange system between divisions that increases efficiency and productivity would be the case of organizational innovation being incremental.

Finally, when a certain innovation revolutionizes both component and architectural knowledge it will be a radical innovation. In case of marketing innovation it would mean that a homepage is changed into a trading environment (e.g e-bay). An organizational innovation would be radical, if the whole structure and functions are changed to improve management quality; for example through mergers and acquisitions.

### **1.1.3. Involvement of innovation in the characteristics of ICT companies**

The present thesis concentrates on ICT companies and therefore, the role of innovation should also be opened regarding information technology, which is usually defined as the use of computers and software to manage information (OECD 2008: 33), and thus, an IT company is a provider of information technology. But because of the convergence of telecommunications and information technologies (Burgelman *et al* 2004: 317), IT

could be handled as a synonym to ICT (information and communication technology). In turn, ICT activities are those that “process, deliver, and display information electronically”, and ICT companies are those that produce equipment, software and services that enable those activities (OECD 2008: 33).

According to Bullinger *et al* (2000) and The Global Information Technology Report (2009) the characteristics of ICT companies are following:

- knowledge centrality;
- products are complicated and with high development rate;
- high importance of human factor;
- decentralized organization, home offices and process oriented teams;
- learning organizations;
- cooperation with universities and public research organizations;
- high internationalization rate, “think global, act local mentality”.

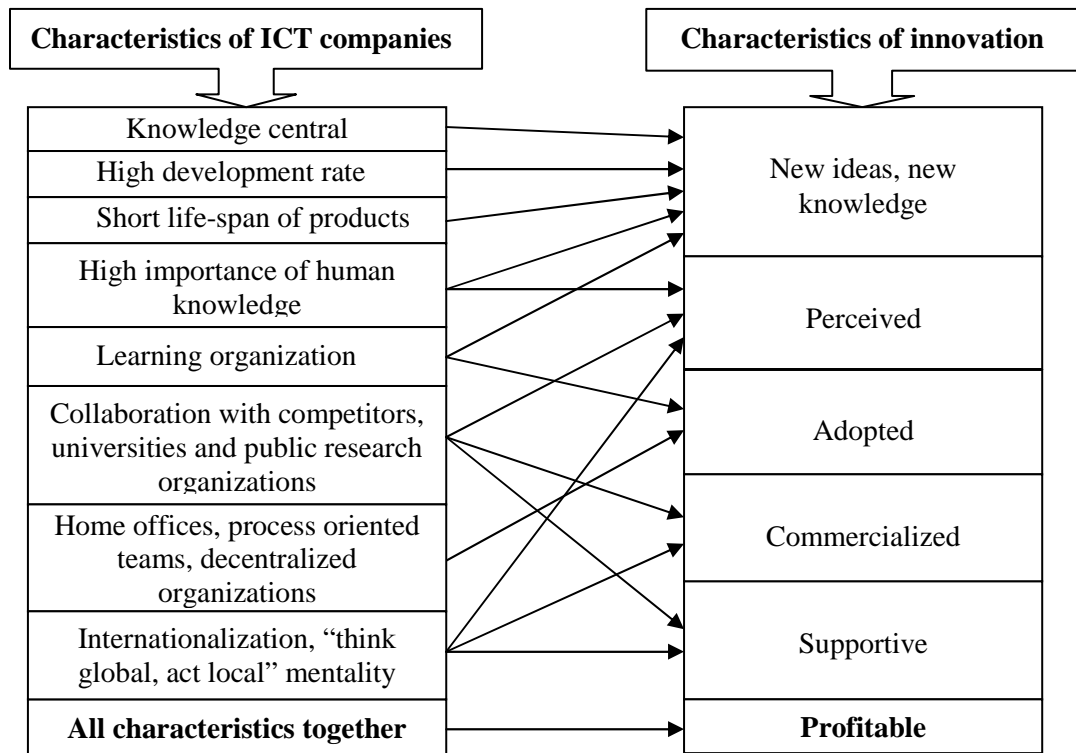
Bullinger *et al* (2000) open up the particularity of ICT companies, originating from several aspects. First of all, ICT companies are very knowledge central, including experience-based knowledge in the form of know-what, know-how as the ability to apply technical rules to complex problems, and know-why as an understanding of the system interactions. Second, ICT products are complicated and with high development rate, which means that time plays a significant role in ICT product’s success. Their life span is short and the value of the product depends on knowledge input rather than on work. This brings up the third aspect – high importance of human factor in ICT company’s capital, especially in software developing companies, where workers carry the most important production material around with them – their knowledge.

The fourth aspect is the size of an ICT company, which is actually not important. Instead, more competitive are those who are fast enough in launching new products, which means constant product development. This in turn leads to the fifth aspect of ICT companies, namely, how people work and how companies are managed. ICT companies are usually decentralized; hierarchical departmental structures are often replaced by process-oriented teams with great deal of autonomy. Workplace is often not important and work can be done even at home or where an occurring problem needs to be solved.

These organizational characteristics are the foundation for creating organizations that are capable of learning and that can react quickly and flexibly to changing circumstances. (Bullinger *et al* 2000)

Another group of important factors concerning ICT companies originate from the ICT industry. According to The Global Information Technology Report (2009: 105), the ICT sector is one of the most collaborative sectors after the energy and chemical industries. This includes collaboration for innovation (for example with customers, suppliers, also competitors), cooperating with universities and public research organizations. An important characteristic of ICT companies is also the internationalization rate, which is higher than in many other industries. “Think global, act local” is often the mentality of ICT companies who offer products for a global market that can be modified for the local markets (Bullinger *et al* 2000:1479). This means individualization in mass production and concentrating on customer needs – the products are with identical basic features but with options implemented easily. Most important factors are the product management, marketing and sales teams that act according to local conditions, considering the unique culture of the customer base.

All these previously analyzed characteristics of ICT companies are often a matter of innovation and are necessary prerequisites for innovation to evolve in the first place; and this makes the transfer of the definitions and types of innovation to the context of ICT companies very logical. As seen from the figure 4 most of the important characteristics of innovation are covered by the characteristics of ICT companies. ICT companies that differ significantly from these typical aspects should pay more attention how to achieve the basic characteristics for innovation reasons, because the ICT-related innovations are coming onto market at an ever-increasing pace.



**Figure 4.** The characteristics of ICT companies as prerequisites of innovation (compiled by the author, based on Van de Ven 1986, Damanpour 1991, Henard and McFadyen 2005, Bullinger *et al* 2000, The Global... 2008).

The figure 4 gives an overview of the cause-and-effect correlation between characteristics of ICT companies and innovation. Knowledge centrality, high development rate, short life-span of products, high importance of human knowledge, learning organization, they all serve one purpose – to create new ideas and new knowledge. Next the perception levels could be recognized, where high importance of human factor refers that most probably the first ones, who perceive new ideas and knowledge being new are employees, who themselves work on these aspects. Collaboration with competitors, universities and public research organizations helps to bring new ideas from organization to the local market, and “think global, act local” mentality increases the possibility of global attention to occur. Successful innovation implementation and adoption need devoted employees and therefore decentralized organizations, process oriented teams and home offices could be the necessary conditions for innovation to succeed. Also, if an organization practices learning, it is

definitely more open for implementing new things within the organization and more willing to adopt innovation.

The collaboration with universities and public research organization could give new knowledge about business models of commercialization or it could be easier to commercialize innovation through collaboration with competitors/partners. Even if not in longer time-scale, but in short time-scale innovation definitely gives an organization a competitive advantage and helps to cope with organization's external environment. Therefore, the mentality "think global, act local" definitely sets some positive frames for an organization to see threats and opportunities in its external environment and at the same time collaboration with universities and public research organizations could give knowledge how to use these opportunities or how to avoid these threats. Eventually, the above-mentioned characteristics of ICT organizations give them a good chance for innovation to be profitable; otherwise it should be called just a change that was a failure. According to the connections brought out in the figure 4, the author seeks approval also in the empirical part that these connections could be drawn and it is also a matter of validity that the companies chosen for the case studies possess the characteristics of ICT companies.

In conclusion, the present chapter brought out several important aspects about innovation in general, types of innovation and characteristics of ICT companies in the context of innovation. First of all, when talking about innovation, it is important to recognize the necessary features it possesses. It should be obvious for now, that speaking about new ideas or new knowledge only does not mean innovation in its nature, but these new ideas/knowledge have to be perceived as new on the organizational, local or/and global level. They have to be adopted and implemented throughout an organization, then a business model for innovation commercialization needs to be settled and if all this is happening in accordance with the organization's external environment, the results are most likely to be positive and the change can be called innovation.

Secondly, when analyzing different innovation types, it may give much more information about the nature of innovation when product, process, marketing and organizational innovations are combined with radical, incremental, modular and



architectural innovation. The intention of the author of the present thesis is also to get the results in the empirical part by using this combination. Special attention is on marketing and organizational innovation as they are the least investigated types and the present thesis could contribute to the understanding of these types more clearly.

Thirdly, as the present thesis concentrates on ICT organizations, it is also necessary to recognize their characteristics by putting them into the context of innovation. The previous analysis showed that ICT organizations have good prerequisites for innovation to emerge.

## **1.2. The nature of strategic decisions and the influencing factors of strategic decision making**

### **1.2.1. Strategic decision making process**

The focus in the present chapter is on the essence of strategic decisions and what influences the strategic decision making process. When reading the literature about strategic decisions, the impression is rather confusing due to the large diversity of approaches and interpretations of strategic decision theory. There is no comprehensive theory that could take all the important aspects of different approaches together and could serve as the bases for research on strategic decisions. Therefore, the most reasonable way seen by the author of the present thesis was to open the essence of strategic decisions first, by bringing out their differences from operational and tactical decisions; secondly, determining the position of strategic decisions in strategic management process and explaining the process of strategic decision making; and thirdly, there will be a closer look into the organization's internal and external environment, managerial expectations and behavior as these are the factors that influence strategic decision making.

There are several opportunities to define the nature of strategic decisions, while the author of the present thesis uses the approach of differentiating between strategic and operational decisions. A strategic decision is one that externally repositions an organization (or a business unit) in some way. An operational decision, in contrast, is one that takes as given the desired position in the industry and then develops the means

by which that position can be achieved. (Kenny 2005) Figuratively speaking, strategic decisions have to assure that an organization is doing right things (what), and operational decisions have to assure that these things are done right (how). Compared to operational decisions strategic decisions are “more rare, have larger implications for the ongoing competitiveness of the organization, impact more subsequent decisions, and are more difficult to reverse” (Fleisher and Bensoussan 2003: 4, Blythe and Zimmerman 2004: 370). It is important to distinguish between strategic and operational decisions to form a clear strategy and effective operations as the success factors of an organization. The relationship of strategy and operations has to be in accordance (see the figure 5).

		Operations	
		Effective	Ineffective
S t r a t e g y	How C l e a r	Past and future success of an organization	May work in short run, but increasing competition makes success doubtful in the future
	U n c l e a r	Success in short run, but doubtful in the future	Failure in the past and in the future of an organization

**Figure 5.** Strategy and operations in the dimensions of effectiveness and clearness (Tregoe and Zimmerman 1979: 11 with the author’s supplements).

The figure 5 illustrates that clear strategy and effective operations are necessary for the ongoing success of an organization, otherwise it fails. If the strategy is clear but operations are ineffective, the result is uncertain – the success of an organization depends largely on its ability to predict and cope with the external forces such as the economy and competition. Similarly, if operations are effective but the strategy is unclear, the organization may develop effectively for some time, but the question is how long? Sagie *et al* (1995) also talk about tactical decisions as one type of change decisions. They define strategic decisions as the question of if the present situation

should be changed and tactical decisions as the questions of what and how to change, of who should make the change, and so forth. Hence, tactical decisions are basically like operational decisions but the difference is in the situation – operational decisions are continued whereas tactical decisions are concerned with the particular change.

For more clear specification of strategic decisions it is reasonable to bring out the types of strategic decisions that could be made in an organization. It is important to recognize that the types of decisions that are clearly strategic in one industry may be less so in another (Hickson *et al* 1986). The types given by Dean and Sharfman (1996: 380), who in their research analyzed the strategic decisions of 24 companies from 16 different industries and who got similar types to Mintzberg *et al* (1976) and Hickson *et al* (1986), are as follows:

- 1) Restructuring – shutting down part of business or closing a facility, allegation of different facilities;
- 2) New product – adopting new manufacturing product;
- 3) Organizational change – creating a new structure, reorganizing around customers;
- 4) New process technology – adopting new equipment, advanced information systems;
- 5) Marketing strategy – emphasizing new market segment, establishing a brand or private-label;
- 6) Geographic expansion – selling products to foreign markets, opening new facilities within a country or abroad;
- 7) Diversification – moving into different purview, broadening assortment;
- 8) New facility – constructing a new plant, merger with a different company;
- 9) Human resource strategy – adopting new compensation systems, worker involvement programs;
- 10) Quality improvement – developing total quality effort.

The intention in the present thesis is to find out which of these decision types mainly explain the processes in ICT companies. Proceeding from their characteristics, it could be assumed that the central decision making includes new products and process technology, organizational change, human resource strategy, marketing strategy,

geographic expansion and new facility, while restructuring, diversification and quality improvement are the decisions associating supporting processes in ICT companies. The author will consider this assumption in the empirical part, while clarifying strategic decisions made in Estonian ICT companies.

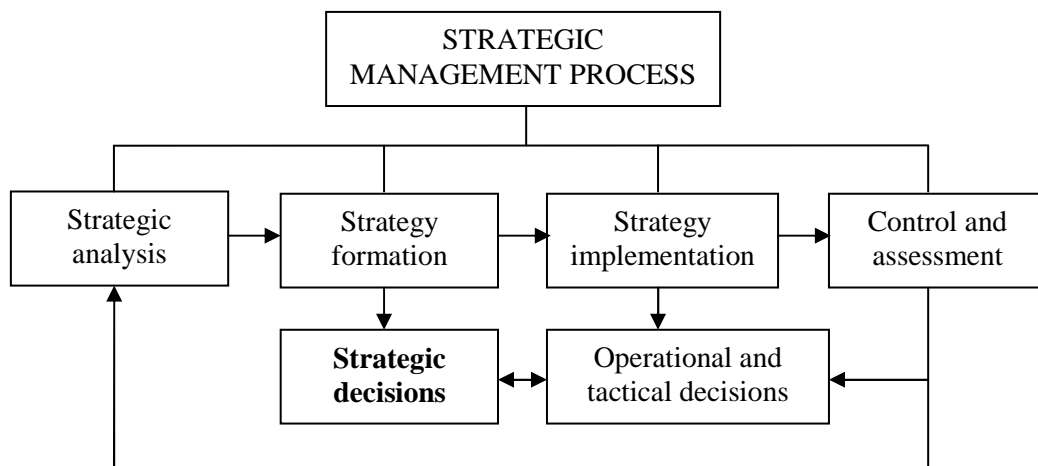
*Proposition 1: Primary strategic decisions in ICT companies include new product, new process technology, organizational change, marketing strategy, geographic expansion, new facility and human resource strategy, while secondary strategic decisions include restructuring, diversification and quality improvement.*

What also needs to be clarified is the position of strategic decisions in strategic management process (SMP). The SMP can be defined as the process of developing strategy (Price and Newson 2003: 184), which includes strategic analysis, strategy formation and implementation, and assessment of strategy implementation. Strategic analysis should give an overview of organization's current strategic position by analyzing three aspects:

1. External environment – assessment of the nature of the environment through industry analysis, market analysis, competitor analysis and identifications of key opportunities and threats offered and posed by the environment;
2. Internal environment – assessment of organization's strategic capability, strengths, and weaknesses through the analysis of current results, identification of core competencies, and value chain analysis;
3. Internal vs external environment – identifying the extent to which an organization's current strategy is capable of dealing with changes in the external environment.

After analyzing these three aspects the strategy should be formulated and implemented by the organization. Strategy formation involves the determination and evaluation of strategic options and the choice of future courses of action, and it should give the direction and scope of an organization over a longer time period (Johnson and Scholes 2002: 10). But all this is worthless, if the strategy implementation by the organization fails. Therefore, it is very important to bring organizational features into accordance with the formatted strategy, which includes changes in organizational structure and design, resource planning and the management of strategic change (Price and Newson

2003: 185). Strategic management process should also include control over the strategy implementation and assessment of how well the implementation meets the goals previously raised. Hence, strategic decision making concerns the issues of strategy formation, both operational and tactical decisions concern the issues of strategy implementation and also actions that should take place after the assessment of strategy implementation. The figure 6 gives an overview how the strategic management process evolves and where the strategic decisions are situated.

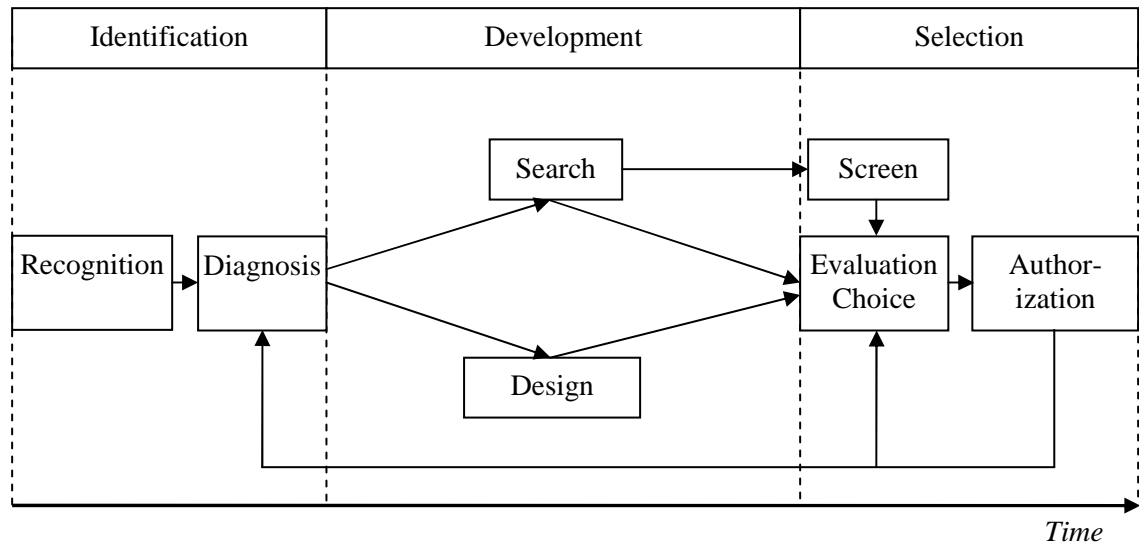


**Figure 6.** The position of strategic decisions in strategic management process (compiled by the author, based on Price and Newson 2003).

As seen from the figure 6, the simplified explanation would be that strategic decisions are the result of strategy formation and operational and tactical decisions are the result of strategy implementation and control and assessment activities. The figure 6 also emphasizes that operational and tactical decisions should be in accordance with strategic decisions. However, in the present thesis the focus is on strategic decisions and therefore operational and tactical activities are left for future research. Although the focus in the present thesis is on strategic decisions, a compendious overview of strategic decision-making process (SDMP) could give better understanding about the sources of different factors that influence strategic decision-making.

Mintzberg *et al* (1976: 246) define the SDMP as “a set of actions and dynamic factors that begins with the identification of stimulus for action and ends with the specific commitment to action.” The literature on this topic usually identifies three basic phases

of SDMP (Mintzberg *et al* 1976, DIO International... 1983, Dean and Sharfman 1996, Papadakis and Barwise 2002) identification, development and selection phase (see the figure 7).

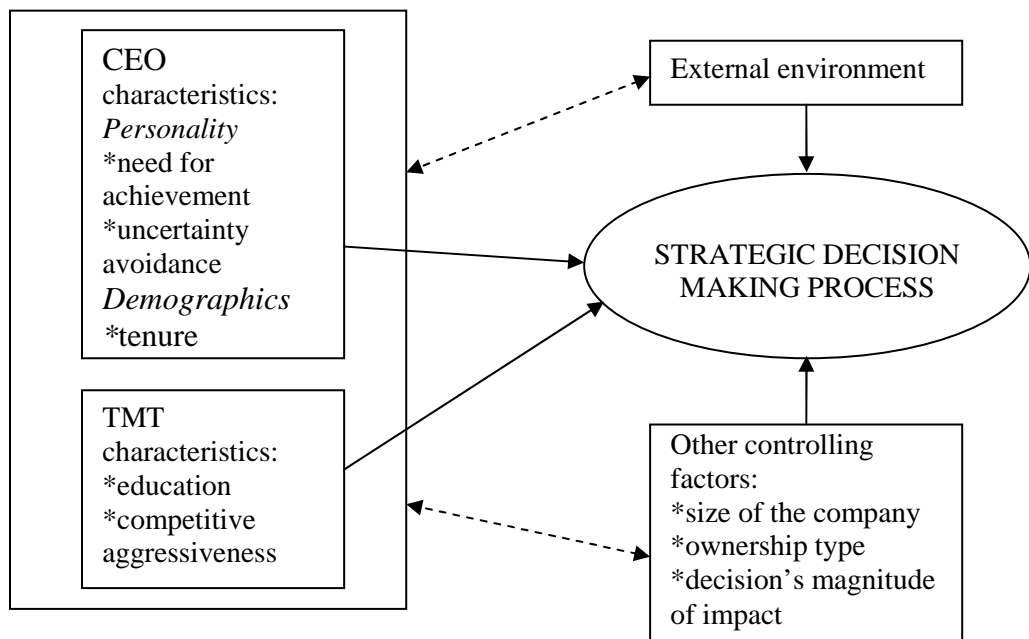


**Figure 7.** Model of decision making process (based on Mintzberg *et al* 1976: 266, with the author’s supplements).

If the organization’s actual situation differs from a desired one, the necessity for observation of this discrepancy emerges, because there might be a satisfactory solution that takes the organization to the desired goal. ‘Recognizing’ the problem situation is usually the first step in the SDMP and it is followed by a ‘diagnosis’ of the problem, which should begin with an exploration of the usual information channels within the organization. These two activities are integrated in the *identification phase* of the SDMP. As seen from the figure 7, the *developmental phase* takes most of the time, consisting of two basic processes; ‘search’ from already existing solutions and ‘designing’ new solutions or adapting existing alternatives. The *selection phase* includes ‘screening’, the purpose of which is to pick up the best alternatives if a large number of options are available; ‘evaluation/choice’ step should consist the evaluation of the most suitable alternatives and then in the end, choosing the most satisfactory one; and ‘authorization’ is the final step in the SDMP including official endorsement of the decision, which usually takes place at the top of the organization (DIO International... 1983: 4). This was a brief overview of the SDMP process, which is also supported by the parallel processes such as decision-making control, communication and political

processes (Mintzberg *et al* 1976: 260-263). But as the purpose in the present chapter is to find out what influences strategic decision-making, there is no need to get into the essence of the SDMP and therefore the concentration in the next section is on influencing factors.

Most of the literature emanates from similar aspects when categorizing the influencing factors of the SDMP. Schneider and De Meyer (1991) categorize factors which are expected to influence strategic decision making as follows: 1) managers' individual characteristics and group dynamics, 2) internal organizational context, and 3) environmental factors. In addition to context, also the role and significance of the nature of the decision problem should be considered. Papadakis and Barwise (2002) discuss in their research about the influence of top management on the SDM process and they present an integrative model shown on the figure 8.



**Figure 8.** An integrative model of top management influence on the SDM process (*ibid*: 86, with the author's simplifications).

Note: CEO – chief executive officer; TMT – top management team.

The figure 8 gives a good overview of the factors influencing the SDM process but what is missing from Papadakis and Barwise model is considered in the present thesis and that is the influence of the organization's internal environment on the SDMP. The

organization's external environment and other controlling factors are also considered, but the present thesis does not give a closer insight to the top management characteristics, because they are not seen important in the context of the present thesis. Only uncertainty avoidance is considered as it is closely linked to organization's external environment.

Thus, the following section concentrates on these three aspects, giving the basic understanding of under which circumstances an organization starts to form its strategy. This is especially crucial because strategic decisions involve the future of the whole organization and they cannot be made in routine manner, because they relate the organization to its environment (Cooke and Slack 1991). Table 4 gives the questions that strategic decisions should answer concerning both internal and external environment.

**Table 4.** Strategic questions in the context of organizational environment.

<b>Environment</b>	<b>Keyword</b>	<b>Strategic question</b>
External	Scope	Where is the organization going to operate (geographical markets, product/service, value chain etc)?
	Compliance	How do the organization and its activities fit to its environment?
Internal	Capabilities	To what extent can an organization match the activities to its resource capabilities?
	Change	What kind of changes need to be done throughout the organization?
	Resources	How to optimize resources (by allocation and reallocation)?
	Decision maker	What values, expectations, and goals do the decision makers have?
Internal/External	Vision	Where is the organization directing to in a long run?

Source: Compiled by the author, based on Fleisher and Bensoussan (2003).

Resulting from these questions, there are mainly two groups of issues an organization should deal with when making strategic decisions: external environment and the organization's resources and capabilities (internal environment). Both external and internal environment affect decision making and therefore, strategy formation, based on the analysis of organization's external and internal environment, is essential and has to be made carefully. Carefully means here that the primary factors that come into play are always complex and always industry- and company-specific. As Damanpour (1991)



denoted, innovation is a response to changes in its internal and/or external environment, and thus, the source of innovation comes from both environments of an organization.

### **1.2.2. Organizational environment as the influence of strategic decisions**

When analyzing the influencing factors of strategic decision making, it is obvious that we need to consider the organization's external environment as a major factor for strategic decisions to emerge and lead the organization to innovation. Therefore, it is important to open the essence of external environment and the author brings out two basic concepts that help to determine external environment. One way is to distinguish between task and institutional environment depending on how organizations establish environmental relationships and what outcomes are predicted to result from these relationships (Oliver 1997). The task environment relationships emerge from the economic rationality of organizations to obtain resources in order to acquire organizational heterogeneity and, therefore sustainable competitive advantage (Dess and Beard 1984: 53-54). Primary examples of strategic resources are buyer-supplier relationships, financial capital, technological know-how, labor force and reputation (Phua 2005: 47). From the institutional environment perspective, the context in which decisions are made is affected by pressures of organizations to seek social conformity and compliance with rules, regulations and norms (Meyer and Rowan 1977: 342). This, in turn, limits the extent to which organizations are free to perform their core tasks.

Oliver (1997) in her research argues that task environment relations are more significant to the organization's success than institutional relations. Much more depends on who controls the critical factors of economic production for the industry. The quality of relations with regulatory authorities, institutional inspectors, state agents etc does not influence the organization's profitability and productivity that much. But when talking about an IT organization, one should consider its characteristics in the context of both, task and institutional environment. The characteristics like high development rate, short life-span of products, or "think global, act local" mentality refer to the importance of task environment, as for an IT organization that develops for example new products, access to financial capital, technological know-how and labor force is essential, even critical. On the other hand, the high rate of collaboration with universities and public research organizations may refer to the fact that an organization seeks for social

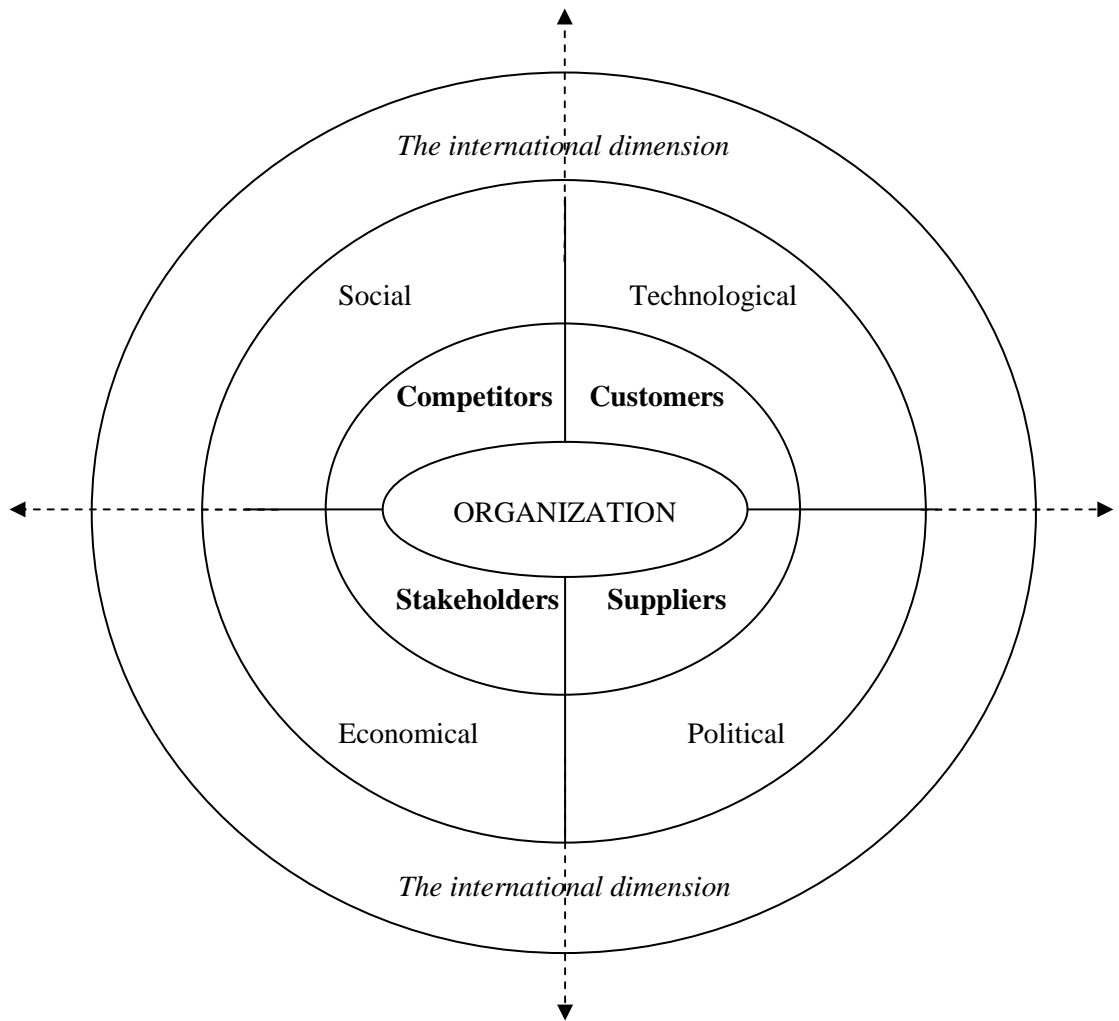
conformity: in order to maintain good relations with a public institution it is important to follow rules, regulations and norms similarly to public institutions. Therefore one should not underestimate the role of institutional environment, but take it as a decisive context when making strategic decisions.

The second approach is given by Duncan (1972: 314), who defines external environment “as the environment that consists of those relevant physical and social factors outside the boundaries of the organization or specific decision unit that are taken directly into consideration”. This is the basic idea of the second concept where external environment is determined through two dimensions – *simple-complex* and *state-dynamic* (Terreberry 1968, Duncan 1972). The complexity of environment could be measured in terms of the factors that exist in environment and influence different subjects involved. If the complexity is low (i.e. simple environment), there are few factors, which are rather similar to one another in the decision making process. In case of complex environment the factors in the decision unit’s environment are large in number. The state-dynamic dimension indicates the degree to which the factors of the decision unit’s environment remain basically the same over time or are in a continual process of change (Duncan 1972: 315-316).

According to Duncan, the external environment of an IT organization is first of all *complex*, because there are many factors that influence an organization, and second, it is *dynamic*, because these influencing factors change rapidly in time. Price (1997: 375) determines more clearly the dimensions of complexity and dynamics. He defines the first one as the number of social units (e.g. competitors, regulations for competition, consumers, distributors etc) that regularly have contact with the organization and the second one as the speed and range in which these units are changing. According to Cole (1994: 34-38) the main external influences on an organization are existing/potential customers, the industry, current/potential competitors, labor markets, suppliers, technology, supra-national bodies, private individuals, government and the law, pressure groups.

Although, the number of these factors is high for an ICT organization, it is clear that not all elements in the environment have direct impact on the organization. According to the characteristics of an ICT organization, the strategic decision making has to be quick but

effective at the same time. The theoretical need for careful and complete environmental analysis is quite hard to achieve for an ICT organization because of the time pressure. So the main issue for a decision maker is to obtain an intuitive ability to distinguish between direct and indirect influencing factors (see the figure 9).



**Figure 9.** Direct/indirect action environment model (Stoner and Freeman 1989, with the author’s supplements).

The figure 9 illustrates how stakeholders, competitors, clients and suppliers as the key-role players in the industry are having direct influence on organizational decisions and activities. The industry, in turn, is influenced by social, technological, political and economic variables of macro-environment, which itself may be influenced by international factors. The more far from the centre (organization), the more indirect the

influence of these factors is on organization's strategic decisions, and the more difficult it is for a decision maker to predict how changes in indirect spheres may influence organization. Therefore, besides environmental complexity and dynamics the decision maker has to deal with *uncertainty* as the trait of the environment resulting from these two powerful forces (Hatch 1997: 88). Three most common definitions of environment's uncertainty that researchers use are (Milliken 1987: 134):

- inability to assign the possibility of future events,
- lack of information about cause-effect relationships,
- inability to predict accurately what the outcomes of the strategic decisions might be.

All these definitions about environment's uncertainty come to one point that in the end coping with external environment depends on how the decision maker perceives different influencing factors. Strategic decisions are commonly referred to as those, which adjust the organization to meet the opportunities and threats posed by the environment. But as Child (1972) has argued, decision makers consider these environmental factors important that they perceive as important and perception is a function of contextual factors (Pfeffer *et al* 1976: 229) and individual psychological traits (Downley *et al* 1975: 614).

Also Walker (2007) considers the psychological factor that influences strategic decision making and causes distortions in judgment. So the actual environmental conditions may play fewer roles in strategic decision making than perceived conditions. This may also be a reason why some organizations fail in their performance or why some succeed – the same objective environment may appear different to different organizations because they perceive the environmental influences and uncertainty differently. A wide range of “perceived environments” may be tolerable for lengthy periods in many real circumstances (Miles *et al* 1974: 249). But perceptions, which ignore or distort crucial environmental elements in long run, will ultimately victimize the organization. Take the example of the current economical situation in Estonia that has emerged largely because of too optimistic predictions about the future, leaving aside actual environmental factors that already two or three years ago revealed no reason for such optimism (too many

loans taken by individuals, too much consumption, too high salaries comparing to productivity etc).

Coming back to the concept of organizational environment, according to Trott (2002: 92-93) the new approach is that both internal and external environments are seen as dynamic. While external environment is constantly changing as different factors change, an organization's internal environment is also evolving. Internal environment includes organization's goals and values, resources and capabilities, and structure and systems (Fleisher and Bensoussan 2003: 3). An organization's systems are usually divided into subsystems: sales, production, and research and development (Lawrence and Lorsch 1967: 5), and each subsystem have their resources and capabilities. An organization is driven by the goals and values, which are supported by the organization's structure, systems and resources. In the present thesis the author concentrates on resources and capabilities that are, according to task environment perspective, essential for ICT companies.

Very often the terms "resources", "capabilities" and "competences" are handled as synonyms. But Ray and Ramakrishnan (2006) argue that this is one of the major shortcomings why, for example, the conceptual development of Resource Based View gets stuck. Hereby the definition of each term is brought out as given by Ray and Ramakrishna (*ibid*):

- Resources – tangible and intangible assets of an organization which are used to achieve the organization's objectives;
- Competence – combination of firm-specific resources, each resource being under the state of sufficiency, towards achieving specific organizational objectives;
- Capability – complex combination of appropriate set of competences towards achieving specific organizational objectives.

Thus, capabilities subsume competences and resources. Teece *et al* (1997: 515) go further and introduce the concept of *dynamic capabilities* where the term "dynamic" refers to the "capacity of the organization to renew competences to be in line with the changing business environment". The term "capabilities" in their definition deals with

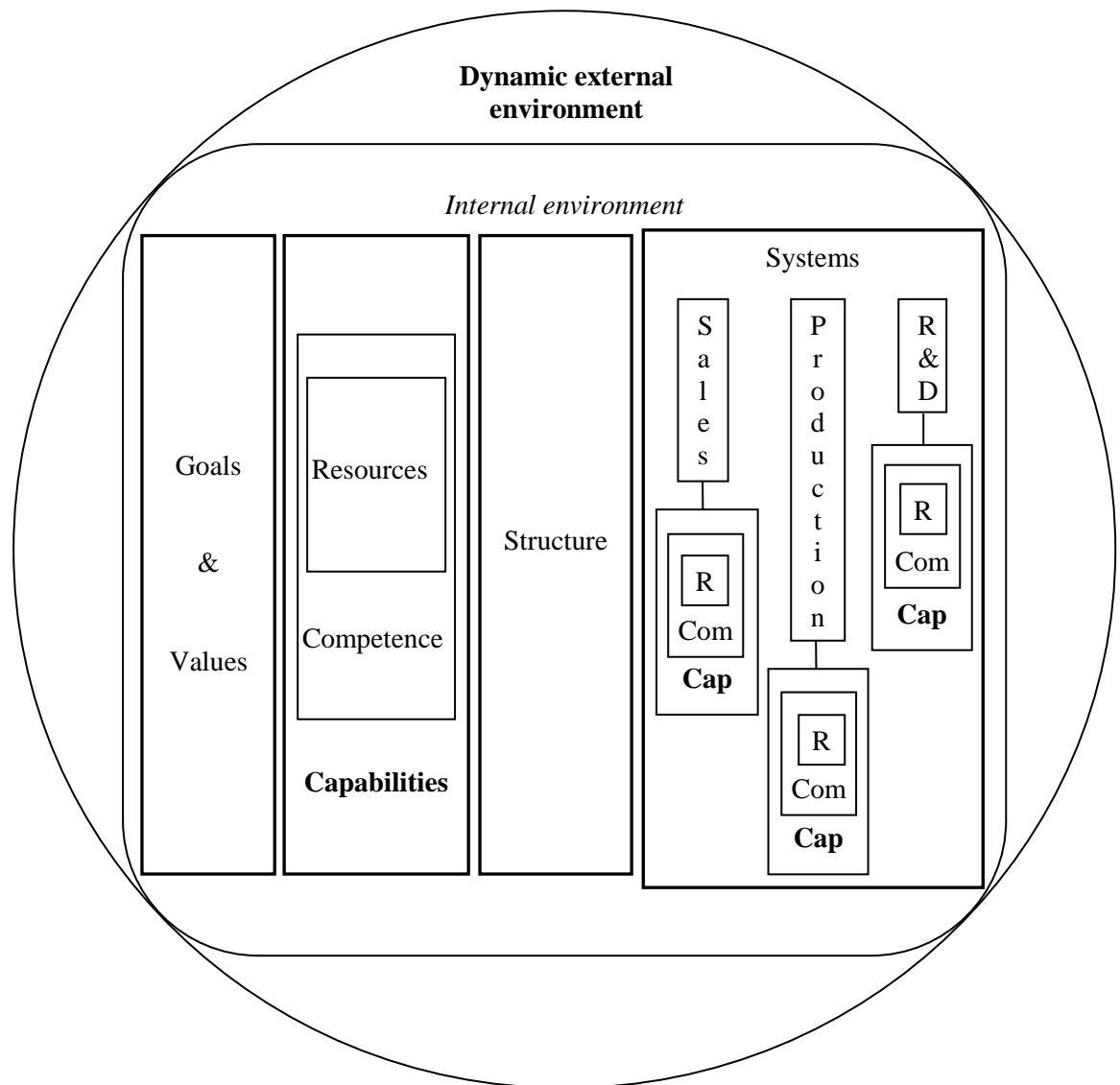
the adaptation, integration and reconfiguration of internal and external organizational skills, resources, and functional competences to match the requirements of the changing environment.

ICT companies are substantially influenced by the fast evolving external environment, where technological changes occur practically every day. In terms of strategic decisions it is very important to constantly evaluate events occurring in this environment and to develop the ability to anticipate these events in time. The importance of external environment in strategic decision making is also supported by the Environmental School, which claims that external environment is the central figure in strategy formulation (Shekhar 2009: 50). However, speaking about an ICT company, coping with the changes in its external environment is only one important aspect; at the same time being successful in the ICT sector also requires constant improvements in organizational capabilities. Therefore, the approach of dynamic capabilities suits best into the context of ICT companies and it could be assumed that there is a continuous interaction between organizational capabilities and external environment.

The author of the present thesis presumes that the sustainability of an ICT company depends significantly on, whether the company considers both, external environment and organizational capabilities, when making strategic decisions. Leaving one or the other aside, could entail decisions that have not considered all possible influences and in turn, bring along unwanted consequences for a company.

*Proposition 2: ICT companies that make strategic decisions in the context of dynamic capabilities are more sustainable in their development than companies that make decisions either in the context of external environment or organizational capabilities only.*

The figure 10 takes together the idea of the organization's internal environment given by Fleisher and Bensoussan (2003: 3) and Lawrence and Lorsch (1967: 5), and the position of capabilities in it. The idea is placed into the context of changing business environment, expressed as dynamic external environment in the figure 10.



**Figure 10.** The position of organizational resources (R), competencies (Com) and capabilities (Cap) in organization’s internal environment (compiled by the author, based on Fleisher and Bensoussan 2003, and Lawrence and Lorsch 1967).

Trying to capture the major factors that influence strategic decision making, the author analyzed the role of organization’s external environment, capabilities and top management’s perceptions in the context of the SDM. The last one is considered as a background factor and therefore the following sections do not include it. This stems from the previous analysis that explained the role of top management’s perceptions about the organization’s external environment as the matter of uncertainty avoidance.

The purpose of the present thesis serves the interest about what kind of factors from external environment and what kind of organizational capabilities influence strategic decision making that finally results in concrete decisions. The next step is to find out if all this results in some type of innovation, and this is under discussion in the following chapter.

### **1.3. Important aspects of strategic decisions to result in innovation**

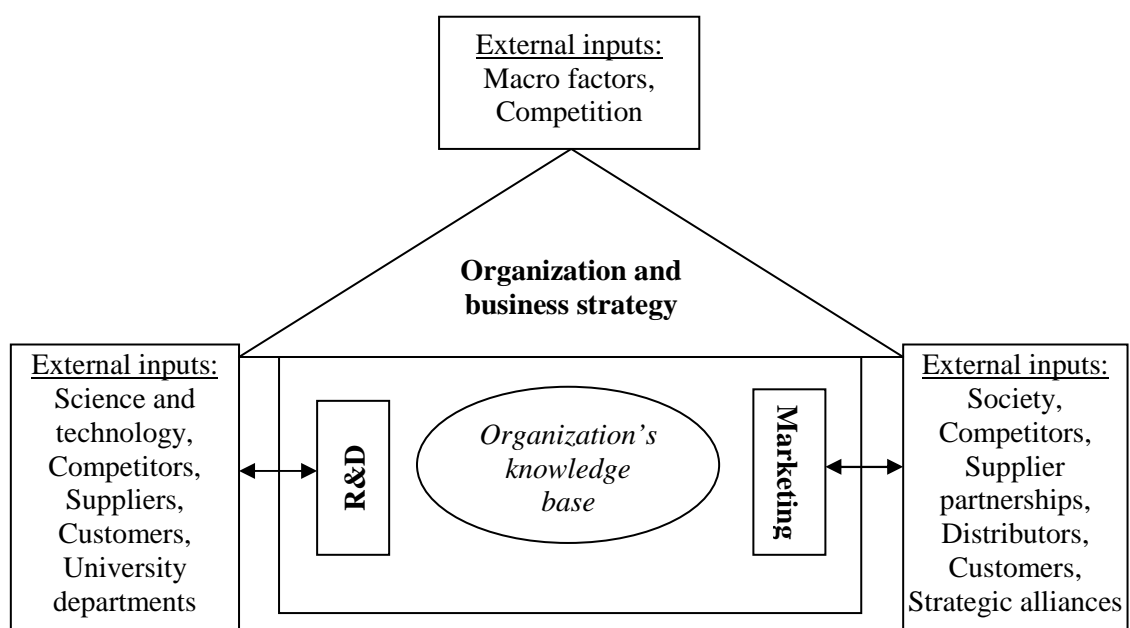
In order to open the purpose of the thesis, the present chapter composes a conceptual model of innovation, strategic decisions and its influencing factors of organization's external environment and capabilities. To find the linkage between strategic decisions and innovation there will be a closer look, first, to strategic innovation process; and second, to the sources of innovation.

Innovation and strategic decisions as two aspects of one issue are mostly presented in the literature by the concept of strategic innovation process (SIP) which lies in the systematic process for strategy formulation and implementation that should result in profits from innovation (Afuah 2003). A number of authors have attempted to get a handle on the strategic management process and its impact on innovation decisions. The theory of the SIP mainly suggests how to improve strategic management to result in innovation or how to understand the sources of innovation (Von Hippel 1988). It has always been assumed that there is some causal linkage between strategy and innovation, but it has been hard to document. In addition, several studies suggest that perceived environmental uncertainty might also be implicated in this causal chain (Watson 1990, Hrebiniak and Snow 1980). It is argued that uncertainty stimulates a change in strategy or policy, and that ultimately leads to innovation (Ettlie 1983). But there are many other aspects that emerge from external environment and cause changes in strategy as shown in previous chapter 1.2.; uncertainty is only one of them. It is important to notice that the interest is not to open the whole strategic management process in the context of the present chapter, but only a part of it, strategic decision making is considered.

One of the most important aspects when talking about innovation is its profitability and successfulness and therefore, in the present approach strategic decisions have to assure



that innovation results in growing profits, productivity or in a positive change of other organizational aspects. Trott (2002: 21) brings out the main factors which need to be considered if innovation is to be successful. He emphasizes that the organization's inner functions (three basic: research and development (R&D), marketing, and organization and business strategy) have to interact with those functions in external environment. The figure 11 illustrates these interactions between the organization's functions and external environment, and the organization's knowledge as an outcome from these interactions.



**Figure 11.** Interactions between the organization's inner functions and external environment (*ibid*, with the author's modifications).

First, the interaction to share knowledge between the R&D function and its possible external inputs could emerge, for example, through the cooperation between companies and universities. The scientists from universities can attend real practice and develop new practical knowledge and technologies through these companies, and the companies benefit by gaining know-how and competitive advantages.

Secondly, marketing function interacts with its external inputs by developing relationships with customers, suppliers, distributors, and competitors. Relationship

marketing, meaning, for example, activities of understanding customer needs, is inevitable for the organizations' sustainability. Morgan and Hunt (1994: 22) define relationship marketing as "all marketing activities directed toward establishing, developing, and maintaining successful relational exchange". This function also provides organizations with new knowledge, which, combined with the organization's research and development function, can boost real breakthrough innovations.

The third and the main function is strategic management as it also affects the essence and effectiveness of marketing and the R&D functions, and in turn, their interactions with external inputs depend greatly on the strategic decisions made. It is important what activities top management applies concerning the organization's external environment; how well they communicate with other organizations and institutions, such as government departments, suppliers and customers. This is also supported by Hill (1990) who denotes that an organization needs the resources traded in different markets (capital, human resources, buyers, suppliers, etc) for its long run survival. Therefore, those organizations that have a reputation for being cooperative will have a better chance of survival than those that have tried to exploit others.

All these information flows between the organization's inner functions and external inputs contribute to the quality of knowledge held by the organization, which has to, first of all, recognize this, capture and then finally be able to utilize it to develop successful product, process, marketing and/or organizational innovations. But all in all, it presumes the existence of a difficult management process of innovation. (Trott 2002: 21)

In the previous chapter the author brought out the main aspects where strategic decisions are made: restructuring, new product, organizational change, new process technology, marketing strategy, geographic expansion, diversification, new facility, human resource strategy, and quality. The question is whether decisions made in these fields result in innovation and whether it is then episodic or conscious. In the author's opinion the strategic decisions could be handled from the perspective of the sources of innovation, but the problem with the literature in that field is that most authors observe product and/or process innovation when talking about the sources, but very little if any attention is paid on marketing and organizational innovation. Therefore the following

approaches brought out are concerning products and/or processes and the author places also marketing and organizational innovation into these. This will give several theoretical presumptions to be explained in the empirical part of the thesis.

The main approach to the sources of innovation is the technology-driven vs need-driven model. The first one is the model where new ideas are developed in the R&D department, sent to engineering and manufacturing to produce the innovation, and then on to marketing for sales and distribution to customer (Galbraith 1982), and this is also called “technology-push” view (Onodera 2008). The second design is the customer or need-driven model, where marketing comes up with new ideas as a result of close interactions with customers, which in turn are sent to the R&D to prototype development and then to engineering and manufacturing for production (Van de Ven 1986), and this is also called “demand-pull” view (Onodera 2008).

Besides the new product processes may also change and bring up new solutions in production technology which usually occurs, and that is also the reason why product and process innovation are very often handled together. Etlie (1983) follows the role of external environment using Duncan’s (1972: 315) approach to organizational environment and argues that the primary environmental factors (customers, suppliers, competitors) for the organization impact long range technology policy and the outcome may be process innovation, whereas secondary environmental factors (socio-political and technological factors) impact market policies and may result in new product introduction.

Also, it is quite logical to conclude that the production or delivery process of the new product or service may also need adjustments in the organization and if they are perceived as new by the members of the organization and are important for the success of the new product, the changes could be called organizational innovation. Or if the commercialization of the new product needs a totally new way of marketing, it may also result in marketing innovation.

*Proposition 3: Primary environmental factors impact strategic decisions that result in process and/or organizational innovation, while secondary environmental factors impact strategic decisions resulting in product and/or marketing innovation.*

The technology-push and demand-pull view is quite similar to the approach of Utterback and Abernathy (1975, in Mauri and McMillan 1999) who state that product innovations have a market focus and are primarily customer driven, while process innovations have an internal focus and are primarily efficiency driven. One could also draw a parallel here and say the same thing respectively about marketing and organizational innovation. Hill and Utterback (1980: 15) put this statement in time frame and emphasize that if an organization wants to be innovative over an extended time, it must become more specialized and efficient, which drives them toward a more stable production process and a more structured organization. They also denote that in the beginning the organization is small, disorganized but highly innovative, and the evolution starts with one or more major product innovations. Here the stimulation comes from the close interaction between entrepreneurs and potential users, and when the production volume rises, it may lead to the need for innovation in the production process. But the ongoing development should subsume both products and processes, which again proves that in the end they become closely interdependent as a line of business develops.

Both of the previous two approaches indicate that the strategic decisions made could be divided into two: proactive and reactive. According to Larson *et al* (1986: 386) a proactive strategic decision is one which the strategists do before they are forced to react to environmental threats or opportunities, while the opposite would be the case of reactive decision making. According to the technology-push view the decisions concern proactive attitude towards the industry (e.g market, customers, competitors, suppliers etc), which means that the solutions and results are introduced to the industry by the organization not vice versa. It is also more likely that proactive strategic decisions result in conscious innovation as the new ideas are developed within the organization. Inversely, the demand-pull view indicates that the decisions are reactive in their nature and they are introduced to the industry after coping with the market. These strategic decisions most probably result in episodic innovation as the source to new ideas is close interaction with customers.

But the author of the present thesis believes that conscious innovation management depends on the company's level of development rather than on whether a company's

decisions are proactive or reactive. The bigger the company grows in time, the more it needs to improve its management, which includes searching for new ways how to perform better. Hence, conscious innovation might be one of these new approaches in management. Therefore, the idea behind the following proposition 4 is to understand, at which point of the development Estonian ICT companies started to consider innovation as a strategic matter.

*Proposition 4: Conscious innovation management is triggered by a certain need in a company's development.*

The third approach to the sources of innovation that the present thesis observes has been presented by Kwaku and Ko (2001) by developing a concept of an alignment between market and entrepreneurship orientations and investigating its effect on an organization's product innovation. They also take high levels of market and technological uncertainty created by rapid technological changes and changing demands of customers as the starting point of their research.

Market orientation entails one or more departments engaging in activities geared toward developing an understanding of customer's current and future needs and the factors affecting them, sharing of this understanding across departments, and the various departments engaging in activities designed to meet select customer needs (Kohli and Jaworski 1990: 3). A market-oriented organization is one whose actions are consistent with the marketing concept; meaning that customer focus, coordinated marketing and profitability are operationally manifest in the organization. Market orientation is an important antecedent of product innovation behaviors, activities and performance (Kwaku and Ko 2001: 55). In addition, a market-oriented organization may also apply significant changes in product design or packaging, product placement, product promotion or pricing, which results in marketing innovation.

Entrepreneurial orientation is defined as a propensity of an organization's top management to act autonomously, to take calculated risks, to be innovative, to demonstrate pro-activeness, and to be aggressive toward competitors (Morris and Paul 1987, Lumpkin and Dess 1996). Unlike market orientation, entrepreneurial orientation

is distinguished by three characteristics: a high degree of innovativeness, risk-taking, and pro-activeness (Miller 1983: 771).

An organization has to be both, market and entrepreneurship oriented to achieve the best results. Otherwise short-comings may occur when estimating organization's capabilities and external environment in accordance with the organization's ability to perform well. Christensen and Bower (1996) show that these organizations that act too carefully according to their customers' needs, favor incremental innovations and neglect the development of more innovative products. From market-oriented perspective, an organization has to identify environmental changes and respond to them through previously held assumptions about customers and competition.

In contrast with market orientation, entrepreneurial orientation fosters product innovation which involves the creation of new resource combinations that may require competencies not currently available in the organization. Therefore the organization has to take bigger risks and experiment more on different solutions by questioning previously held assumptions about customers, competition, and the environment leading to frame-breaking activities (Lumpkin and Dess 1996). But when an organization is too much entrepreneurship oriented, the risk is that the company may have an erroneous belief that technological superiority is a sufficient condition for new product success (Covin 1991: 439-441).

Hence, to be successful in new product innovation, an organization has to show alertness to market factors, detailed market intelligence, and entrepreneurship insight to detect the emerging unfulfilled needs of customers (Kwaku and Ko 2001: 56). Morris and Paul (1987) suggest that both, market and entrepreneurial orientations are interrelated strategic responses to environmental contingencies. Consequently, Kwaku's and Ko's (2001) thesis is that market and entrepreneurship orientation are synergistic; they combine positively to affect product innovation activities and performance.

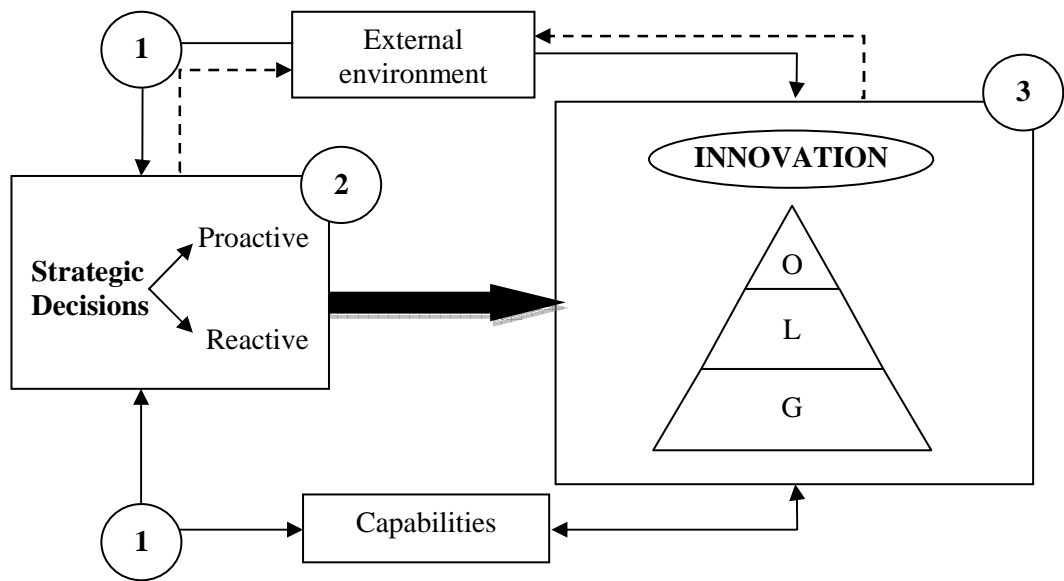
The market orientation and entrepreneurial orientation can be taken as two complementary strategic orientations or as Frishammar and Hörte (2007: 766) denote, as capabilities that can coexist. Both market and entrepreneurial orientation resemble Teece *et al* (1997) research on dynamic capabilities since they both belong to the subset

of competences/capabilities that allow an organization to create new products and processes and respond to changing circumstances. Frishammar and Hörte (2007) argue that both orientations create complex, tacit and intangible skills that allow a firm to generate new ideas for the creation of innovation. Therefore it is also the interest of the present thesis to show through the empirical research if and how the organizations observed align between market and entrepreneurial orientation.

*Proposition 5. Strategic decisions in market oriented organizations are more reactive in their nature and are influenced mainly by external factors, while strategic decisions in entrepreneurial oriented organizations are more proactive in their nature and are influenced mainly by inner capabilities.*

Most innovations, especially the successful ones, result from a conscious, purposeful search for innovation opportunities, which are found only in a few situations within an organization or industry. Drucker (2002: 96) brings out four such areas of opportunity: unexpected occurrences, incongruities, process needs, and industry and market changes. He also refers to opportunities that exist outside an organization in its social and intellectual environment: demographic changes, changes in perception, and new knowledge. It is important to notice that more than one area of opportunities may reveal at a time. These opportunities may, first, follow the strategic planning process, then the strategic decision making, and finally result in innovation. It is more likely that process needs, and industry and market changes follow that pattern, but unexpected occurrences and incongruities need usually critical solutions and there may be no time for strategic planning but quick decisions have to be made.

All in all, the figure 12 represents the conceptual model, which combines external environment, organizational capabilities, strategic decisions and innovation to one unity. This model is also taken as the bases in the empirical part when analyzing the cases of three different Estonian IT companies: MicroLink, Regio and Ordi.



**Figure 12.** The interaction of strategic decisions, its influencing factors and innovation in the context of organizational (O), local (L) and global (G) level (Afuah 2003 with the author’s supplements).

First the capabilities and environment shape the strategic decisions (No 1); more precisely they shape the strategic actions taken to cope with the given circumstances. If through these strategic actions a *new idea* is found (No 2), innovation is probably occurring (No 3).

As shown in the figure 12 innovation and strategic decisions have also influence on organization’s capabilities, and therefore the interaction is mutual. On the other hand, they might also have an effect on organization’s external environment (e.g competition, suppliers, customers, stakeholders), but Afuah argues that the faster the external environment changes and the bigger the environmental scale is, the more likely an organization’s decisions are to have a little effect on its environment. Hence, it is very hard to estimate an organization’s impact on its external environment and therefore, for the empirical part, only the one-way process is considered; more precisely, which factors from the organizations’ capabilities and external environment have influenced strategic decision making that has resulted in innovation.



## **2. THE INTERACTION BETWEEN STRATEGIC DECISIONS AND INNOVATION: THE CASES OF MICROLINK, REGIO AND ORDI**

### **2.1. Estonian ICT sector and research methodology**

#### **2.1.1. A brief overview of the development of Estonian ICT sector**

Before the year 1991 when Estonia was a part of the USSR, the development of the ICT sector had very little influence from the global developments, because the sector was sternly restricted and regulated by the state. But still there were forbidden connections with foreign countries that led to several opportunities to develop world-wide technological achievements also in Estonia. Mostly these connections were established between educational institutions here and abroad. To give only some examples (Eesti Hariduse ... 2009) - in 1958, the first lecture about programming at University of Tartu took place, but it was delivered under codename of “additional chapters of algebra”; in 1959 the mentioned university got its first computer Ural 1 about which the university staff had accidentally heard in a prohibited radio channel Voice of America; the first computer lessons started in 1965 in Nõo Secondary School (it was also the first school of general education in the whole Soviet Union that got the computer Ural 1); in 1967 the Tallinn University of Technology also obtained its first computer Minsk 22; first personal computers (PC) were implemented by the University of Tartu in 1982, and in 1990 people in the Institute of Cybernetics first used electronic mails.

Achieving independence in 1991, a new era started in Estonia - there were no longer any restrictions for the Estonian economy. The changes that started in the ICT sector

were immense. Already in 1991 UUCP<sup>1</sup> connection was established in a regular school. After that the list of events happening in the ICT sector is very long, starting from 26th of March in 1992 when the first establishment of TCP/IP<sup>2</sup> connection between Estonia and the rest of the world took place. In 1995 already one hundred schools were using The Internet and 1500 computers were connected to the Internet. The number of ICT companies operating in Estonia has also increased enormously, from only a small number of companies in 1991 to *ca* 2000 in 2007 (Information Technology ... 2008: 83).

Tõnu Liik (2000) divides the development of the Estonian ICT sector into four periods and describes them as follows:

1. 1960-1975 – the “romantic” and academic period – IT was part of the academic world, Estonia possessed the world standard in several parts of computer science, at the end of the period the created potential was unrealized due to increasing technological backwardness and isolation from the West;
2. 1975-1985 – the socialist period – economic benefits were formal, a massive IT cadres with practical experiences evolved, problems were on household level;
3. 1985-2000 – rebirth with indications of over-amplification – integration of rapid economical changes and IT “miracles” (internet); quick increase in the number of consumers; the existence of IT as a competitive advantage ipso factum; recurring motive – struggle with “IT problems”; the mentality of Estonia as the world’s first in IT;
4. 2000-... - maturity and normalization – the dynamics of business environment decreases – less new starts; concentration of consumers; IT is a product like any other; critical importance of the use and price of IT in business; consumers are smarter – they demand for real outcomes and less expensive solutions.

Liik leaves the period starting from the year 2000 open, arguing that IT products had become a normal part of business environment. But the truth is that starting from 2003 a

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<sup>1</sup> **UUCP** is an abbreviation for Unix-to-Unix Copy. The term generally refers to a suite of computer programs and protocols allowing remote execution of commands and transfer of files, email and netnews between computers (UUCP, [www.uucp.org](http://www.uucp.org)).

<sup>2</sup> The **Transmission Control Protocol (TCP)/Internet Protocol (IP)** are the core protocols of the Internet Protocol Suite. Whereas IP handles lower-level transmissions from computer to computer as a message makes its way across the Internet, TCP operates at a higher level, concerned only with the two end systems, for example a Web browser and a Web server ([www.networksorcery.com](http://www.networksorcery.com)).

totally new area began in the Estonian IT sector. As Martinson (2007) described the situation at the beginning of 2000s: “ For 3-4 years there was a period of silence and the general opinion was that there was nothing new and the development limit had been achieved already in 1999. But a new wave started in 2003, when Skype and Playtech came from nowhere and also e-government, e-Tax Board and Delfi portal had taken a very big qualitative leap by the year 2005, when people had started to use these systems widely. The ICT sector has become an important industry in Estonia, but according to Estonian Information Society Development Plan (Eesti infoühiskonna ... 2006) there are still many unused opportunities to increase the ICT sector’s ability to export, which is especially important now in the circumstances of economic recession.

Bullinger *et al* (2000) have analyzed global trends in the development of the IC technology and IT sector. They start with the beginning of the 20th century when IT companies were mainly domestic producers, but they had already opened up for international sales. The main focus was on the increase of productivity, because the marketplace was no longer local. The first development phase indicates the period from the 1960s till the 1970s when the increase in productivity by developing data processing and microprocessors took place. The second phase, the period from the 1970s to the 1990s could be labelled as “functionality”. International market triggered improvements in functionality because organizations were moving from domestic production to international production and sales. The development of information and communication technologies in products enabled to satisfy the increased need for a company’s functionality. (*ibid*: 1472) underline the fact that the production process acquired a different meaning – complexity and uncertainty. Since the 1990s rapid development of I&C technologies has taken place. Those changes have served as engines of innovation due to which several new phenomena have arisen - virtual enterprises, worldwide networks and multinational mergers. All in all, the way to global networks has been rather long, from the evolution of mankind, but it is no exaggeration to say that the last century has done most on this way and that is due to the development of IT.

The author of the present thesis argues that those global trends are more or less universal, but differences could be brought out in the light of dynamics. The development of the ICT sector in Estonia has been rather different and even intriguing.

It has gone through very rapid changes and it represents a real success story. The most important developments in the Estonian ICT so far have been as follows (Eesti infoühiskonna ... 2006: 9-10):

1. Well-developed communication network and access to the Internet. According to the latest survey from TNS Emor (Eestis on ... 2008) revealed that 69% (806 000 people) of Estonians are using the Internet and 27% (316 000 households) have a computer at home that is connected to the Internet, and these are constantly increasing figures;
2. The innovation views and high standard info-technological solutions in the public sector (e.g. e-government, the state portal [www.eesti.ee](http://www.eesti.ee), where authorized users have three possible roles: citizen, entrepreneur and public servant; e-elections – the first one was carried out in 2005);
3. High standard IT solutions in the private sector (e.g. e-banking, mobile-parking);
4. Success stories in the Estonian ICT sector (e.g. Skype, Playtech);
5. Widespread use of ICT in educational sphere (the Tiger Leap program);
6. The biggest functional public infrastructure in Europe, which is based on the use of ID-card in different public services. Approximately 80% of Estonians have an ID-card, which enables authentication in electronic environment and the use of giving digi-signature, which has been legislatively equalized with handmade signature;
7. Estonians' willingness to use innovative solutions (a big use of E-Tax Board, internet banking, mobile-parking);
8. The success of developing the Estonian ICT sector has been acknowledged by different surveys and top-lists throughout the European Union, for example by Information Society Benchmarking Report 2005, Global Information Technology Report 2004-2005, Top 10 Who Are Changing the World of Internet and Politics, and so on.

The previous overview was about the Estonian ICT sector as a whole, but for understanding the competitive background of the Estonian ICT companies, following illustrative numbers are given. In Estonia, only 6 major ICT companies out of the 2000 account for 52% of the total turnover and make 79% of the sector's total profit. The next 25 companies hold half of the rest of the turnover, i.e. 25%, whereas their share in

profits is only about 8%. Considering 90% as the borderline for market shares, another 67 companies fit in with a 15% share in the turnover and 8% share in profit. The remaining 10% market share and 6% profit divides between 1500 ICT companies. (Information Technology ... 2008: 83-84)

According to Kukk Grönbjerg (2000: 14) most Estonian ICT companies in the 1990s were “young and driven by entrepreneurial people, often with excellent technical skills and innovative ideas“. But they were lacking of specific managerial skills, such as marketing, financial management, customer care and human resources management. In addition, the typical problems of the ICT companies were: unspecified offering and targeting - "tell us what to do and we do it" instead of "we can solve your problem X by our product Y" -, inefficient marketing, considerable employee turnover, passive approach to changing customer needs. The general trend in the ICT sector was that companies had several diverse activities (see table 5). Most companies provided service, maintenance, training and consultancy besides their main activities, such as information networks or software/hardware producing or even wholesale (or vice versa).

**Table 5.** Distribution of the Estonian ICT firms by areas of business activity in 1998 with annual sales over 1 million EEK.

<b>Business area</b>	<b>Number (total n=204)</b>	<b>Percentage (% of total n=204)</b>
Production (electronics)	40	20
Retail and wholesale	165	81
Maintenance	103	50
Data networks, systems	95	47
Training	128	63
Services (data, network)	129	63
Telecommunications	24	12
Software production	83	41
Hardware production	23	11
Internet	13	6
E-Commerce	0	0

Source: (*ibid*: 14-15).

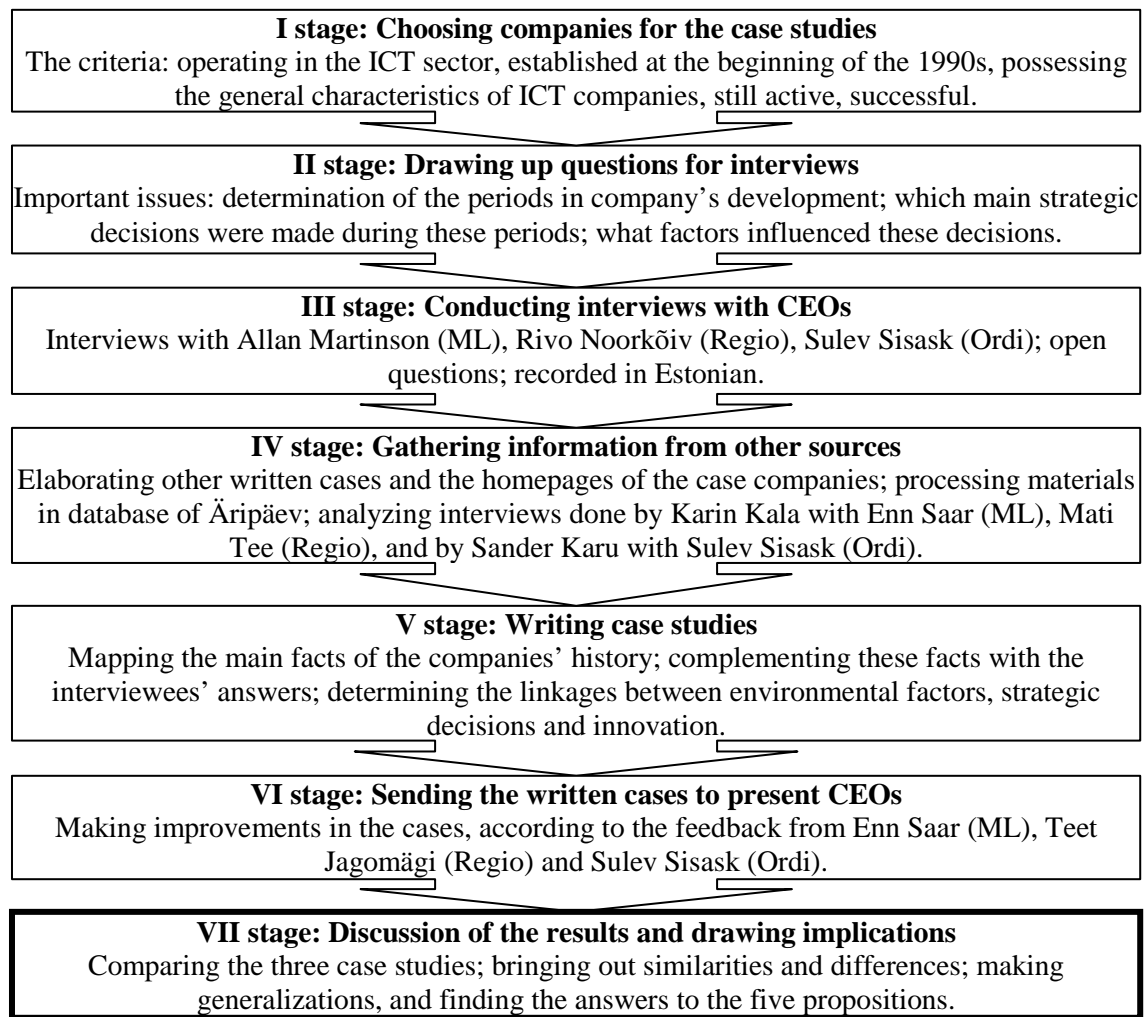
The next sections of the present study will take a closer insight into the developments of three Estonian IT companies: MicroLink, Regio and Ordi. They all started their businesses in the early 1990s and are still active now. In the present study it is presumed

that the strategic decisions made in the 1990s by Estonian IT companies were not innovation central and innovation was not a single purpose. Kalvet *et al* (2002: 24) claim that their readiness for presenting innovative solutions was rather modest, because the companies did not perceive a direct need for that. The main purpose was to be quick in copying and implementing product innovation presented elsewhere. But Van der Leeuw and Torrence (1989: 282-283) denote that innovation is not always a wholly rational process – many innovations are unpremeditated or unplanned or even unwanted, being the result of random or change process. Therefore, the author of the present thesis considers the presumption that even though Estonian IT companies were not innovation centered in the 1990s it does not mean that they were not innovative. Instead, the author is about to find out when Estonian IT companies started to think of innovation as a single purpose.

### **2.1.2. Introduction to the research methodology**

As the aim of the present thesis is to find out, how strategic decisions have resulted in innovation in the context of the organizational environment, using the examples of the Estonian ICT companies, the best methodology here is the case study method. The question *how* deals with “operational links needed to be traced over time, rather than mere frequencies or incidence” and here the case study approach provides in-depth information and managers’ opinions about the main motivations behind different strategic decisions (Yin 1989: 17). This is especially important because the development of the companies’ will be observed during the period of 1990-2005, which is quite a long time to map all the decisions made and reasons behind them. The case study method enables to understand the cases in depth, and give as full understanding of the cases as possible. Also, the variety of methods of data collection and analysis that can be used in case study research is very beneficial.

The present thesis applies a multiple-case study methodology. MicroLink, Regio and Ordi were selected as the case companies, because these companies present the typical development of an Estonian IT company – first, being very small with 3-4 enthusiastic workers just doing what they were keen to, then growing bigger and changing to a traditional well-managed company. Resulting from the case study method, the figure 13 illustrates the stages of the research and activities applied in each stage.



**Figure 13.** The stages of the empirical research (compiled by the author).

In **the first stage** three companies were selected for the case studies. Besides being still active and successful, MicroLink, Regio and Ordi were chosen as the case companies, because they were all established at the beginning of the 1990ies, when Estonia regained its independence. This, in turn, gives a great opportunity to witness the development of a small company starting without previous experience in market economy or in the ICT sector. According to Ettlie (1983: 29) smaller companies are thought to be more innovative for a number of reasons; they introduce new products in order to establish a foothold in areas in which larger, more established firms control markets; smaller firms also may be more innovative because they can respond more easily to market shifts and needs. But organizations may become more conservative as they grow into medium and large sized organizations, because the risk of changing now-established technologies is greater than at the outset of the product life cycle. Therefore,

it is claimed that size promotes innovation up to a point. Hence, it can be assumed that also MicroLink, Regio and Ordi were more innovative at the beginning of their development and got more stable with their growth.

However, an important assumption when choosing the case companies was that they should cover most of the general characteristics of the ICT companies. The pre-screening of MicroLink, Regio and Ordi revealed that throughout their development, these companies have been knowledge central; the development rate of their products has been rather high and the life-span of their products rather short, which has been supported by the importance of human factor in these companies. Being a learning organization and collaborating with different private and public organizations has been central for MicroLink, Regio and Ordi all along.

Other characteristics, like decentralized organizations, home offices and process oriented teams; high internationalization rate and “think global, act local mentality”, differed remarkably among the three companies. But as most of the characteristics were the same as the general ones, the author believes that the implications and generalizations based on the case studies could be justly transmitted to other ICT companies who also possess these characteristics.

**Secondly**, the questions for interviews were developed in order to get as much information about the development of a company as possible. Although, the focus is on the 1990ies, important periods in the first half of 2000s are also considered, which enables to show the peculiarity of the 1990s from the perspective of the case companies. As the interview method was unstructured, there were five main open questions:

1. What kind of periods could be distinguished in the development of the company during 1990-2005? How could they be described?
2. What important strategic decisions were made in each period?
3. What were the internal and external influencing factors that shaped the strategic decision making? What were the main factors and how did they influence the company's development throughout these periods?
4. What organizational goals were achieved, what were not?
5. How would the interviewee describe the developments of the Estonian IT sector?



Before describing **the third stage**, it is important to denote that for the case of Ordi the necessary data was already gathered for the article written by Reino, Kask and Vadi (2007). The study was carried out in three stages: first, gathering data by interviewing employees; second, analyzing the data; third, the research group discussion was carried out where the reflection and interpretation of the study results by CEO (Sulev Sisask) and HR manager of Ordi gave useful hints for better understanding the developments in the organization. The given answers and feedback are used in the present thesis as they cover the interview questions developed in the second stage.

In the cases of MicroLink and Regio there were no interviews done with employees, but the author conducted interviews with the former CEOs of these companies. Interviewing them was the most reasonable method, because strategic decisions and innovation are mostly the issues on the CEO level (Hambrick and Snow 1977: 109, Child and McGrath 2001: 1136). Also, the main interest was to analyze a longer period of MicroLink's, Regio's and Ordi's development (see Appendix 2 for the main financial measures). Therefore, the interviews were done with the former CEOs of MicroLink and Regio (Sulev Sisask is still the CEO of Ordi) who had longer connection with these companies. Allan Martinson was the CEO in MicroLink in 1998-2004 but was related to the company since its establishment. Rivo Noorkõiv was the CEO in Regio since its establishment in 1988 till 1992 but was related to the company till 2001. Both Martinson and Noorkõiv were strategically related to the companies and that is an important and necessary presumption when analyzing strategic decisions made in MicroLink and Regio. The unstructured interviews with Martinson and Noorkõiv were done in January 2007 and were recorded in the Estonian language (the transcriptions can be found respectively in appendix 3 and 4)<sup>3</sup>.

**Forthly**, in order to get additional material about the case companies, content analysis of different printed matters about MicroLink, Regio and Ordi (e.g. published interviews with the CEOs (Karu 2001); company's web pages; students' study reports; periodicals, newspaper articles) were performed. One main source for additional information was the database of Äripäev, Agent, which also included statistical and financial figures about the case companies. Also other case studies about the three companies were

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<sup>3</sup> All the citations from the interviews are translated into English by the author of the thesis.

elaborated (e.g. Kaarna and Mets 2008, Mets 2008, Reino *et al* 2007), which also gave different insights to the companies' developments. Karin Kala gave her permission to use her interviews with Enn Saar, the present CEO of MicroLink, and Mati Tee, the developer of information system technologies in Regio, which gave additional information about the innovations in these companies. Although, Kala's questions were mainly about organizational design and structure, there were also some aspects of innovation discussed.

Writing the case studies was conducted in **the fifth stage**, where the main focus was on describing and analyzing the developments of ML, Regio and Ordi and bringing chronologically out main periods in their histories. According to the answers the interviewees gave and to the analysis of the additional materials, the influencing factors of strategic decisions and types of innovation as an outcome were brought out in each period. Also the innovation perception level was brought out: was the innovation perceived as *new* by the members of the companies, by the local IT sector or by global IT market; and finally, summaries were made about each company. It is important to notice that in the written case studies, each period starts from the year following the last year of the previous period. In reality, the time borders are rather overlapping, but in the sense of simplification the periods are specified.

**Sixthly**, the written case studies were sent to the present CEOs of the companies; Enn Saar (MicroLink), Teet Jagomägi (Regio) and Sulev Sisask (Ordi). The purpose here was to ascertain the analysis and primary results and get additional information if needed. After Saar, Jagomägi and Sisask had first read the cases; the author also met them in April and May 2010 in person to discuss several details and get additional information about innovation in these companies. These discussions were not recorded, but the author took notes on the printouts of each case. According to the feedback the CEOs gave, improvements were made to the final case studies.

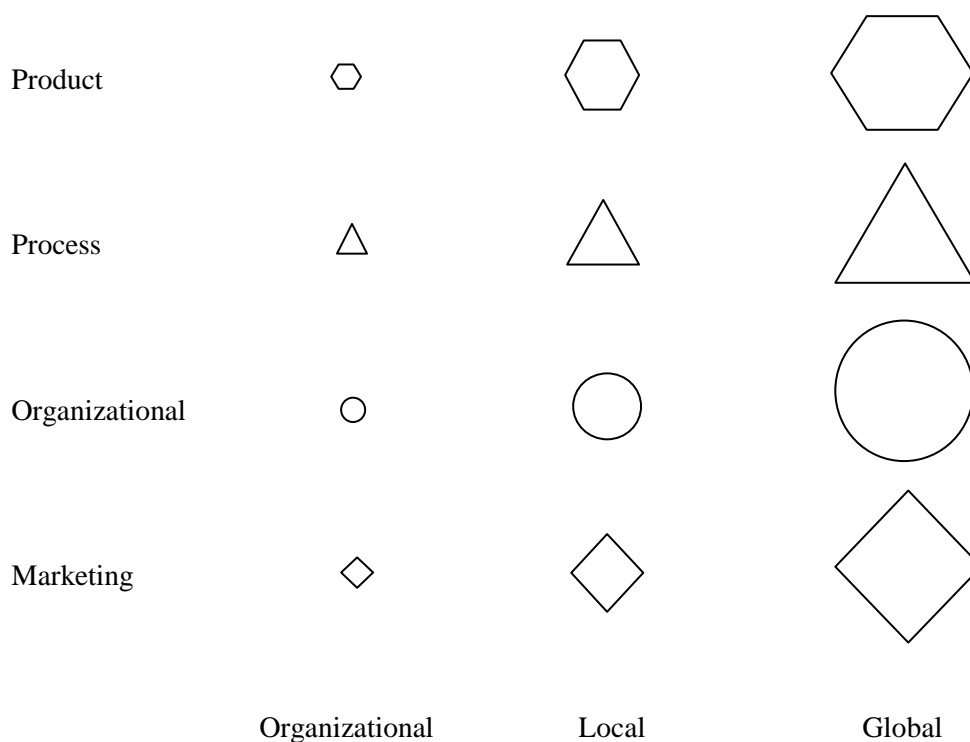
**The final stage** of the empirical part included discussion of the results and implications drawn in order to give answers to the propositions developed in the theoretical part. Table 6 summarizes the propositions set up for empirical analysis.

**Table 6.** The propositions set up for the empirical analysis.

Keyword	Strategic decisions	Organizational environment	Innovation
<b>Propositions</b>	<i><b>Proposition 1:</b> Primary strategic decisions in ICT companies include new product, new process technology, organizational change, marketing strategy, geographic expansion, new facility and human resource strategy, while secondary strategic decisions include restructuring, diversification and quality improvement.</i>		<i><b>Proposition 4:</b> Conscious innovation management is triggered by a certain need in company's development.</i>
	<i><b>Proposition 2:</b> ICT companies that make strategic decisions in the context of dynamic capabilities are more sustainable in their development than companies that make decisions either in the context of external environment or organizational capabilities only.</i>		
	<i><b>Proposition 5:</b> Strategic decisions in market oriented organizations are more reactive in their nature and are influenced mainly by external factors, while strategic decisions in entrepreneurial oriented organizations are more proactive in their nature and are influenced mainly by inner capabilities.</i>		
	<i><b>Proposition 3:</b> Primary environmental factors impact strategic decisions that result in process and/or organizational innovation, while secondary environmental factors impact strategic decisions resulting in product and/or marketing innovation.</i>		

Source: compiled by the author.

All in all, the purpose of the final stage was to prove the fulfillment of the aim of the present master thesis. The following chapters cover the stages five and seven; the cases of MicroLink, Regio and Ordi, and results and implications based on these case studies. The author uses pictogram method (Sherlock and Reuvid 2005: 64) to represent some of the conclusions of the case studies. The figure 14 illustrates the shapes and their size to describe innovation in the case companies.



**Figure 14.** Pictograms of different types of innovation in the context of organizational, local and global market perception level (compiled by the author).

There were no general icons found for innovation types and therefore the author uses different shapes to describe the types of product, process, organizational and marketing innovation. The size of the shape changes to indicate whether the innovation is perceived on the organizational, local or global market level – the bigger the shape, the higher the perception level.

## 2.2. The cases of three Estonian ICT companies

### 2.2.1. The case of MicroLink

The history of MicroLink (ML) has been very colorful including a big variety of operating areas; there have been periods when 15 different companies were doing businesses in the same group. MicroLink has developed from a company compiling computers to the biggest provider of IT services in Estonia with a staff of 300 experts in their field. Their services include designing, managing and hosting IT systems; creating

and implementing software, sale, rental and maintenance of IT facilities; and consulting and training. (MicroLink's homepage)

#### I period 1991-1994: Compiling computers

ML was established in August 1991 and on March 1992 the first computer was compiled. During the period 1992-1995 the main operating area was producing computers – parts were brought from Singapore and computers were compiled in Estonia. Martinson admitted that the brand of ML was actually bigger than the company itself. “The turnover of hardware was big but the actual value added was small”, he said (Martinson 2007). During the first period ML developed extensive resellers' and maintenance network across the Baltic States, being the first local computer company using the concept of authorized dealers in PC sales.

At the beginning MicroLink did not have any clear strategic focus and producing computers was a matter of designing the brand of ML rather than a matter of innovation. It was marketing innovation that occurred during the first period as the Authorized Sales Representative concept was a new sales approach not only for ML but for the local computer companies as well. In the context of organizational and local level it was a radical innovation, but on the global level it was not anything new. The influencing factors of this proactive strategic decision came from external environment firstly, to anticipate competitors, and secondly, to be more effective in relationships with customers.

#### II period 1995-1997: Diversification

MicroLink started searching for new opportunities to broaden its business, and in 1995 the company expanded its activities into system integration and Internet fields, which soon became the core activities of the company. At the same time the margins of computer accessories' wholesale operations started to diminish, while competition increased, therefore at the end of 1996 ML decided to sell this business to a global distribution company CHS Electronics. The two founders of ML got enough revenues from this transaction, which brought them new opportunities and interests and this, in turn, led them to a decision to withdraw from ML's management (*ibid*).

The second period did not result in any innovation, although, for further periods the decision to add new services to the company's businesses became quite beneficial. ML's strategy was to operate in the IT areas that were about to start growing and when increasing competition brought along lower profits, it was time to search for new opportunities that were not preoccupied by competitors.

### III period 1998-1999: New CEO – new area

The new area began for MicroLink, when Allan Martinson was appointed the Chairman of the Board in 1998. "I was given free hands to manage the company and it was a good opportunity to experience my own success and mistakes," he declared (Martinson 2007). In summer 1998 ML merged with the second biggest Estonian IT company Astrodata. ML took over all its IT functions; Astrodata's computer production was consolidated with ML Arvutid, the retail chain with ML's retail activities under the trademark OK Arvutid. Also, the internet clients of Astrodata were taken over and ML's subsidiaries were integrated with Astrodata's existing system of integration and service. (MicroLink's homepage) So all in all, the outcome was a big group of 6-7 companies.

Before Martinson there was actually no complete organization, no formal positions, instead, all operations were held through personal friendships, common acquaintances. Martinson began his management activity in ML by creating a complete organization with concrete management board, common manners, and budget. The reason was mainly to consolidate the business and to enhance the ability to react better to the fast-evolving IT sector. "Many people started to work together who had no previous contact. There were big organizational changes in hierarchy, communication and also functioning", described Martinson (2007) the period after merging with Astrodata.

Previous is a good example of radical organizational innovation as the attempt was to share specific knowledge throughout the organization by building up a complete organization. Therefore, this innovation was decisive especially on the organizational level. The influencing factors of strategic decision making proceeded from the organization's capabilities that lacked in efficiency. As the manager of ML's business-line, Avo Raup in Äripäev said: "The business was based on the characteristics of its employees – like war, where the result depends on the individual courage of each

soldier. When a person left the company, a big hole was left instead, because only he knew how to do his specific job” (Kents 2006).

ML realized the need to strengthen their position in the Baltics by using private equity; there was development and risk capital in the market, which gave the company quite many options to make use of. In 1999 over 40 million EEKs were invested in the company through different funds, which in turn resulted in bigger strategic opportunities for ML. The strategy was now aggressive internationalization through two goals: first, expansion through geographic purchase, consolidation and mergers; second, starting commercial portals (Martinson 2007). The transaction was followed by acquisition of the assets and teams of two leading Latvian Internet companies. They were merged to one firm, ParksLVNet, which quickly gained the leading position among the Latvian internet companies and portals.

The priorities of ML changed – IT services and Internet businesses became the core activities and computer and cable production supporting activities. As the strategy was internationalization through mergers and acquisitions, additional funding was needed and in October 1999 there was a second emission of actions, selling new and existing actions to Baltic Republics Fund with the value of 59 million EEKs. “This influenced the whole organization extremely – different people, who had no previous contact, worked together now, the working language was English and the organizational culture was based on the cooperation of different nations”, Martinson emphasized. This radical organizational innovation was definitely recognized not just on the organizational level but throughout the Baltics. It all happened because the external environment was favourable and there was enough financial means due to the risk capital involved.

Already in November 1999 ML gathered all its Internet activities in the Baltic countries to one holding company, which was presented to the market under the trademark Delfi. As Martinson denoted, there were big external influences like dot-com, e-bay and Yahoo, which set a good pattern for ML to copy an analogical business model. This resulted in modular product innovation, where the key factor consisted of the comment feature that was first implemented by ML’s Delfi portal and soon became an industrial standard all over the Baltics. Portals gained huge popularity after the introduction of the

comment feature that enabled visitors to post comments on news articles and columnists' stories (MicroLink's homepage).

The main influencing factor of the strategic decision to launch Delfi could be observed from the perspective of the demand-pull view. As reported in ML's Annual Report 1999/2000 "the increasing number of internet users encouraged the emergence of strong horizontal portals, which had huge impact on media industry as well as enormous social impact in general, especially in Estonia and Latvia." Here the perception level was of local IT sector with the orientation to the rest of the Baltic States, Latvia and Lithuania. However, launching Delfi took more time and money and it was not earning any profits still in 2001. Yet it could be defined as product innovation, because according to Kristjan Kalda (2001), the council chairman back then, the loss was decreasing inverse to Delfi's success. Therefore, the outcome of the innovation could not be measured by earned profits, but instead by the profitability in general, which was increasing as the incomes from Delfi continually doubled in a year.

#### IV period 2000-2003: Collapse

The purpose was to expand ML's position in Latvian IT service market and the plan was realized in December 1999, when the biggest transaction at that time took place in the Baltics' IT sector – ML incorporated with the biggest Latvian system integration company, Fortech. Through that transaction, MicroLink became a shareholder of SAF Tehnika, which is a global company producing microwave radio links, but MicroLink considered SAF as financial investment and did not have ambitions to stay global for long (Kokk 2001). ML also acquired control holding in leading Latvian IT-company VAR, which was then the most well-known IT trademark in Latvia (ML's homepage).

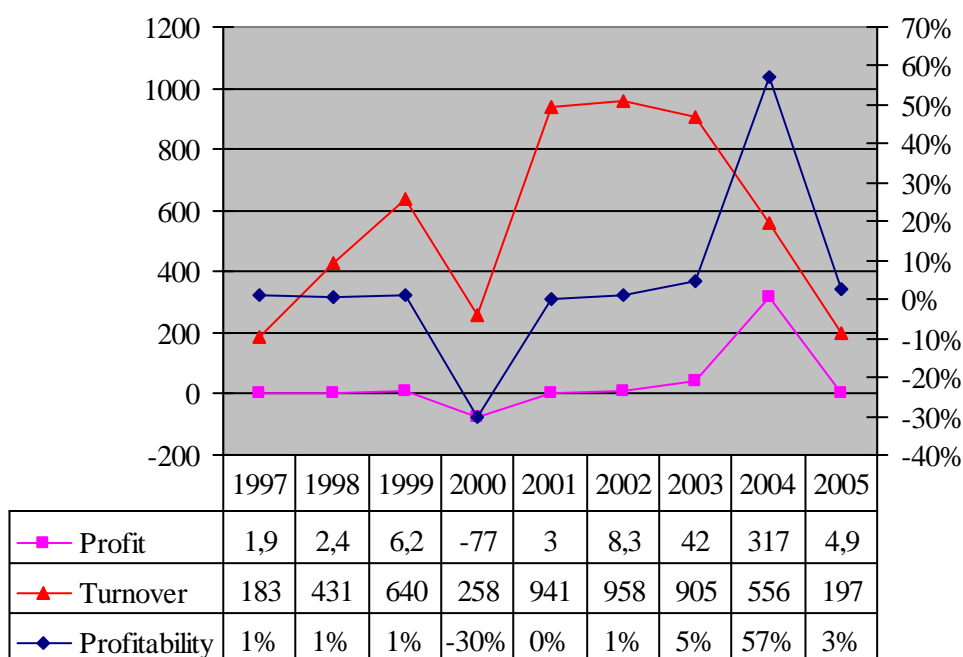
"MicroLink's strategy has been to be the market leader among all its operation fields and our purpose is without compromises: to be number one in Baltics and in all spheres," described Kalda (2001) the strategy of the company. ML grew five times in one year, so did the turnover and the number of employees, but only 6% of them were the same in 2000 as in 1998. "Basically, a totally new company was established through mergers and acquisitions. In the middle of the year 2000 there were approximately 30 different companies consolidated, and still there was free money in the market, although



there was no exact need for it,” described Martinson (2007) the situation in ML at the beginning of 2000s.

MicroLink continued to merge companies close to its core activities, at the same time, selling the ones which were not that effective. In order to focus management’s attention on core businesses MicroLink sold its 16% stake in Concorde XAL financial accounting software provider AS Columbus IT Partner Eesti and 66.7% interest in cable assembly division MicroLink Electronics in January and May 2000, respectively.

The second half of the year 2000 was remarkably difficult for ML, because of the events in the world market (collapse of NASDAQ and dot-com), which influenced the company directly, yielding a loss of 77 million EEKs (see the figure 15 for ML’s financial measures during 1997-2004). ML struggled to gain back its previous growth and position.



**Figure 15.** Turnover, profit and profitability in MicroLink during 1997-2005 (million’s EEKs). Source: Baltic Business News.

In August 2000 the company issued 60,233 new shares, most of which went to the company's employees who used their option scheme. Also, in August MicroLink's shareholders completed a 3.3 million EUR Private Placing to Baltic Post Privatisation

Fund, BBL Finland and other financial investors. The purpose was to increase the liquidity of actions by making them freely tradable. (ML's homepage)

“The company tried to develop Delfi, but it needed constant investments and other parts of the group could not integrate with each other and caused a lot of problems,” said Martinson. Therefore, the organization needed changes and in FY 2000/2001, MicroLink divided its activities into five business areas (Systems Division, Computers & Services Division, DATA division, New Media and Wireless Broadband Equipment divisions), changing ML's structure based on functional management. This could be called architectural innovation, as the functions were the same but now assembled into a certain structure. “It was also recognized by the customers, who now could get the same service in Estonia, Latvia and Lithuania. This in turn gave us many opportunities to broaden our customer base, as the clients who had agencies over Baltics were linked to MicroLink over Baltics”, refers Saar (2010) that the innovation was perceived also in local market level.

In June 2001, MicroLink made its third largest share issue, bringing the company proceeds in the amount of 49 million EEKs. All main shareholders decided to subscribe their shares and involve loan capital only partially. This proved to be the right strategy and the invested money was used to pay back the loans that were taken when acquiring different companies (Kalda 2001).

During this period MicroLink focused on providing a full IT services portfolio under the Systems and Data division names and MicroLink ServIT. Together these business units covered most of the needs of Top-1000 companies and public sector institutions in all Baltic countries, where the company was also a clear market leader. MicroLink Computers continued to be the leading PC manufacturer and Delfi the leading portal. SAF Tehnika had successfully established its position as an important player in the world microwave communication market. (Kaarna and Mets 2008: 15) “The time then was actually very profitable for selling but not purchasing IT-companies, although, the strategy and budget were developed, and the financial results and company's potential were really good,” admits Jaak Anton, then the board member of MicroLink (Tähismaa 2001). Therefore, the previous period's proactive strategic decision resulted in reactive

decision to conduct the third share issue, which helped the company dispose of loans but did not help to bring along innovation.

#### V period 2003-2005

Things started to move upwards and at the beginning of 2003 the business was back on track again. The following years were even profitable and cash flows went positive, but at the same time there were passive investors in ML, who owned 70-80 million EEKs of the company and were looking for a way out. “This would have meant refinancing by going to stock market. So the company had to be disposed to strategic disposal in 2005 latest. It was hard to sell the whole company, so we had to sell in portions”, explained Martinson (2007) the background of the strategic decision followed. In summer 2003 the computer production was sold to the management of ML Arvutid. Delfi was purchased by a Norwegian company Findexa in December 2003. In May 2003 the production of telecommunication equipments, SAF Tehnika, was listed on Riga’s stock market with MicroLink exiting the shareholders circle. And rest of the company was sold to Estonian, Latvian and Lithuanian telecommunication companies, Elion, Lattelekom and Lietuvos Telekomas. MicroLink Estonia continued its activity independently, now fully owned by Elion Group. (MicroLink’s homepage) The period 2003-2005 also did not result in any type of innovation but it was more an issue of company’s existence. Allan Martinson left the position of the executive director and continued in ML’s board.

As it appears from previous analysis, the main innovations in ML happened in the 1990s, although at the beginning of this paper it was assumed that the nineties for the Estonian IT companies were more for catching up the level of IT in developed countries. But according to the interview with Allan Martinson and the development of ML, the company showed almost all types of innovations during that time. Although the central strategy was aggressive expansion throughout the Baltics, the main reason behind all these mergers and acquisitions was the conviction of MicroLink’s owners, that the bigger the company gets, the higher value it develops (Hanson 2006). The previous analysis of the development of ML has been summarized in table 7.

**Table 7.** The influencing factors of strategic decisions of ML, and the innovation type resulting from these strategic decisions.

<b>Period</b>				
<b>Influencing factors</b>	<b>Strategic decision Reactive(R)/ Proactive(P)</b>	<b>Type of innovation</b>	<b>Level of perception</b>	<b>Outcome</b>
<b>1991-1994</b>				
Strong vision, Anticipating competitors, the need for efficient customer service	Authorized dealers (P)	Marketing (Radical)	Org. Local	Increasing turnover and profits
<b>1995 – 1997</b>				
Increasing competition	New services (P), selling wholesale operations (R)	-	-	Increasing turnover
<b>1998-1999</b>				
Fast-evolving IT sector, increasing number of internet users, influences from Dot-com, e-bay, insufficient capabilities	Mergers and acquisitions (P), launching Delfi (P)	Org. (Radical), Product (Modular)	Org. Local	Increasing turnover and profit
<b>2000-2002</b>				
Organizational problems, Lack of financial means, collapse of dot-com, NASDAQ	Structural changes (R), Emergency emission with low prices (R)	Org. (Architectural)	Local	The rapid expansion was followed by financial loss
<b>2003-2005</b>				
Passive investors who wanted out	Selling business subsidiaries (R)	-	-	Increasing turnover and profit

Source: compiled by the author.

As seen from table 7, the factors that influenced important strategic decisions in ML’s expansion came both from external environment and organizational capabilities. “But MicroLink never aimed to be an operative company like Ordi, which examines profits, turnovers, how much these numbers have grown; instead, ML was an investment company, whose purpose was to make big profits in the Baltics scale,” said Martinson (2007). He emphasized that the decisions were long-term, influenced by the vision the owners had and the role of external environment (e.g. dot-com, Russian crises in 1998, NASDAQ, economic growth, the European Union etc) was more of an inspiration source.

### **2.2.2. The case of Regio**

Regio Ltd is a well-known IT software developer and implementer of different map solutions and positioning systems. Regio started activities in 1989 as a sub-organization at Tallinn Pedagogical Institute by publishing the first Estonian map after 50 years of dead stop (Regio's homepage). At that time all the maps were created as handcraft (manually), technological ways were missing to produce so-called digital maps. Today Regio's focus is on mapping, geospatial data, geographical information systems (GIS) and mobile positioning (location based services – LBS). Positioning solutions (GPS) have achieved global importance also in logistics, agriculture, tourism, transport, telecom, infrastructure etc. Regio is becoming a first-class positioning company in the world due to the long-time experience which has provided the company with necessary competences and assets.

#### Preliminary period 1988-1989: self-determination

Rivo Noorkõiv considers the period 1988-1989 as the starting point in Regio's development. The technological process was barely developed back then. All the products were created manually and production range included only few assortment articles. First contacts with clients were established during the co-operation with Tallinn Pedagogical Institute. There was no previous experience on strategic decision making at CEO level and the first strategic decisions were directly influenced by the Ministry of Construction that financed the company with the requirement of certain results. "It was an interesting time for the company. There was enough freedom to make decisions on your own. The preliminary period was the time of self-determination", described Noorkõiv (2007) the starting point of Regio.

#### I period 1990-1991: developing Estonian map and cartography

In 1990 Noorkõiv and Jüri Jagomägi, also the founder of Regio started to think about the possibility to publish and sell different geographical maps. There were many ideas, but to start from the beginning the company had to get different permission from the state to produce maps. Regio began to develop relationships with foreign partners: employees went to Latvia to learn how to make maps; they also followed up in Saint Petersburg; as an exchange student, Noorkõiv brought the first computer from Denmark

to accomplish printouts. He has explained the significance of these events as follows: “It was outstanding at that time how technology entered such an area.” (Noorkõiv 2007)

There was quite a big demand for old maps in the market, and Regio started to remake them. At the same time the company also continued producing post-cards, which profits went to scientific activities. There were two directions in Regio, business-plans and scientific plans, but as Noorkõiv denoted, employees, who did not understand the need for science, left the company and began to produce post-cards by themselves. Teet Jagomägi, son of Jüri was in the USA, studying how to make maps on computers, and it became clear that the methods used so far were not reasonable. The main purpose of visiting other markets and countries was to get an essential know-how and a better understanding about the actual technologies existing in the world. At the beginning of the 1990s Regio also cooperated with the University of Tartu and students had the opportunity to make maps in the company. It was also the time when the Estonian road-map was published after 50 years, which was a great break-through for Regio. The business started to go very well, and according to Noorkõiv’s words it was the matter of mission – “to develop the case of the Estonian map”.

The first period of Regio’s development was driven by a great vision and many ideas. There was no certain strategy, just the competence of two geographers that needed to be realized. What became clear was that the idea was to develop Estonian cartography by producing the Estonian globe, road-map, landscape maps, and morphological map with skylines. Therefore, Regio’s activities were mainly influenced by new know-how and technology that was gathered from abroad. The main issue was what kind of technology Regio should use to produce the maps digitally instead of doing them as handicraft. As the solutions used were very new in Estonia, the radical process innovation took place both on the organizational and local level.

## II period 1992-1994: geo-information system

A big change in Regio’s development occurred in the early 1990ies when Teet Jagomägi returned from his studies in the USA and was appointed CEO of the company. Rivo Noorkõiv became a member of the supervisory council. Teet Jagomägi brought along technological solutions (software and know-how), which enabled to produce technological maps on computers. Regio started to build up its own geo-

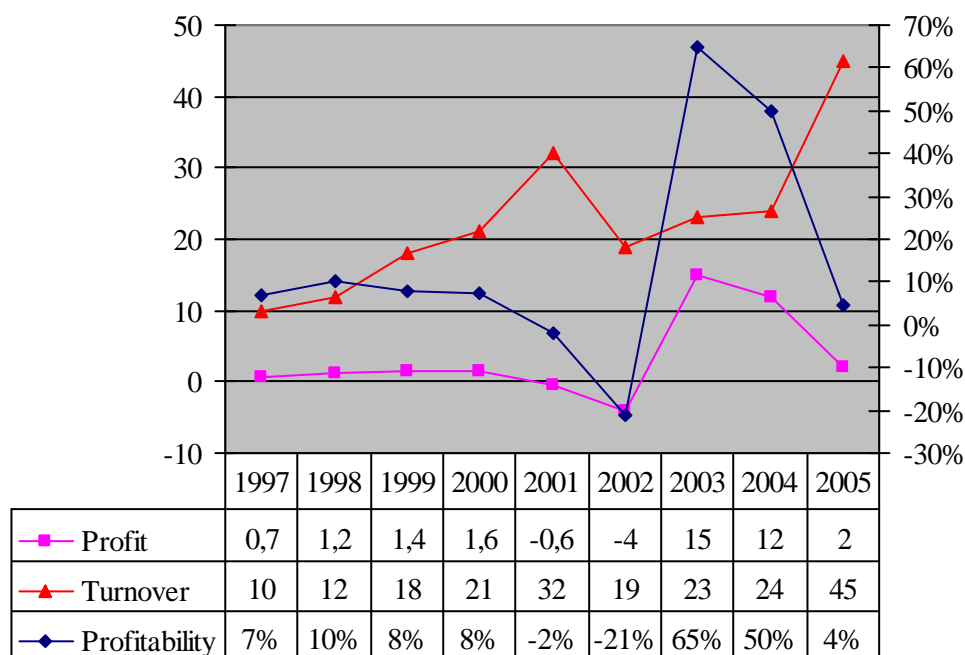
information system (GIS), using the satellite-based global positioning system (GPS), and specialized in cartography and space information, which generated many ideas. “We started to seek for new opportunities, new partners, and took a loan from Maapank”, explained Noorkõiv (2007) the developments back then. In 1992 Regio started to sell the Intergraph software; in 1993 an Estonian sea-map was reappeared after 53 years (Regio’s homepage). In 1994 Regio was ready to use only digital technology and they were the first ones to do that in Estonia. It was unusual even in the international perspective, where, for example, Finnish map producers continued to use semi-manual techniques (Högselius 2005: 110). At that time Regio’s actions were strategically detectable and as Noorkõiv (2007) denoted “this moment was a real starting point for a modern business.”

The focus during the period 1992–1994 was also on technological enhancement which resulted in radical process innovation. Strategic decisions concerned mainly the development of new products and their facilities, and were influenced by the know-how Regio got from their foreign partners. In turn, there were radical changes in the company’s processes, which resulted in innovation, and that was important not only in Estonia but also on the international level. Regio wanted to do more than their competitors, and besides just making maps, they also worked out their own GIS, which enabled them to provide each customer with an individual approach.

### III period 1995-1999: rapid technological progress and BSEF’s investments

In 1995 changes in marketing were made and Regio started to sell MapInfo software. This was a milestone for Regio as it created a super channel for know-how inflow. Regio started to improve in all the levels of operation. In 1996 Regio was the first Estonian company who invested in Differential-GPS (DGPS) solutions and started to make landscape-based maps, which was a totally new approach. Implementation of these solutions increased Regio’s competitiveness and supported radical product development. They were also innovative on the level of the local IT sector. After years of implementing new technology and processes Regio started to come out with new products. In 1997 the first Estonian CD-Atlas was produced and the first Internet-based map-server was launched through the co-operation with IBS (<http://atlas.regio.ee>), also the first Estonian road-atlas was produced using computer-based technology.

Regio's annual sales grew rapidly (see the figure 16) and it was clear that the next step would be breaking into the international market, but this needed additional financial resources and propulsion was gained in 1998 by the investments of American investors Baltics Small Equity Fund (BSEF). Regio hoped that in addition this could help getting new networks and markets. Partnership with BSEF led to improvements in management, marketing and finance skills. Regio was obliged to use consultants and managers were forced to be active, start internal reporting and seminars, learn new skills, and redefine the meaning of cartography. (Kaarna and Mets 2008: 10)



**Figure 16.** Turnover, profit and profitability in Regio during 1997-2005 (million's EEKs). Source: Baltic Business News.

But the original goals were not achieved, although Regio grow in local terms and became the biggest GIS software supplier in Estonia. In 1998 Regio was placed 16<sup>th</sup> among the Estonian IT companies and 2<sup>nd</sup> among the indicator of ROE (return on equity). In international competition Regio's wall-map was prized with 2<sup>nd</sup> place by Intergraph Golden Mouse appraisal. All these new products and prizes showed good results of Regio's new production process. In 1999 Regio was registered as a private science and research institution and the company signed a contract to manage Estonian interactive maps and their updating. As a result, M 1:5000 GIS database was produced,



which covered all the Estonian urban areas (Regio's homepage). The same year Regio won the tender from Ericsson AB to develop mobile positioning software (MPS) for the Estonian Rescue Centre, which was the first nonesuch implementation in the world.

When compared to the previous periods, which mainly concentrated on improving technology and production in Regio, the years 1995-1999 were focused on products and market expansion. The scope of strategies became wider and Regio posed a certain goal to get to international markets. But the company lacked in financial resources and BSEF investments were seen as the opportunity to get to foreign markets. This brought along many operational changes which were perceived as new on the organizational level and resulted in increased financial indicators; besides product innovation also organizational innovations occurred during this period. But the posed goals and results were quite controversial. Although Regio had increased its turnover and profits and the company had very good results on Estonian level, the main purpose to start internationalization and open new networks was not achieved.

#### IV period 2000-2002: merger with DONE

In the late 1990s product development had gone well and Regio needed additional money of 7 million EEKs for implementing new solutions and complementing the range of products into the international market. Regio wanted to become the biggest company in Europe in mobile positioning (Mandel 2000). Marketing and implementing high tech solutions were the main issues that really needed investments. "Banks did not want to give loans for such risk-investments – small company, the purpose of the investment was not clear. Therefore, the only way was selling company's shares to some investor groups", explained Noorkõiv (2007) the background of the contract signed with the Finnish corporation Digital Open Network Environment OY (DONE). The merger was completed in 2000, when BSEF realized their Regio shares for cash and nearly 20 shareholders of Regio became the owners of DONE shares with a total value of 60 million EEKs.

According to Noorkõiv (2007) the merger with DONE was a drawback for Regio, because DONE did not follow the investment strategy and many decisions were made against the company's regular strategy. Also, the share of Regio was not that big to have a say in important questions. The merger was accomplished at the time when the so-

called new economy victory achieved its culmination and growth was replaced with downfall. Regio could not reach their goals and soon Ericsson was involved as a new strategic partner. DONE Group investors were initiators of the transaction with Ericsson and that resulted in a really positive change in Regio's development.

At the beginning of 2000s the first MPS was completed, and a spin-off subsidiary Mginet Technologies Estonia OÜ was established to develop positioning software and to spread it around the world. The subsidiary created the PinPoint software, improving positioning accuracy by between 2 and 8 times. In 2000 Regio began to resell IKONOS satellite photos and to offer the hosting service of map-server (ASP). In October 2000 the shares of the subsidiary were transferred to the ownership of Mginet Technologies OY (DONE group), which main partners were Ericsson and Estonian Mobile Phone (Eesti mobiiltelefon - EMT) (Kaarna ja Mets 2008: 11). The strategies of the company were very future-oriented. "In the future, wireless internet is going to spread more than the current traditional internet... Positioning will be the key element... No-one can tell exactly what kind of services customers will want on the Internet and therefore we have to develop services for markets that do not exist yet," speculated Teet Jagomägi already in 2000 (Korpan 2000).

In October 2001 DONE was split into two companies, DONE Solutions and Reach-U Holding, both quoted on the Helsinki Stock Exchange. Reach-U Holding comprised Regio and continued improving its own software, which was tested in Spain. In Estonia they operated under the name Regio but abroad under the name Reach-U Solutions. The subsidiary also made a contract with Ericsson that provided Reach-U Solutions with the access to global sales network and this was a great achievement for Regio. (Rozenhal 2001)

At the beginning of the year 2002 the parent company of Regio and Mginet Technologies Estonia OÜ, Reach-U Solutions and its owner Reach Holding announced their bankruptcy. This gave the minority stakeholders in Regio the chance to repurchase the company after one and a half years. The transaction cost 5.4 million EEKs. "The buy-back deal was ineluctable in a way, because we had to save our ideas and solutions," stated Jagomägi as they also got the rights for the trademarks of Reach-U and Mginet Technologies and software they needed for the cooperation with Ericsson.

The products were completed and Regio could start to reap the benefits. (Rozenal 2002)

In 2002, soon after the co-operation with Ericsson was established, Regio and the Estonian largest mobile network company, EMT set up a sub-company together. This resulted again in radical product innovation – Regio was the first company in the world to make the maps listenable through mobile phone. And through Ericsson, new international networks were created. “An understanding emerged that Regio can compete globally”, said Noorkõiv (2007). Now the basic question lied in marketing – how to get to the global market of high tech products and solutions. The main task was to evaluate and reorganize all possible marketing channels. Due to the co-operation with Ericsson and EMT Regio got some new multi-access marketing channels.

During the fourth period the developments in Regio were mainly driven by external factors and new partnerships and strategic decisions concerned internationalization, product development and marketing. Although the merger with DONE brought along many organizational changes, they did not result in innovation, but instead drifted Regio away from original strategies. Fortunately, Ericsson and EMT as Regio’s main partners made it possible to get back on track and opened the doors to the global market. It took two years, however, before the company could use this situation to sell its solutions to another country, and therefore, marketing innovation carried over to the next period.

#### V period 2003-2005: growing global independently

In 2003 Regio managed to get its first export contract with Slovakia’s biggest mobile operator Orange Slovenko. The subject of the contract was selling mobile software and delivering the Reach-U middleware and LBS (location-based services) package to provide LBS services to their 1.8 million subscribers. The cooperation with Ericsson also emerged further and besides the global reseller agreement, which opened Ericsson’s global network for Reach-U (Regio’s brand), they also made another agreement in 2004, which officially opened the Ericsson Mobility World sales channel for Reach-U LBS applications. (Walmsley 2004)

Regio has always continued publishing the maps, and in 2004 the Estonian Road Atlas held sixth place on the Estonian bestsellers list. In February 2005 Regio (Reach-U)

delivered mobile positioning to Saudi Arabia while Orange Romania chose the Reach-U middleware and LBS package to provide LBS solutions for Orange Romania's more than 6 million subscribers, following Reach-U's successful LBS installation with its sister operator Orange Slovakia. The Orange group is one of the largest operators in the world with over 50 million mobile subscribers. In October 2005 Enterprise Estonia awarded Regio the top "Enterprise of the Year 2005" award and the "Innovator of the Year 2005" award (Enterprise Estonia's homepage). At the end of 2005, Regio employed over 60 highly qualified specialists. The main development and production unit was located in Tartu, Estonia, while global sales and support was provided through partners (e.g. Ericsson) all over the world. (Kaarna and Mets 2008: 12)

During the period 2003-2005 Regio reached new markets and became a global company. The main strategy was geographic expansion through the cooperation with mobile operators in Slovakia, Romania and Saudi Arabia. Regio also widened its cooperation with Ericsson by getting new sales channels. All this resulted in successful marketing innovation, which was innovative not just in Estonia but in the whole world.

Throughout the history of Regio Rivo Noorkõiv (2007) appointed internationalization as the main influencing factor for the company. "First we got new technology from abroad, which gave Regio many opportunities for further developments. The emerging tools became customary – this took us to GPS, cooperation with EMT," he said. Another important factor was location; being in Tartu provided Regio with specialists from the University of Tartu. This turned out to be a strong organizational capability, which was mutual – students could learn cartography in real and later they were recruited. The third important influencing factor was partnership; for example, the cooperation with EMT disposed Regio towards positioning, which meant that more resources were put there," emphasized Noorkõiv the role of international possibilities, Tartu and partners. All in all, the previous analysis of Regio's development is summarized in table 8.

**Table 8.** Strategic decisions of Regio, the influencing factors and the innovation type resulting from these strategic decisions.

<b>Period</b>				
<b>Influencing factors</b>	<b>Strategic decision Reactive(R)/ Proactive(P)</b>	<b>Type of innovation</b>	<b>Level of perception</b>	<b>Outcome</b>
<b>1988-1989</b>				
The time of self-determination				
<b>1990-1991</b>				
Existing competence – geographers; missing capabilities – technology, know-how	Improving map production processes (P)	Process (Radical)	Org. Local	Small turnover and profit
<b>1992 – 1994</b>				
Existing competence – geographers; missing capabilities – technology, know-how; competitors	Transition to digital technology (P)	Process (Radical)	Org. Local Global	Stable turnover and profit
<b>1995-1999</b>				
Good technological capabilities, Lack of financial means	Funding by BSEF (R) Investing in DGPS (P), New products (P) Org. change (R)	Product Process Org. (Radical)	Org. Local Global	Increasing turnover and profit
<b>2000-2002</b>				
Lack of financial means, collapse of dot-com, strategic partnership with Ericsson, fallbacks in holding company	Merger with DONE (R) Buy-back deal (R) Company with EMT (P) Intern. networking (P)	Product (Radical)	Org. Local Global	The rapid growth in 2001 was followed by financial loss
<b>2003-2005</b>				
Strategic partnership with Ericsson, mobile operators in different countries; organizational capabilities	Expansion through cooperation with mobile operators (P) New sales channels (P)	Marketing (Radical)	Org. Local Global	Increasing turnover and profit

Source: compiled by the author.

The case study of Regio is remarkably unconventional. Regio has definitely been a unique phenomenon compared to the typical Estonian IT companies who have mainly focused on catching-up rather than on innovation. As Mati Tee (2008), the developer of information system technologies in Regio, denoted, mainly, the innovations were technological: “First leap was from paper maps to GIS. Many similar companies who were established at that time did not make that progress and this left them 5 years

behind. The second step in Regio was to start creating their own software solutions and provide position-based services.” But as the previous analysis of Regio’s case showed, there was more to the company’s success factors than just technological process and product innovation.

### **2.2.3. The case of Ordi**

Ordi started out its business in 1992 with only one worker, Sulev Sisask, who is still the CEO and the owner of the company. The first computer under the brand Ordi was assembled in 1994. Today the company with 125 employees has five main business lines, which include import of computer parts and accessories, computer assembling (Ordi is one of the biggest in Estonia in computer assembling), retail and wholesale of computers and computer parts, after-sales services of computers, and other computer services. The basic activities have remained the same as when Ordi was first established, although, when at the beginning of business the assembled computers were sold mostly under other trademarks, then now 98% of the computers assembled are sold under the trademark Ordi. (Ordi’s homepage)

#### I period: 1992-1997: Operating without strategy

The owner of Ordi, Sulev Sisask admitted in Äripäev (Pärl 2002) that the idea of becoming an entrepreneur was not a wish to come true but a result of having less work being an engineer in Tartu Autoremondikatsetehas. The main goal when Ordi was established in 1992 was to increase company’s turnover by developing a concrete business strategy and building an organization. But it took two years at the beginning to determine what the business exactly should be like. Sisask said in the interview in 2001 (Karu 2001: 251): “Till 1997, I did not feel as the manager of the company, because the organization was small and management *per se* was unnecessary”. Therefore, the main goal during the period 1992-1997 perceived in the organization was to earn money for the employees by doing what was interesting and getting benefits from that (Teder *et al* 2005). So all in all, there were no concrete strategic decisions made that could have led the company into innovation. Besides, the production of personal computers through assembly did not necessarily have anything to do with knowledge- or capital-intensive activities. It was rather a business where the main tool was a screwdriver and most of

the production consisted in just plunging the parts together (Hankewitz 1999, Högselius 2005: 109).

## II period 1998-2001: organizing for sustainability

During the first two years of this period the changes were very immense. At the beginning of 1998 the computer companies were gaining good results, whereas in December the same year Estonian computer production decreased remarkably as the market in general was declining. This in turn elicited densification in competition and Ordi had to change its strategic purposes and therefore, the strategic decision to broaden company's activities over Estonia was made. At the same time, the purpose was not aggressive development and broadening, but rather that of sustainability. As Sisask denoted in Äripäev (Hankewitz 1998): "The decrease of computer production is caused by new companies who work hard to increase their market share, but the older companies in the market have already achieved their market shares and they have no space for further development". Ordi did not consider itself as a global scale producer, instead, the company operated as a workshop, having its market niche and still earning profits (Korpan 1999).

Altogether, the period 1997-2001 was a time of geographic expansion, starting with opening a branch office in Tallinn with a computer shop in Tondi Business Center, followed by opening a computer shop in Tartu and a branch office in Narva in 1999, and in Pärnu in 2000 (Ordi's homepage). In turn, there was a need for a better control system over these facilities, and therefore organizational changes were necessary. The interviewees (employees of Ordi) pointed out that during the period 1997-2002 the changes in the organization took place – formal routines and structural changes (for example forming the positions of middle-management) were implemented (Teder *et al* 2005). In order to increase the quality of Ordi's products, sales and services, the company began to create and introduce their quality management system according to ISO 9001:2000 requirements. Sisask (2010) emphasized that the main innovation here lay in employees who were involved in the implementation process to assure the best possible outcome. The experts on ISO field also recognized that Ordi was quite unique in this respect. These changes promoted Ordi's main occupation, computer production and realization. In 2000 the company increased its market share from 13% to 16% in

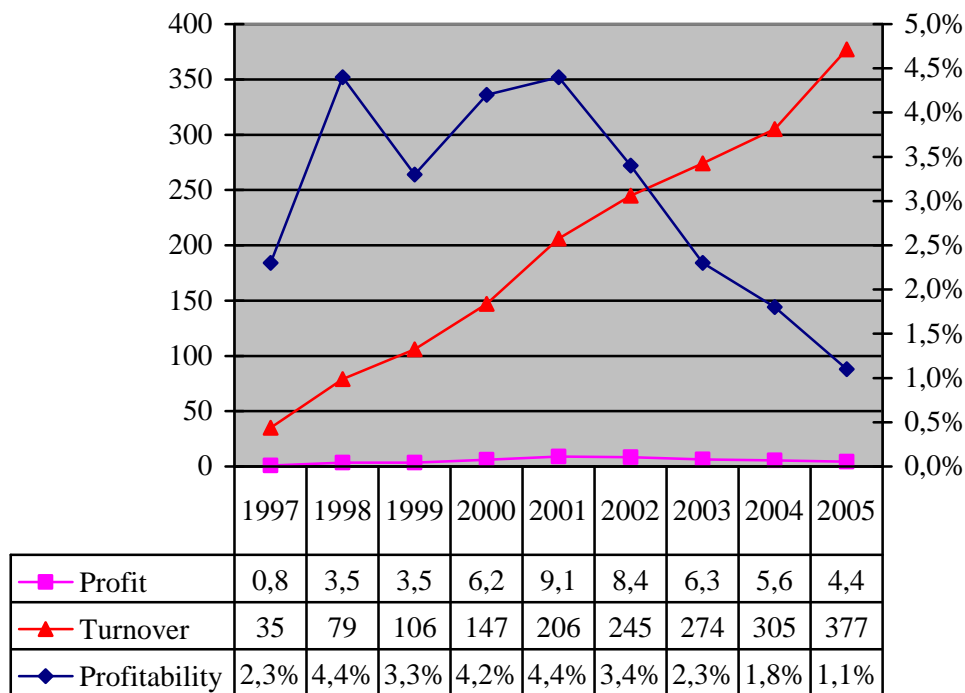
Estonia, maintaining the second place in the market in PC type computer production. (Ordi's annual report 2000).

These outcomes show that the occurring changes resulted in radical organizational innovation due to the improvement of internal capabilities, which enabled to broaden Ordi's activities over Estonia. On the other hand, the stable growth of Ordi was seen as a natural part of the organization's development without any special pressure (Karu 2001: 254-255), which means that the organization's capabilities and external environment were not seen as major influencing factors for the above-mentioned events. The organizational innovation was mostly recognized on the organizational level; however, according to the singularity of the process it was quite outstanding also on the local market level.

In addition, Ordi managed to make a contract with Microsoft Licensing Inc to install its operation system and different cooperation contracts with mass producers of computer components, like Quantum, Chaintech, LG Electronics Inc, Intel. Here the standardization of quality management was a major factor to raise Ordi's reliability. But more important than that was the project of e-sales starting in 2001, developing Ordi's homepage to a well-functioning e-shop (Ordi's homepage). According to Ordi's Annual Report in 2001 the main reason was to meet customers' demands and get closer to them, which in turn led the company into modular marketing innovation. The outcome was marketing innovation mostly recognized on the organizational level as the computers purchased online covered only 1,2% of the total sales.

The year 2001 was quite remarkable for Ordi as the turnover had increased 40% compared to 2000 (see the figure 17). Similarly to the turnover's growth, also the number of completed computers increased to 10 288 in total, which was 46% more than the year before. The biggest increase in turnover was in Tartu's sales salon, 88%, supported by the change of the sales place, which allowed a bigger and more varied display of products (Ordi's Annual Report 2001). All in all, the whole promotion strategy became more effective and productive. Ordi applied different Ad campaigns and developed cooperation with producers in the field of advertising.





**Figure 17.** Profit, turnover and profitability in Ordi during 1997-2005 (million EEKs).

Source: Baltic Business News.

### III period 2002-2003: standardization

The year 2002 was an upheaval for Ordi, when the quality management system was certified according to ISO 9001:2000 standard, which had direct influence on the organization as a whole. Strict rules and instructions were imposed, and hierarchical differentiation was formed, which in turn changed the company from a free form to a very formalized and standardized company. The interviewees emphasized that this was a drawback for further progressive development in Ordi. The company's previous strategic purposes of growth and broadening were replaced by the purpose of maintaining the company's market share and achieving stability (Teder *et al* 2005).

As the employees did not support that organizational change, the case of innovation is rather questionable. Also, the standardization was implemented in three years, so it was more a longer-term than a quick change. But the change was radical and brought along new knowledge, being adopted and perceived as new by the members of the organization. As denoted by the management, the quality certificate raised the value of Ordi and improved the company's productivity. One reason for implementing ISO standard was to take the computer and guarantee repair service closer to the customers,

but another reason was to improve the organization's capabilities in order to decrease guarantee repair costs (Ordi's Annual Report 2002). These aspects indicate that, all in all, it was organizational innovation. Besides quality management, also strengthening the brand ORDI was included to company's strategic decisions. The company's logo was changed, a cover with new symbolism was worked out for computer, keyboard and monitor, and computer's User Guide was completed for printing. This brought along incremental marketing innovation, both on the organizational and local level.

In the second half of the year 2003 Ordi began to produce and sell laptops, gaining 22% of the market and being in top two with ML Arvutid already in the first year. The strategic purpose was to certificate at least 3 Ordi's computers, including one laptop, in HCL (Microsoft's Hardware Compatible List) and provide computer's type model with the CE-mark (proves that the product corresponds to the requirements set in European Union) 2005 latest. In product development Ordi found new solutions to reduce noise level, fulfilling the increasing needs and requirements of customers, bringing along incremental product innovation on the organizational and local market level.

#### IV period 2004-...: internationalization

In 2004 a totally new strategic decision was made to sell ORDI's computers to Latvia and Lithuania. As a result, a representation in Riga, Latvia, was founded in 2004 and in 2005 Ordi acquired a considerable share of Lithuanian computer company UAB Aideta. Yet, Sisask admits that export has never been a purpose on its own, but the main focus is in the local Estonian market, and therefore expanding abroad did not result in any radical innovation, either. In 2005 Ordi was a co-founder of MTÜ EES-Ringlus, which is a producer liability-organization, arranging and financing the collection, processing, reuse and environmentally friendly removal of non-useful electrical and electronic equipment. Ordi also joined MTÜ Eesti Pakendiringlus, the purpose of which is to assure the national collection and reuse of packages and packaging waste. These events refer to socially responsible activities rather than to innovation. The previous analysis of the development of Ordi is summarized in table 9.

**Table 9.** Strategic decisions of Ordi, the influencing factors and the innovation types resulting from these strategic decisions.

Period				
Influencing factors	Strategic decision Reactive(R)/ Proactive(P)	Type of innovation	Level of perception	Outcome
<b>1992-1997</b>				
Workers earned money by doing what they liked	No concrete strategic decisions	-	-	Small turnover and profit
<b>1998 – 2001</b>				
Increasing competition, Lack of capabilities, Customers' needs	Expanding across Estonia (R) Cooperation with mass producers (P) Starting the project "e-sales" (R)	Org. (Radical) Marketing (Modular)	Org. Local	Increasing turnover and profit
<b>2002-2003</b>				
Customers' needs, High costs	Implementing ISO 9001 quality management standard (P) Producing ORDI laptops (R) Branding (R)	Org. (Radical) Product (Increm.) Marketing (Increm.)	Org. Local	Rapid increase in turnover
<b>2004-...</b>				
Competitors, Growth needs	Expanding to Latvia and Lithuania (R)	Product (Increm.)	Org.	Increase in turnover

Source: compiled by the author.

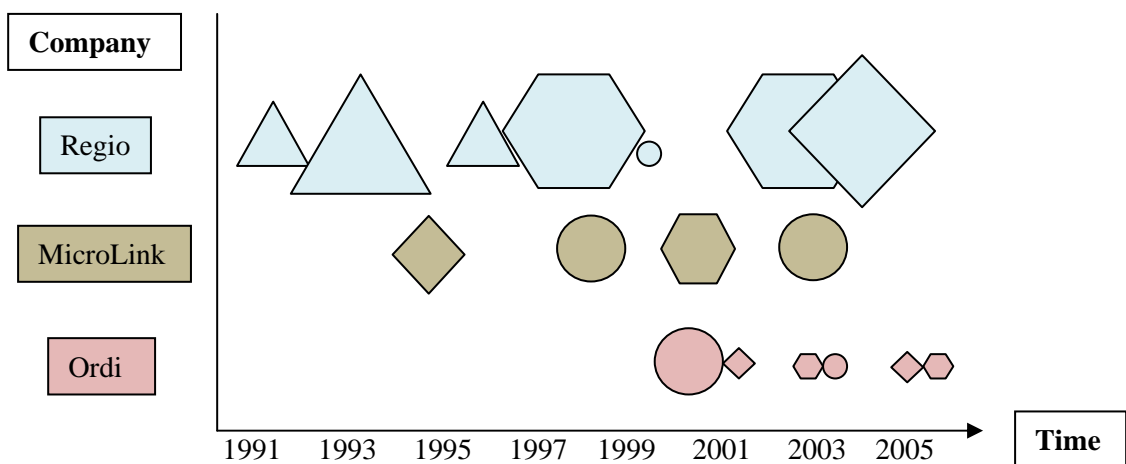
According to Sisask (2010) the products have been changing all the time, bringing along incremental innovation. These changes might not have been noticed by customers, but constant development of products was inevitable for the company. The previous analysis of Ordi's case indicates that most of the strategic decisions made in the company followed the purpose of stable and continuous growth, which did not lead the company to any outstanding innovation. There were traces of organizational and marketing innovation, even product innovation, but they were incremental, modular and architectural rather than radical.

### 2.3. Results and implications

The analysis based on the case studies of MicroLink, Regio and Ordi indicated many interesting threads between strategic decisions, their influencing factors and innovation. In the present chapter the main conclusions regarding the aim are brought out. First,

there will be a closer look into innovation types revealed in the three case studies as the goal was to integrate the types of Oslo Manual and Henderson-Clark model. Secondly, the raised propositions are confirmed or overruled, according to the results of the three case studies. Finally, the main aspects of the aim of the thesis are summarized: how the organization's external environment and capabilities influence strategic decisions that result in innovation.

There is no doubt that MicroLink, Regio and Ordi have been innovative. However, the question is what types of innovation they demonstrated and how they were perceived by third parties. Beginning with the types of product, process, organizational and marketing innovation, different patterns could be recognized regarding the perception level. The figure 18 illustrates the types of innovation that emerged in MicroLink, Regio and Ordi during 1991-2005.



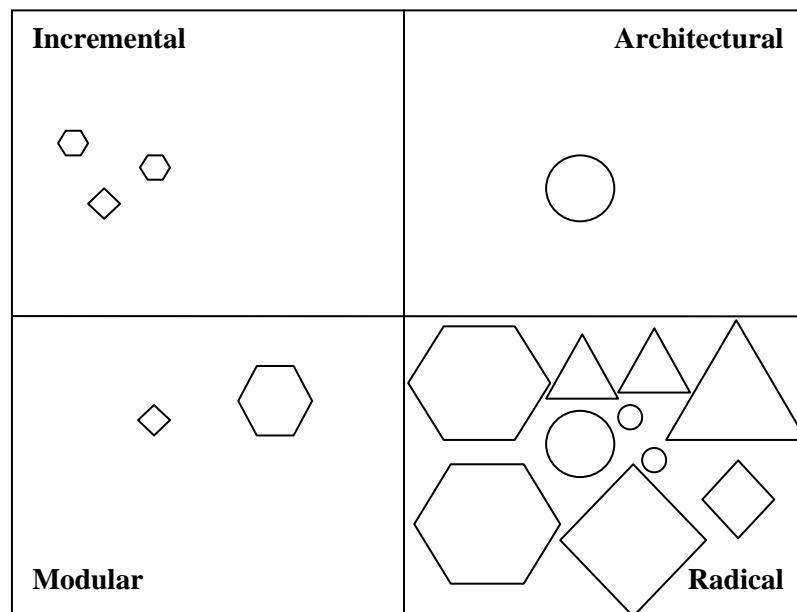
**Figure 18.** The patterns of different innovations during 1991-2005 based on the case studies of MicroLink, Regio and Ordi (compiled by the author).

Note: Each innovation type is assigned with a different shape (◻ - product, △ - process, ◇ - marketing, ○ - organizational) and the bigger the shape, the higher the perception level (small – organizational, average – local market, big – global market level).

As seen from the figure 18, Regio has been the only company where all the types of innovation occurred and where they were recognized on the global market level mostly. The first process innovation was perceived on the local market level as Regio was implementing technology from the developed world, and organizational innovation was

the one perceived only by the members of the organization. In case of MicroLink, except process innovation, product, marketing and organizational innovations occurred and they were all perceived on the local market level. In terms of the innovation level the development of innovations in Ordi has been remarkably different compared to Regio and ML, as its product, marketing and organizational innovations have mainly been recognized by the members of the company only. The implementation of ISO standard was more successful in the context of the local market level.

The results are also intriguing, when defining the previous innovations in the dimensions of component and architectural knowledge. The figure 19 illustrates different types of innovation in the context of radical, incremental, modular and architectural innovation.



**Figure 19.** Product, process, organizational and marketing innovation in the dimensions of component and architectural knowledge (compiled by the author, based on Henderson and Clark 1990).

Note: Each innovation type is assigned with a different shape (◻ - product, △ - process, ◇ - marketing, ○ - organizational) and the bigger the shape, the higher the perception level (small – organizational, average – local market, big – the global market level).

The case studies revealed that most of the innovations of MicroLink, Regio and Ordi were radical, some were incremental, very few were modular and only one innovation

was architectural. Another interesting aspect is that most of the globally perceived innovations were radical, and most of them took place in Regio’s development.

As the results of the innovation types and their perception levels that became evident are remarkably different among the three case companies, it is especially intriguing to find out what the factors shaping the patterns of innovation types in MicroLink, Regio and Ordi have been. One possibility may reveal in the connections between the characteristics of the ICT companies and innovation that were brought out in the theoretical part. To support these connections it is necessary to bring out the characteristics of MicroLink, Regio and Ordi to verify if they are close to the approach of Bullinger *et al* (2000) and The Global Information Technology Report (2009). Table 10 introduces how ICT companies’ characteristics influence innovation based on the three case studies.

**Table 10.** The characteristics of IT companies and their influence on innovation in the context of Estonian IT companies.

<b>Characteristic</b>	<b>Validity</b>
Knowledge centrality leads to new ideas and knowledge	<b>Yes</b> – when the core business is determined
High development rate and short life-span of products – constant generation of new ideas	<b>Yes</b> – fostered by knowledge and sufficient financial means
High importance of human factor in generating new ideas	<b>Yes</b> – people with special knowledge are the first ones to perceive innovation
Decentralized organizations, home offices and process oriented teams	<b>Yes</b> – <b>but</b> in some cases home offices and process rather than result oriented teams may destroy synergy where innovation could emerge
Learning organizations generate new ideas and knowledge and adopt innovation more easily	<b>Yes</b> – depends a lot how employees are involved in the strategic decision making
Collaboration with different private and public organizations help to cope with external environment and commercialize innovations on the higher perception level	<b>Yes</b> – it gives much better commercialization and internationalization options
High internationalization rate and “think global, act local” mentality give better opportunities to commercialize innovations and engage higher perception levels	<b>Yes</b> – internationalization depends on the general vision and strategy <b>but</b> “think global, act local” mentality does not necessarily give better innovation options

Source: compiled by the author, based on Bullinger *et al* (2000) and The Global... (2009).

The main conclusion from the previous case studies is that the characteristics are more or less the same in ICT companies and they are related to different aspects of innovation. It depends largely on the time frame of each company's development, as different characteristics potentiated in different time periods. Firstly, unlike many other Estonian ICT companies starting in 1990s, Regio had a clear idea in which direction the company wants to advance – cartography – and knowledge centrality was the main advantage of Regio from the beginning. The company had existing competence in employees with geography-based background, who mainly came as practitioners from the University of Tartu to get experiences and later work in Regio. At the same time Regio gathered knowledge from other sources, like Latvian map producers, technical skills from St Petersburg's colleagues; Teet Jagomägi brought important knowledge from USA. But in case of MicroLink and Ordi the knowledge was gathered over time and at first unlike Regio, they did not have any special know-how. As Sulev Sisask (2010) denoted, the first two years were mainly spent on clarifying the direction which way Ordi should go, and in 1994 they began to concentrate on computer assembly, which means that their knowledge centrality started from there. In general, it could be concluded that knowledge centrality becomes an important factor for an ICT company when the core business has been determined and therefore, the company starts seeking for certain knowledge. Also, in the previous case studies it came out quite clearly how knowledge centrality generates new ideas and provides new knowledge, being one of the main components of innovation.

Secondly, in the sense of competitiveness, the high development rate of products has been an essential factor for MicroLink, Regio and Ordi. In case of Regio, from the first operation years the products have been complicated, but for MicroLink and Ordi the production was first just assembling the parts, which was not technically complicated, but new knowledge generated over time brought along new ideas how to improve their products and services. According to Sisask (2010), besides knowledge it was also profits that allowed the ideas to become real and in turn more and more ideas could be realized, which made the life-span of a product very short. This was also the case of MicroLink (Delfi) and Regio (GPS in mobiles) when they involved risk capital to support product development. Hence, the development rate of ICT products remarkably

depends on new ideas, which can be realized if there is enough knowledge and also financial means.

Thirdly, profits are raised by the whole company, but knowledge and its implementation in generating and launching new ideas depends a lot on human factor, which is also a very important characteristic of ICT companies. This aspect became clearly evident in the three case studies. According to Noorkõiv (2007) human factor has played a great role in Regio's choices and developments as there were very few people with special knowledge available. Enn Saar (2008) and Sisask (2010) also emphasized the role of people as the main source of innovation, being the first ones who got involved in new ideas and as a result, they were the ones who perceived emerging innovation in the first place.

Fourthly, in case of organizational aspects the analysis of the case companies' developments showed several variations from the approach of Bullinger *et al* (2000). At the beginning of 1990s decentralized organizations and process oriented teams were quite beneficial for ML, Regio and Ordi for innovation purposes, but the truth lies in the fact that the companies were lacking in managerial skills (Martinson (2007), Noorkõiv (2007), Sisask (2010)). Over time, the CEO's also got more experience on management and this brought them to an understanding that concrete organizations with clear structure and responsibility areas were inevitable if the company aimed development and innovation. Jagomägi (2010) declared clearly that home offices were not considered effective as new ideas emerged through the synergy of employees, who could openly share their ideas and knowledge with each other. Ordi implemented ISO certificate, which made the whole organization operate by certain system and rules. But it did not mean that the employees lost their autonomy, instead, they were involved in the implementation and decision making process of the ISO standard. In addition to that in Regio the employees have always been involved in strategic decision making process, which makes the teams more result than process oriented. But what is even more remarkable is that all the organizational arrangements in the three case companies were implemented in order to cope with the changing environment and increasing competition better. This in turn shows that the capability of learning and the adoption of



innovation depend much more on how employees are involved in the strategic decision making rather than on organizational centralization or decentralization.

According to The Global Information Technology Report (2009), ICT companies are very collaborative for innovation purposes, which include cooperation with customers, suppliers, also competitors, and with universities and public research organizations. This was also proved by the examples in the case studies: Regio had a very successful cooperation resulting in many innovations with the University of Tartu, EMT, Ericsson; MicroLink and Ordi constantly improved computers and information systems not just for private clients but for state agencies; the three companies were also included in The Tiger Leap Foundation<sup>4</sup>. Indeed, the fifth characteristic, cooperation with different private and state institutions contributes to innovation, providing better options to commercialize company's innovation and cope with the external environment.

The case studies more or less confirmed that IT companies are oriented to internationalization. The central goal of MicroLink was to become the biggest IT company in the Baltic States; after several radical product innovations, Regio realized its ability to become a global company; and Ordi also took the direction to internationalization, when it became clear that the local market was insufficient for increasing market volume. But when considering the “think global, act local” mentality, several disparities could be recognized in the context of the case companies. Ordi never wanted to become a global company, but still their main concentration was on customer needs and how to enable them. In the case of Regio, the desire became bigger as it was realized that there was a big potential to introduce totally new solutions and products for which there was even no market demand yet. MicroLink possessed more a mentality of “quick-and-dirty” rather than “think global, act local”. The last may be the viewpoint of many IT companies, but in the present thesis it did not find any statement.

*Proposition 1: Primary strategic decisions in ICT companies include new product, new process technology, organizational change, marketing strategy, geographic expansion,*

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<sup>4</sup> The Tiger Leap Program was a project driven by the idea to equip all Estonian schools with computers, viewing this as a vehicle for enabling Estonia to take a big leap into the information technology. The idea was presented in spring 1995 by the Estonian ambassador to the United States, Toomas Hendrik Ilves (Högselius 2005: 133).

*new facility and human resource strategy, while secondary strategic decisions include restructuring, diversification and quality improvement.*

There was quite a wide variety of different strategic decisions made in MicroLink, Regio and Ordi and mostly they did cover these decision types represented in proposition 1. However, the strategic decision of MicroLink to conduct several stock emissions does not classify to any of these types. Table 11 gives a better overview of each type and corresponding strategic decision in MicroLink, Regio and/or Ordi.

**Table 11.** Strategic decisions in MicroLink, Regio and Ordi in the context of the main decision types.

<b>Decision type</b>	<b>MicroLink</b>	<b>Regio</b>	<b>Ordi</b>
Restructuring	Selling wholesale operations (R); selling business subsidiaries (R)	-	-
New product	Launching Delfi (P)	MPS, LBS (P)	Laptops (R), new solutions (R)
Organizational changes	Structural changes (R)	Organizational changes (R)	Structural changes (R)
New process technology	-	Going over to digital technology (P), Investments in DGPS (P)	-
Marketing strategy	Authorized dealers (P)	Cooperation with Ericsson (P), New sales channels (P)	E-sales (R), Branding (R)
Geographic expansion	Internationalization to Baltic States (P)	Expansion through cooperation with mobile operators (P)	Expanding throughout Estonia (R), Export to Latvia and Lithuania (R)
Diversification	New information and internet services (P)	Different product solutions, GIS based solutions (P)	-
New facility	Aggressive M&A-s (P)	Merger with DONE (R), sub-company with EMT (P), buy-back deal (R)	New branch offices across Estonia (R)
HR strategy	-	Employees involved in strategy elaboration	Employees involved in ISO implementation
Quality improvement	-	-	Cooperation with mass producers (P), Implementing ISO quality standard(P)

Source: compiled by author, based on Mintzberg *et al* (1976), Hickson *et al* (1986), Dean and Sharfman (1996).

In table 11 it is also noted whether the strategic decision was proactive or reactive and as it can be seen, most of the decisions were proactive in MicroLink and Regio, but Ordi's decisions were mainly reactive in their nature. Only in case of the decisions concerning organizational changes all three companies showed reactivity, which mostly occurred because the companies could not operate effectively any more without a concrete organization and structure. What is interesting is that Ordi was the only company that emphasized the significance of constant improvements in quality, which was also a strategic decision on its own. At the same time Regio emphasized the role of constant development and research on new product and technology opportunities, and MicroLink's overall strategy was aggressive internationalization in order to become a Pan-Baltic company. Thus, the main strategy and vision differed a lot between MicroLink, Regio and Ordi. However, the proposition 1 holds quite true; the primary strategic decisions in the case companies included new product development, organizational change, marketing strategy, geographic expansion and new facility, while the secondary strategic decisions concerned restructuring, diversification, quality improvement, new process technology and human resource strategy. As it appears, the difference from the proposition is in the types new process technology and human resource strategy which in the case companies were supporting strategies.

*Proposition 2: ICT companies that make strategic decisions in the context of dynamic capabilities are more sustainable in their development than companies that make decisions either in the context of external environment or organizational capabilities only.*

The three case studies demonstrated clearly that when a company concentrates mainly on its organizational capabilities, it does not succeed in terms of stability and sustainability. In the second half of the 1990s Regio searched for financial means to develop its products and gather knowledge, but in the end it brought along great financial losses. As Martinson (2007) denoted, MicroLink concentrated mainly on its vision to expand over the Baltics and develop products like Delfi, but it also needed extensive investments. At the same time they did not consider external environment much and as MicroLink's case study showed this lead the company to huge financial loss. Speaking of Ordi, which main goal was stable growth, the organizational

capabilities were in constant interaction with external environment. Ordi's strategy was to improve the quality and management system, expanding through-out Estonia; all in reaction to changes in the market (customer needs, increasing competition, new solutions etc). This in turn strengthened Ordi's market position and also helped to increase sustainability a lot. Thus, when a company seeks for strong growth it should definitely try to improve its dynamic capabilities.

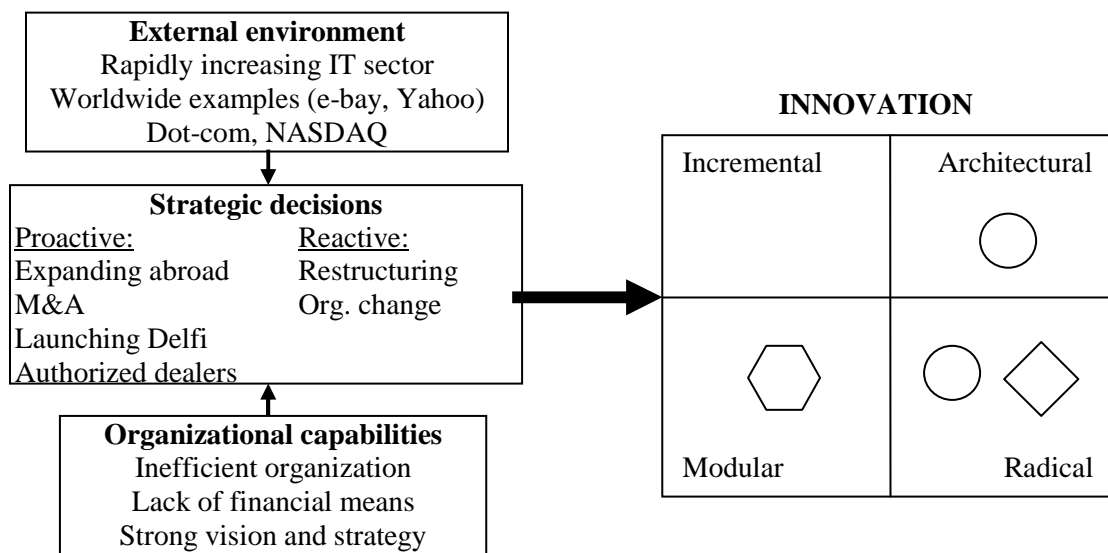
The following section concentrates on the results of the cases placed in the context of the aim of the present thesis. The discussion analyzes the role of different influencing factors on strategic decision making and how it finally resulted in innovation. These interactions are brought out separately with each case (MicroLink, Regio and Ordi), which in turn gives an opportunity to explain the validity of propositions 3, 4 and 5.

In case of MicroLink, three types of innovation were revealed; product, organizational, and marketing innovation. Product innovation was the result of the strategic decision to concentrate on Internet businesses as the management saw huge opportunities to increase and earn profits with Delfi portal. The influencing factors came mostly from external environment: the increasing number of internet users and the impact of worldwide portals like e-bay and Yahoo. In the context of component and architectural knowledge the innovation was modular, based on the comment feature, which was promptly adopted by the portal users. The strategic decision itself was proactive as the management saw the possibility to become the leading portal, creating the need the customers themselves were not yet aware of.

The first organizational innovation was quite radical and occurred when ML made a strategic decision to start quick expansion through mergers and acquisitions (M&A), which led them, first, to the merger with Astrodata, and later, with many Latvian and Lithuanian companies. Therefore, there was a great need for organizational changes and moreover, financial means in order to improve the organization's capabilities. The decision was proactive as MicroLink perceived the opportunity to become the biggest IT company in the Baltic States. The consolidation of IT companies was rather outstanding at that time, as it required courage to risk and a lot of finance. The strategic decision behind the second organizational innovation was reactive as MicroLink struggled through hard times and in order to continue its activities there were structural

changes and additional funding was needed. These structural changes did not add any component knowledge, but the architectural knowledge of the organization was improved; hence, the innovation was architectural. On one hand, the influencing factors of the decision to change organizational structure came from inside, as there were organizational problems and lack of financial means, but the general reason beyond was the collapse of dot-com and NASDAQ which MicroLink's stocks were closely related to. In truth, the whole future of the company was unclear and there was a great possibility that ML would close down.

Marketing innovation was the first innovation in MicroLink, resulting from the strategic decisions to expand abroad and use the concept of authorized dealers in order to strengthen the company's position over the Baltics. This was proactive and radical at the same time as the purpose was to anticipate competitors by providing efficient customer service. In summary, during 1991-2005 MicroLink was quite a unique company, who had a strong vision and strategy from the beginning. Due to that, the company did not react to environmental changes, but tried to change the environment itself and the fast-evolving IT sector gave advantageous opportunity for that. The figure 20 illustrates how the previously described events happened in MicroLink.



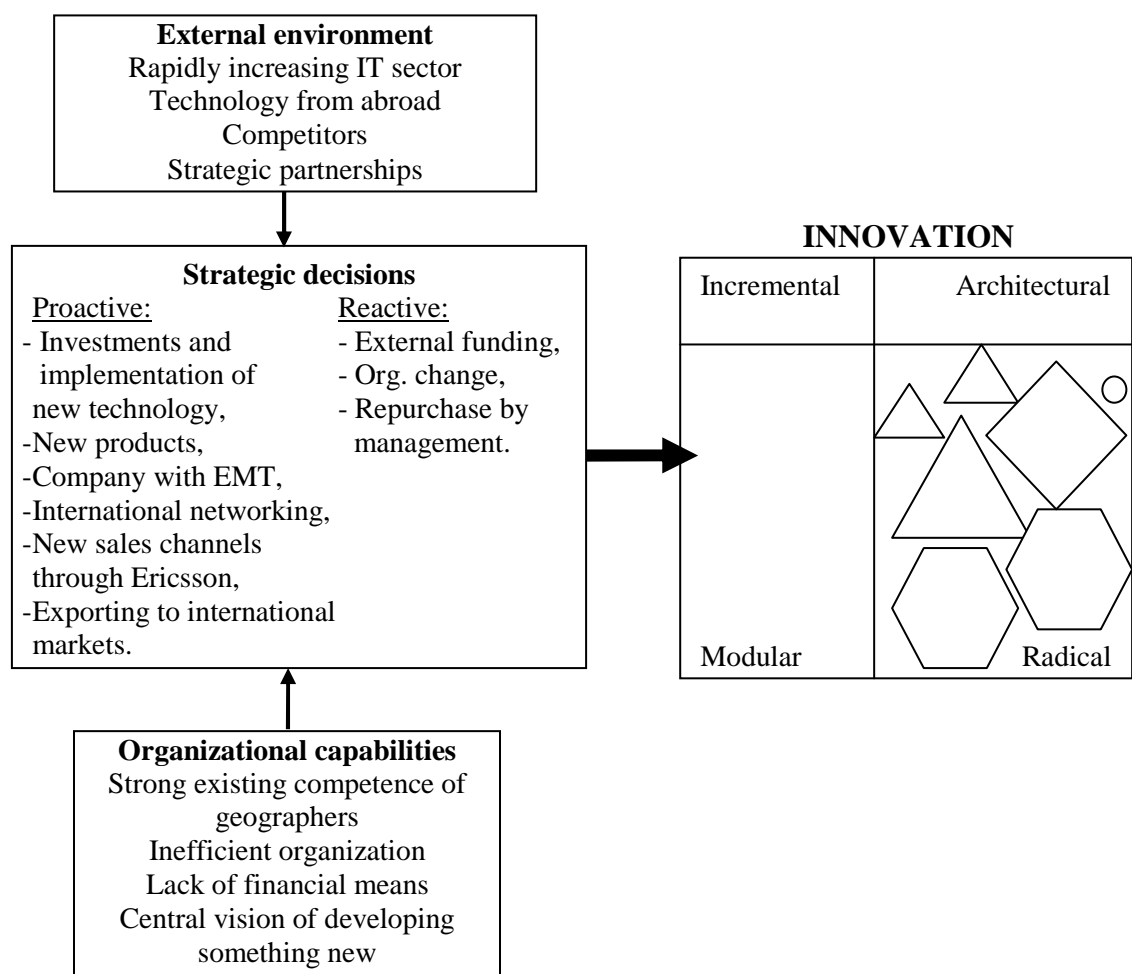
**Figure 20.** Innovation in MicroLink resulting from the strategic decisions and their influencing factors (compiled by the author).

The case of Regio is evidently different from MicroLink's case and the company has always been very product-oriented and the main question has been "how to improve, what kind of new products to develop?" All innovation types were presented in the case of Regio, which were mainly radical and perceived on the global market level. Process innovations were the result of the strategic decision to implement new technology and know-how. The main influencing factors were the existing organizational capability of human resource, namely geographers, who knew what is essential to develop products and what kind of knowledge they were missing to provide these developments. The decisions were proactive in their nature as Regio tried to anticipate competitors by being the only company in Estonia, and among many other countries as well, who went over to digital technology. In the context of architectural and component knowledge these innovations were definitely radical as they changed the whole understanding how technology could be implemented and what knowledge could be achieved.

As the central strategy of Regio was to find ways how to constantly develop products, it is quite logical that many product innovations occurred, which were also radical in their nature. The strategic decision was very proactive because Regio never aimed to operate according to customers' needs, but instead, determine these needs itself by developing solutions and products that the market will use widely sooner or later. The main influencing factor that provided company with radical process and product innovations was organization's members' own will to develop something *new*. Besides, Regio's strong competence and knowledge, the product development strategy was also supported by strategic partnerships and international networking, which was not only beneficial for product innovations, but also for marketing innovation. It was quite outstanding how Regio reached foreign markets through the sales channels provided by such gigantic company like Ericsson. Another important strategic decision that gave an important trigger to Regio's product innovation was the management decision to buy back the company from the holding company, which had declared bankruptcy. It was a reactive decision but with critical consequences as Regio gained back its independence to strategically manage the company.

The organizational innovation occurred as a result of the strategic decision made in 1995 to involve investments from BSEF. The vision was to take Regio's developed

products to the international market, but the company did not have enough financial capabilities for that. Because of the requirements of the investors to develop Regio to a normally functioning and manageable organization, immense organizational changes were inevitable. Therefore, the decision was more reactive than proactive in its nature. Also, the innovation was perceived mainly by the organizational level, because the changes were totally opposite to the employees' previous experience of organizational activities, which had been more of a club than a company. The figure 21 summarizes the previously described events and processes in Regio.



**Figure 21.** Innovation in Regio resulting from the strategic decisions and their influencing factors (compiled by the author).

All in all, similarly to MicroLink, Regio also had a very strong vision of becoming a global company with totally new products and solutions. But during the first period the

company was not yet aware of the internationalization possibilities and of the fact that their products are innovative not only in Estonia but practically all around the world. Regio always aimed to anticipate market and improve its organizational capabilities and besides existing competencies, the fast-evolving IT sector gave also many opportunities for that.

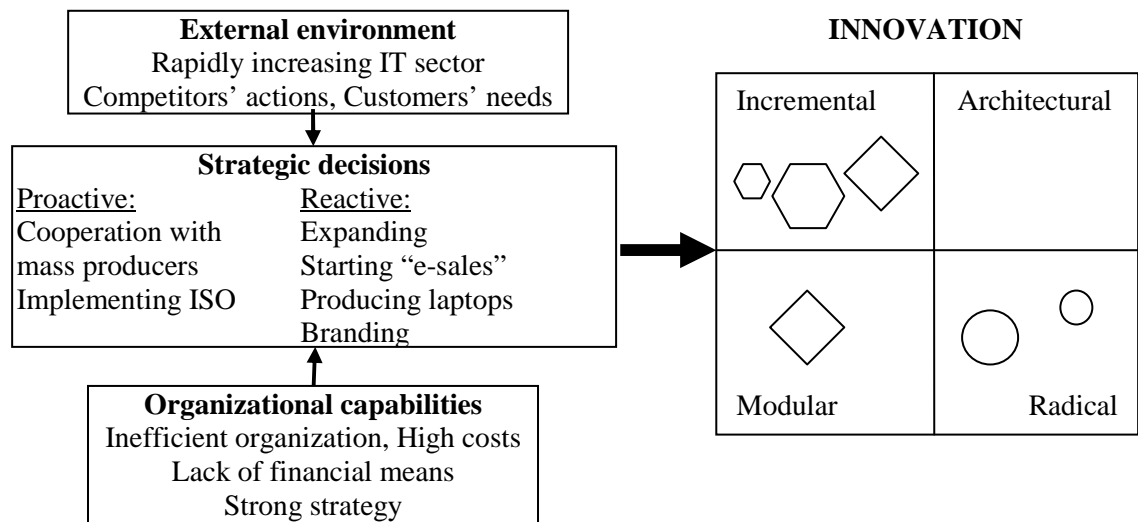
In case of Ordi the manifestations of different types of innovation has been influenced by the company's main focus on stable and continuous growth rather than on aggressive expansion. There were three types of innovation represented during the period 1992-2005; product, organizational and marketing, which were mainly incremental in their nature. According to Sisask (2010) Ordi's products are always changing and are therefore always a subject of innovation, but the changes are incremental and definitely not radical. Most of these innovations are not even perceived by customers but only by the members of the organization. Starting the production of ORDI laptops was definitely perceived on the local market level, however, Sisask does not count it as innovation because two years before that, MicroLink was the first company, which started to produce laptops in Estonia under its own trademark; however, without any success at that time. But as the author of the present paper suggests that innovation is not only coming out with new products, but the important aspects are also successful commercialization and profitability, producing ORDI laptops could be accounted as innovation. The main factors behind this decision were Ordi's organizational capabilities that were under constant improvement. This was a result of the strategic decision made in the previous period: to start cooperation with different mass producers that could increase the quality of Ordi's products. On the other hand, Ordi reacted to customers' needs and as the market was very demanding and quickly changing, there was no other way than to constantly improve Ordi's capabilities.

Organizational innovations were quite radical in Ordi, which were the result of significant organizational changes in structure and management. The first innovation was perceived mainly by the members of the organization, when Ordi started to expand across Estonia, opening first, the branch office in Tallinn. As Sisask denoted the competition was increasing so rapidly that Ordi had to start expanding to insure its market position. The decision to implement ISO 9001 quality management standard



resulted also in organizational innovation. Although the changes were radical, the management tried to implement them as painlessly as possible, and therefore employees were also involved in the implementation and decision making process. This made it an innovation on the local market level approved by experts, because it was not very common to involve employees with the process of ISO standard implementation. The influencing factors were mainly the same; to improve quality, meet the customers' needs and support organizational sustainability.

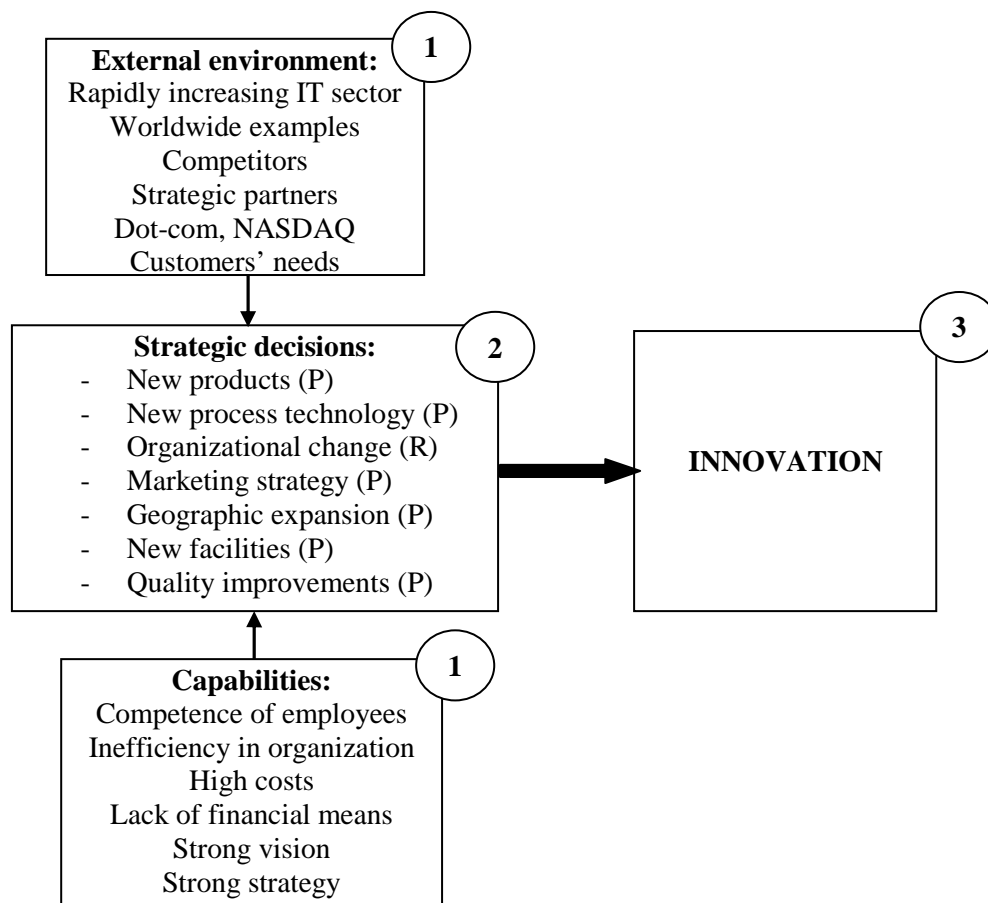
Starting the project "e-sales" resulted in incremental marketing innovation, which was perceived both on the organizational and local level as e-shops were not very common in the local market. At the same time in the context of architectural and component knowledge this particular marketing innovation was modular, because only the components of marketing were changed. But Ordi showed also incremental marketing as the company's strategic decision was to strengthen ORDI brand and improve Ad campaigns. The influencing factors here were the same; organizational sustainability, customers needs and improvements in quality. The figure 22 illustrates the previously described threads between strategic decisions and innovation.



**Figure 22.** Innovation in Ordi resulting from the strategic decisions and their influencing factors (compiled by the author).

The next figure 23 summarizes the above-mentioned manifestations and takes together the factors of the organization's external environment and capabilities that have

influenced strategic decision making and the strategic decisions that led the companies into innovation.



**Figure 23.** Innovation as a result of strategic decisions influenced by external environment and organizational capabilities (compiled by the author).

Proceeding from the types of strategic decisions the figure 23 demonstrates that most of the types resulted in innovation, except restructuring, human resource strategy and diversification. What is interesting is that human resource strategy is believed to be one of the most important strategies in ICT companies, but in the case studies it appeared to be a supporting aspect of general processes. This refers to the fact that Estonian ICT companies are lacking in efficient HR management and they should consider it as one possible source of successful strategy. Also, diversification was not a strategic decision resulting in innovation, but it could be considered as a supporting strategy in marketing and meeting customers' needs.

*Proposition 3. Primary environmental factors impact strategic decisions that result in process and/or organizational innovation, while secondary environmental factors impact strategic decisions resulting in product and/or marketing innovation.*

Table 12 summarizes the environmental factors and the resulting innovation according to the cases of MicroLink, Regio and Ordi. There was no concrete evidence that the proposition holds true. What could be concluded is that different types of innovations are mainly the result of strategic decisions influenced by the primary environmental factors (competitors, customers, suppliers). Only one product innovation was a result of a decision that was actually influenced by the secondary socio-technological aspects (MicroLink, Delfi), but this is definitely not enough to support the given proposition. This result indicates that as the changes in ICT depend a lot on global development and trends, both the primary and secondary environmental factors should be considered during the strategic decision making in order to have the best results also in the sense of innovation.

**Table 12.** Innovation resulting from strategic decisions influenced by the primary or secondary environmental factors.

Company	Environmental factor	Strategic decision	Innovation
MicroLink	Competitors, customers →	Authorized dealers →	Marketing
	Increasing IT sector →	M&A-s →	Organizational
	Socio-technological aspects →	Delfi →	Product
Regio	Competitors →	Digital technology →	Process
	International customers →	New sales channels →	Marketing
Ordi	Competitors →	Expanding →	Organizational Product
	Customers →	E-sales, Branding → Production of laptops →	Marketing Product

Source: compiled by the author.

*Proposition 4: Conscious innovation management is triggered by a certain need in a company's development.*

Speaking of innovation as one object of strategic decision making, the situation has been also quite different among the three companies. According to Sisask (2010), until 2002 the strategic decisions were made according to the market needs and they were reactive rather than innovative, but in 2002, when Ordi implemented the ISO quality

standard, innovation became strategically manageable. There was a need for organizational growth and constant product development. “Ordi started searching for a product that could sell better in the market. The changes are so immense that the product is in the constant innovation process and very often the customer realizes the changes later, when the product is already in use,” denoted Sisask the importance of innovation that has become part of their product development since 2002.

On the other hand, from the beginning Regio has been a company that is trying to develop totally new solutions to the market and anticipate the future needs of customers, which shows the role innovation should have had in strategic decision making. However, Teet Jagomägi (2010) claims that innovation has never been a singular purpose and Regio does not even think of itself as an innovative company. Instead, Regio is lead by a strong vision to do new things according to the competence the employees hold. But the organizational changes that took place in 1999, when BSEF invested in Regio, also brought along the understanding of innovation and that it is manageable.

Also, innovation was never a purpose in itself in MicroLink, but the company demonstrated the mentality of being the first one in the Baltics by implementing new solutions in product range and also in the organization. In fact, MicroLink was the first company in the Baltics who started to produce laptops under its own trademark, but the timing was wrong and the market was not ready yet for such costly solution. Therefore, in the beginning ML produced laptops only to business clients and to its own employees. “But the truth is that we had no strategic diversification, all the new solutions and ideas were included if a person, any person came up with some,” said Enn Saar (2010) about the real situation in MicroLink until 2002-2003. At that time immense organizational changes took place, bringing along also innovation. The company’s structure was changed to matrix structure, which changed the whole management system and also the role of innovation. Before that innovation had been episodic, but after the changes in management it became one part of the general strategy.

All three cases indicate that companies become aware of innovation as a strategic matter after a comprehensive organizational change, which is driven by the need to intensify

operation and management of an organization. This is also supported by the fact that especially in 1990s Estonian ICT companies were lacking in managerial skills and most of their decisions were based on intuition rather than well-considered analysis. Therefore, it could be concluded that in ICT companies, innovation is not a strategic matter but more a practical issue.

The need for an effective organization usually becomes evident when a company grows bigger, which usually brings along formalization and structural order. The general belief is that this kind of organizational determination inhibits employees' creativeness and autonomy. But the case studies did not support the idea that companies lose much of their innovativeness when their size increases. On the contrary, the potential for innovation became even more obvious when the growth of the case companies brought along organizational changes. Actually, these were not just changes, but innovation perceived mostly on the organizational level, but also on the local market level. In conclusion, organizational innovation is very often the trigger to purposeful innovation management; if a company wants to manage innovation effectively it should first focus on its organizational structure and management effectiveness. There could be a critical moment in a company's development when restructuring is inevitable, but if a company does not pay attention to it, much of its innovative potential might get lost.

*Proposition 5. Strategic decisions in market oriented organizations are more reactive in their nature and are influenced mainly by external factors, while strategic decisions in entrepreneurship oriented organizations are more proactive in their nature and are influenced mainly by inner capabilities.*

This proposition holds true, based on the case studies of MicroLink, Regio and Ordi. MicroLink and Regio present the companies that are entrepreneurship oriented, being mostly proactive in their decisions which are mostly influenced by their inner capabilities. Especially Regio was committed to the improvement of its inner capabilities (e.g. processes, employees with special knowledge). In case of Ordi the situation was the opposite, as the company's main strategy was to maintain growth and stability. Ordi's activities focused on reacting to external factors: customers' needs and changes in competitors' actions, making it a typical market oriented company.

Although the main influencing factors from organizational environment for MicroLink, Regio and Ordi were the same, the main difference between the three companies lies in their strategies. MicroLink's main strategy and focus has been internationalization and at least in the nineties innovation was never a purpose on its own. The innovations recognized in present paper were mainly the side-effects of MicroLink's strategy. The same case was with Ordi, whose strategy was, on the contrary to MicroLink, maintaining stability and steady growth. Regio, on the other hand, implemented niche strategy and innovation was seen as self-evident, however it has never been a purpose on its own. What is intriguing here is that even though MicroLink's strategy was aggressive expansion and internationalization, Regio was the one who achieved the level of global innovation. MicroLink's and Ordi's innovations were limited to the organizational or local level.

The case studies showed clearly that the more proactive a company is, the more successful it is also in innovation. Moreover, proactivity with a focus on new knowledge and ideas and marketing might bring along radical innovation perceived on the global market level, whereas proactivity with the focus on aggressive geographical expansion through M&A-s in a local area brings along innovation perceived mainly on the local market level. Reactivity, on the contrary, does not support achieving innovation on the global market level, but instead, if the focus is on reacting to the customers' needs and competitors' actions, innovation is hardly perceived even on the local market level, staying mainly in the organization.

What could be concluded from the previous results? Speaking of ICT companies, innovation is more a pragmatic than a strategic issue and therefore, innovation management *per se* has not been determined as necessary. But as innovation is an important factor for sustainability and competitiveness, an ICT company should consider several aspects when making strategic decisions.

The main answer to the posed aim of the thesis is that organizational environment strongly impacts strategic decisions resulting in innovation. The more innovative the company is, the more it possesses critical organizational capabilities, like the competence of employees and financial resources that fit to the circumstances of the external environment. Another important factor that influences strategic decisions

resulting in innovation is the vision a company holds; if a company is more proactive than reactive in its decision making. This is especially important when a company is lacking in critical organizational capabilities and uses external opportunities to improve them. Thus, the concept of dynamic capabilities is essential for ICT companies.

Also, if a company wants to gain from innovation in a shorter time-frame, there might be a concrete need for organizational improvements, which should be considered as a proactive strategic decision rather than a reactive one, which is usually the case of most companies. Organizational changes should not become an inevitable consequence when a company has grown too big, but organizational improvements should be an ongoing process that supports the general vision and strategy.

Another aspect that entrepreneurs should consider when making strategic decisions is the level the possible innovation should achieve. Even if the strategic decision does not include innovation management, a company should choose the level of the main strategy. If it concentrates mainly on the local market, innovation resulting from the strategic decision making will also be perceived by the organizational and local level only. But if a company tries to develop its strategy in the context of global market, the decisions have better outcomes in innovation as well as on the global market level. This means that both the primary and secondary environmental factors should be considered in the strategic decision making and in the improvement of dynamic capabilities.

All in all, even though a typical Estonian ICT company does not manage innovation purposefully, it still has many chances to be innovative in the sense of the innovation specification in the literature. The company just has to develop dynamic capabilities, be more proactive in its strategic decisions and try to think wider than in the context of the local market, and then the company is successful even if the innovation is defined as episodic.

## **CONCLUSION**

Innovation has become a central factor of sustainability in Estonian ICT companies that have to consider innovation as a normal part of their strategy. Due to the characteristics of ICT companies, most of the strategic decisions are already accompanied with innovation. Nevertheless, innovation can also emerge episodically as was the case of Estonian ICT companies in the 1990s. The present study focused on the influencing factors that have affected the strategic decision making in Estonian ICT companies and led them into innovation.

In the present master's thesis innovation was defined as an implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. In order to understand different aspects of innovation better, the types of innovation were analyzed and the main types, the product, process, marketing, and organizational innovation, were brought out and put into the context of architectural and component knowledge. The literature is mostly concentrating on product innovation in line with process innovation, but marketing and organizational innovations have gained the secondary meaning in the literature. Therefore, the present study also helped to open the role of marketing and organizational innovation types.

Strategic decisions should be made in accordance with a company's organizational environment, which includes the external environment and the organization's capabilities. The external environment for ICT companies is very dynamic and complex, in which both, the primary and secondary environment act as important influencing factors and this, in turn, causes uncertainty when the management has to make decisions. Therefore, to be in line with the fast-evolving business environment, an ICT company has to constantly develop and improve its competences and resources in order to achieve the benefit of dynamic capabilities.



It is believed that most of the innovations, especially successful ones, result from conscious and purposeful search for innovation opportunities. But in the present thesis the starting-point of the analysis of Estonian ICT companies was the fact that in the 1990s they were not innovation focused. Therefore, the following process was taken as the base when analyzing innovation as the result of strategic decisions: first, the strategic decisions were brought out; then the organization's capabilities and the external environment were analyzed with each decision, and finally, it was detected if the decisions lead a company to a product, process, marketing and/or organizational innovation.

The results of the case studies of MicroLink, Regio and Ordi showed that in the 1990s and also at the beginning of the 2000s innovation was an episodic manifestation in the ICT companies' development, but they did become aware of innovation after comprehensive organizational changes had occurred in the companies. These changes were conditioned by the need to intensify operation and management of the organization, which in turn refers to the fact that innovation was more a pragmatic than a strategic issue for the Estonian ICT companies. Thus, if a company considers organizational improvements as an ongoing process that supports the general vision and strategy, it could gain from innovation in a shorter time-frame.

Another important result from the research is that the main differences between the revealed innovations among the case companies derived from their different strategic goals. Ordi's main strategy was to maintain sustainability and steady growth by adopting with the market needs and the company showed innovations mainly on the organizational level. MicroLink, whose strategy was aggressive geographical expansion by mergers and acquisitions, was innovative on the local market level; and Regio was the one who achieved the global market level with its radical innovations, while implementing niche strategy and concentrating on product development. These results also show that the more proactive a company is, the more successful it is in the sense of innovation, but reactive companies hardly achieve innovation on the global market level.

At the same time, the main factors from the companies' organizational environment were the same for the three companies; however, the focus was on different factors,

which was also expressed by their financial measures. Namely, Regio and MicroLink concentrated mainly on their organizational capabilities and did not consider external environment much, which brought along quite huge financial losses. Ordi, on the other hand, improved its capabilities according to the external conditions and managed to maintain stable growth even when there were overall economic difficulties in the ICT sector. Thus, the importance of dynamic capabilities for ICT companies is obvious and also inevitable if a company seeks for sustainable growth.

All in all, if an ICT company does not include innovation as a singular purpose into its strategic decision making, it can still be innovative in principle. The potential for bringing along different types of innovation on the organizational, local and global market level is very often determined by the company's general strategic vision and its proactive nature, which should be supported by its dynamic capabilities. If a company mainly concentrates on the local market, innovation resulting from the strategic decision making will also be perceived by the organizational and local level only. But if a company tries to develop its strategy in the context of global market, the decisions have better outcomes in innovation as well as on the global market level. This means that both the primary and secondary environmental factors should be considered in the strategic decision making and in the improvements of dynamic capabilities.

The author of the present master's thesis suggests two aspects, when considering the alternatives of further developments of the present study. Firstly, as the research was based on the interviews with the former and present CEO's it could be presumed that the interpretation of innovation and organizational development is different among the companies' employees and top management. Therefore, further research should concentrate on the perspective of employees and their role in the companies' ability to be innovative. Secondly, the research should go further and compare the results of the present thesis with other sectors, like biotechnology, for example. Biotechnology is believed to be the next field where immense changes and developments will be taking place, bringing along worldwide innovations. Thus, biotechnology could be a very interesting field to observe innovation and organizational developments.

## REFERENCES

1. **Afuah, A.** Innovation Management: Strategies, implementation and profits, 2<sup>nd</sup> ed. Oxford: Oxford University Press, 2003, 390 p.
2. **Alänge, S., Jacobsson, S., Jarnehammar, A.** Some Aspects of an Analytical Framework for Studying the Diffusion of Organizational Innovations. – Technology Analysis & Strategic Management, 1998, Vol 10, Issue 1, pp 3-22.
3. Baltic Business News. Homepage. [[www.aripaev.ee](http://www.aripaev.ee)]. 01/03/09.
4. **Benner, J. M., Tushman, L. M.** Exploitation, Exploration, and Process Management: The Productivity Dilemma Revisited. – Academy of Management Review, 2003, Vol 28, No 2, pp 238-256.
5. **Blythe, J., Zimmerman, A.** Strategic Planning for Global Markets. – Marketing Review, 2004, Vol 4, Issue 4, pp 369-384.
6. **Bower, J. L., Christensen, C. M.** Disruptive Technologies: Catching the Wave. – Harvard Business Review, 1995, Vol 73, Issue 1, pp 43-53.
7. **Budros, A.** Organizational Types and Organizational Innovation: Downsizing Among Industrial, Financial, and Utility Firms. – Sociological Forum, 2000, vol 15, issue 2, pp 273-306.
8. **Bullinger, H. J., Lenter, H. P., Scholtz, O. H.** Challenges and Chances for Innovative Companies in a Global Information Society. – International Journal of Production Research, 2000, Vol 38, No 7, pp 1469-1500.
9. **Burgelman, R. A., Christensen, C. M., Wheelwright, S. C.** Strategic Management of technology and innovation, 4<sup>th</sup> ed. New York: McGraw-Hill/Irwin, 2004, 1208 p.
10. **Chandy, R. K., Tellis, G. J.** Organizing for Radical Product Innovation: The Overlooked Role of Willingness to Cannibalize. – Journal of Marketing Research, 1998, Vol 35, Issue 4, pp 474-487.
11. **Chen, Y.** Marketing Innovation. – Journal of Economics & Management Strategy, 2006, Vol 15, Issue 1, pp 101-123.
12. **Child, J.** Organizational Structure, Environment and Performance: The Role of Strategic Choice. – Sociology, 1972, Vol 6, Issue 1, pp 1-22.

13. **Child, J., McGrath, R. G.** Organizations Unfettered: Organizational Form in an Information-Intensive Economy. – *Academy of Management Journal*, 2001, Vol 44, Issue 6, pp 1135-1148.
14. **Christensen, C. M., Bower, J. L.** Customer Power, Strategic Investment, and the Failure of Leading Firms. – *Strategic Management Journal*, 1996, Vol 17, Issue 3, pp 197-218.
15. **Cole, G. A.** *Strategic Management: Theory and practice*. London: DP Publications Ltd, 1994, 267 p.
16. **Covin, J. G.** Entrepreneurial versus Conservative Firms: A Comparison of Strategies and Performance. – *Journal of Management Studies*, 1991, Vol 28, Issue 5, pp 439-462.
17. **Damanpour, F.** Organizational Innovation: A Meta-Analysis of Effects of Determinants and Moderators. *Academy of Management Journal*, 1991, Vol 34, No 3, pp 555-590.
18. **Damanpour, F.** Organizational Complexity and Innovation: Developing and Testing Multiple Contingency Models. – *Management Science*, 1996, Vol 42, Issue 5, pp 693-717.
19. **Damanpour, F., Gopalakrishnan, S.** The Dynamics of the Adoption of Product and Process Innovations in Organizations. – *Journal of Management Studies*, 2001, Vol 38, Issue 1, pp 45-67.
20. **Dawson, P.** *Understanding Organizational Change. The Contemporary Experience of People at Work*. London: SAGE Publications Ltd, 2003, 208 p.
21. **Dean, J. W., Sharfman, M. P.** Does Decision Process Matter? A Study of Strategic Decision-Making Effectiveness. – *The Academy of Management Journal*, 1996, Vol 39, No 2, pp 368-396.
22. **Dess, G. G., Beard, D. W.** Dimensions of Organizational Task Environments. – *Administrative Science Quarterly*, 1984, Vol 29, Issue 1, pp 52-73.
23. DIO International Research Team. A Contingency Model of Participative Decision Making: An Analysis of 56 Decisions in Three Dutch Organizations. – *Journal of Occupational Psychology*, 1983, Vol 56, pp 1-18.

24. **Downley, H. K., Hellriegel, D., Slocum Jr, J. W.** Environmental Uncertainty: The Construct and Its Application. – *Administrative Science Quarterly*, 1975, Vol 20, Issue 4, pp 613-629.
25. **Drucker, P. F.** The Discipline of Innovation. – *Harvard Business Review*, 2002, Vol 80, Issue 8, pp 95-103.
26. **Duncan, R. B.** Characteristics of organizational environment and perceived environmental uncertainty. – *Administrative Science Quarterly*, 1972, Vol 17, pp 313-327.
27. Eesti Hariduse ja Teaduse Andmesidevõrk. [<http://www.eenet.ee/EENet/ajalugu.html>]. 01/03/09.
28. Eesti infoühiskonna arengukava 2013. IYA 2013, 2006, 32 p. [[http://www.riso.ee/et/files/Infoyhiskonna\\_arengukava\\_2013\\_0.pdf](http://www.riso.ee/et/files/Infoyhiskonna_arengukava_2013_0.pdf)]. 02/06/09.
29. Eestis on 6-74-aastasi internetikasutajaid 806 000. TNS Emor, 2008. [<http://www.emor.ee/arhiiv.html?id=1951>]. 02/06/2009.
30. Enterprise Estonia. [<http://www.eas.ee/index.php/ettevotluse-auhind/auhinnad-2005/ueldist>]. 10/12/2009.
31. **Ettlie, J. E.** Organizational Policy and Innovation Among Suppliers to the Food Processing Sector. – *Academy of Management Journal*, 1983, Vol 26, No 1, pp 27-44.
32. **Ettlie, E. J., Bridges, P. W., O'Keefe, D. R.** Organization Strategy and Structural Differences for Radical versus Incremental Innovation. – *Management Science*, 1992, Vol 30, No 6, pp 682-695.
33. **Fichman, G. R.** The Role of Aggregation in the Measurement of IT-related Organizational Innovation. – *MIS Quarterly*, 2001, vol 25, issue 4, pp 427-455.
34. **Fleisher, C. S., Bensoussan, B. E.** *Strategic and Competitive Analysis: Methods and Techniques for Analyzing Business Competition*. New Jersey: Pearson Education, Inc, 2003, 455 p.
35. **Frishammar, J., Hörte, S. A.** The Role of Market Orientation and Entrepreneurial Orientation for New Product Development Performance in Manufacturing Firms. – *Technology Analysis & Strategic Management*, 2007, Vol 19, Issue 6, pp 765-788.
36. **Galbraith, J. R.** Designing the Innovating Organization. – *Organizational Dynamics*, 1982, pp 3-24.

37. **Grant, R. M.** Contemporary Strategy Analysis: Concepts, Techniques, Applications, 4<sup>th</sup> ed. Malden: Blackwell Publishing, 2002, 551 p.
38. **Hage, J. T.** Organizational Innovation and Organizational Change. – Annual Review of Sociology, 1999, Vol 25, Issue 1, pp 597-623.
39. **Hambrick, D. C., Snow, C. C.** A Contextual Model of Strategic Decision Making in Organizations. – Academy of Management Proceedings, 1977, pp 109-112.
40. **Hamel, G.** Leading the Revolution, Harvard Business School Press, 2000. In Schoen, J., Mason, T. W., Kline, W. A., Bunch, R. M. The Innovation Cycle: A New Model and Case Study for the Invention to Innovation Process. – Engineering Management Journal, 2005, Vol 17, No 3, pp 3-10.
41. **Hankewitz, S. A.** Arvutitootmine väheneb. – Äripäev, 09.12.1998.
42. **Hankewitz, S. A.** Sajapealine arvutitööstus. – Äripäev, 04.03.1999.
43. **Hanson, M.** Lennukaima IT-äri viljad nopitud. – Äripäev, 19.01.2006.
44. **Hatch, M. J.** Organization theory. Modern, symbolic, and postmodern perspectives. New York: Oxford University Press, 1997, 386 p.
45. **Henard, D. H., McFadyen, M. A.** The Complementary Roles of Applied and Basic Research: A Knowledge-Based Perspective. – Journal of Product Innovation Management, 2005, Vol 22, No 6, pp 503-514.
46. **Henderson, R., Clark, B. K.** Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms. – Administrative Science Quarterly, 1990, Vol 35, No 1, pp 9-30.
47. **Hickson, D. J., Butler, R. J., Cray, D., Mallory, G. R., Wilson, D. C.** Top Decisions: Strategic Decision Making in Organizations. Oxford: Basil Blackwell, 1986, 675 p.
48. **Hill, C. W. L.** Cooperation, Opportunism, and the Invisible Hand: Implications for Transaction Cost Theory. – Academy of Management Review, 1990, Vol 15, Issue 3, pp 500-513.
49. **Hill, T. C., Utterback, M. J.** The dynamics of product and process innovation. – Management Review, 1980, Vol 69, Issue 1, pp 14-21.
50. **Holbrook, A., Hughes, L.** Operationalizing definitions of innovation at the level of the firm, 2000. [[http://www.utoronto.ca/isrn/publications/WorkingPapers/Working00/Holbrook00\\_Definitions.pdf](http://www.utoronto.ca/isrn/publications/WorkingPapers/Working00/Holbrook00_Definitions.pdf)]. 27/02/2009.

51. **Hrebiniak, L. G., Snow, C. C.** Industry Differences In Environmental Uncertainty and Organizational Characteristics Related to Uncertainty. – *Academy of Management Journal*, 1980, Vol 23, pp 750-759.
52. **Högselius, P.** The Dynamics of Innovation in Eastern Europe. Lessons from Estonia. Cheltenham: Edward Elgar Publishing, 2005, 347 p.
53. Information Technology in Public Administration of Estonia. Yearbook 2007. Ministry of Economic Affairs and Communication, 2008, 97 p. [[http://www.riso.ee/en/system/files/IT\\_yearbook\\_2007\\_final.pdf](http://www.riso.ee/en/system/files/IT_yearbook_2007_final.pdf)]. 02/06/09.
54. **Jagomägi, T.** (The CEO of Regio). Author's interview. Notation. Tallinn, 6<sup>th</sup> May 2010.
55. **Johnson, G., Scholes, K.** Exploring Corporate Strategy, 6<sup>th</sup> Ed. Harlow: Prentice Hall, 2002, 1082 p.
56. **Kaarna, K., Mets, T.** Gaining competitive edge on global market through knowledge leverage: case of Estonian ICT and biotechnology companies. ESU Conference 2008 on entrepreneurship, Norway, 24 p. [[http://www.esu.fi/papers/22\\_Kalev\\_Kaarna.pdf](http://www.esu.fi/papers/22_Kalev_Kaarna.pdf)]. 03.12.09.
57. **Kalda, K.** Vastukaja artiklile “Baltimaade suurim IT-firma tuleb umber teha”. – Äripäev, 03.10.2001
58. **Kalvet, T., Pihl, T., Tiits, M.** Eesti IT sektori innovatsioonisüsteemi analüüs. Tartu: Archimedes, 2002, 48 lk.
59. **Karu, S.** Juhtimise võlu ja valu, I osa. Eesti tippjuhtide mõtteid oma tööst. Tartu: Rafiko, 2001, 344 lk.
60. **Kenny, G.** Strategic Planning and Performance Management: Develop and Measure a Winning Strategy. Oxford: Elsevier Butterworth-Heinemann, 2005, 264 p.
61. **Kents, M.** MicroLink Süsteemid hakkasid ettevõttesse raha tooma. – Äripäev, 25.01.2006.
62. **Knight, E. K.** A Descriptive Model of the Intra-Firm Innovation Process. *The Journal of Business*, 1967, Vol 40, No 4, pp 478-496.
63. **Kohli, A. K., Jaworski, B. J.** Market Orientation: The Construct, Research Propositions, and Managerial Implications. – *Journal of Marketing*, 1990, Vol 54, Issue 2, pp 1-18.
64. **Kokk, A.** MicroLinki suur dilemma. – *Director*, 2001, No 7, pp 8-14.

65. **Korpan, V.** Eesti arvuti kinnitab end Eesti turule. – Äripäev, 21.07.1999.
66. **Korpan, V.** Regio läheb välisturgu vallutama. – Äripäev, 14.11.2000.
67. **Kukk Grönbjerg, M.** Estonia's IT Cluster: Characteristics and Trends. Pilot Project Report. Federation of Swedish Industries, 2000, 22p. [http://www.esis.ee/ist2000/background/other/it\_cluster.pdf]. 03/06/09.
68. **Kwaku, A. G., Ko, A.** An Empirical Investigation of the Effect of Market Orientation and Entrepreneurship Orientation Alignment on Product Innovation. – Organization Science, 2001, vol 12, No 1, pp 54-74.
69. **Larson, L. L., Bussom, R. S., Vicars, W., Jauch, L.** Proactive *versus* Reactive Manager: Is the Dichotomy Realistic? – Journal of Management Studies, 1986, Vol 23, No 4, pp 385-400.
70. **Lawrence, P. R., Lorsch, J.F.** Differentiation and Integration in Complex Organizations. – Administrative Science Quarterly, 1967, Vol 12, Issue 1, pp 1-47.
71. **Levinthal, A. D., March, G. J.** The Myopia of Learning. – Strategic Management Journal, 1993 (Special Issue), Vol 14, pp 95-112.
72. **Levitt, T.** Growth and Profits Through Planned Marketing Innovation. – Journal of Marketing, 1960, Vol 24, Issue 4, pp 1-8.
73. **Liik, T.** Vajadused Eesti IT-sektoris läbi ajaloolise prisma. The Estonian Information Technology Foundation. A presentation in EITSA seminar in IT College, 30. August 2000. [www.itcollege.ee/upload/old/000830ws\_TLiik.ppt]. 03/06/09.
74. **Lumpkin, G. T., Dess, G. G.** Clarifying the Entrepreneurial Orientation Construct and Linking It to Performance. – Academy of Management Review, Vol 21, No 1, pp 135-172.
75. **Mandel, M.** Jagomägi: Done alternatiiv oleks olnud lääne finantsinvestor. – Äripäev, 25.09.2000.
76. **Martinson, Allan.** (The former CEO of MicroLink). Authors' interview. Audio Recording. Tartu, February 2007.
77. **Mauri, A. J., McMillan, G. S.** The Influence of Technology on Strategic Alliances: an Application of the Utterback and Abernathy Model of Product and Process Innovation. – International Journal of Innovation Management, 1999, Vol 3, Issue 4, pp 367-378.



78. **Mets, T.** Regio – a “Learned-Global” Knowledge Company: a Case from Estonia. – *The Cutting Edge: Innovation and Entrepreneurship in New Europe*. Edited by Aidis, R., Welter, F. Edward Elgar Publishing, 2008, pp 54-73).
79. **Meyer, J. W., Rowan, B.** Institutional Organizations: Formal Structure as Myth and Ceremony. – *American Journal of Sociology*, 1977, Vol 80, pp 340-363.
80. MicroLink Estonia. Homepage. [[www.microlink.ee](http://www.microlink.ee)]. 29/02/09.
81. MicroLink Estonia Annual Report 1999/2000. [<http://www.microlink.ee/Financial-Information>]. 01/03/2009.
82. **Miles, W. E., Snow, C. C., Pfeffer, J.** Organization-Environment: Concepts and Issues. – *Industrial Relations*, 1974, Vol 13, Issue 3, pp 244-264.
83. **Miller, D.** The Correlates of Entrepreneurship in Three Types of Firms. – *Management Science*, 1983, Vol 29, Issue 7, pp 770-791.
84. **Milliken, F. J.** Three Types of Perceived Uncertainty About the Environment: State, Effect, and Response Uncertainty. – *Academy of Management Review*, 1987, Vol 12, No 1, pp 13-143.
85. **Mintzberg, H., Raisinghani, D., Théoret, A.** The Structure of ‘Unstructured’ Decision Processes. – *Administrative Science Quarterly*, 1976, Vol 21, No 2, pp 246-275.
86. **Morgan, R. M., Hunt, S. D.** The Commitment-Trust Theory of Relationship Marketing. – *Journal of Marketing*, 1994, Vol 58, pp 20-38.
87. **Morris, M. H., Paul, G. W.** The Relationship between Entrepreneurship and Marketing in Established Firms. – *Journal of Business Venturing*, 1987, Vol 2, Issue 3, pp 247-260.
88. **Noorkõiv, Rivo.** (The former CEO of Regio). Interview by Tõnis Mets. Audio Recording. Tartu, February 2007.
89. OECD Information Technology Outlook. OECD, 2008, 350 p. [[http://ec.europa.eu/enterprise/newsroom/cf/document.cfm?action=display&doc\\_id=1259&userservice\\_id=1&request.id=0](http://ec.europa.eu/enterprise/newsroom/cf/document.cfm?action=display&doc_id=1259&userservice_id=1&request.id=0)]. 07/06/09.
90. **Oliver, C.** The Influence of Institutional and Task Environment Relationship on Organizational Performance: The Canadian Construction Industry. – *Journal of Management Studies*, 1997, Vol 34, Issue 1, pp 99-124.

91. **Onodera, O.** Trade and Innovation Project. *OECD Trade Policy Working Paper no 72*, 2008, 60 p.
92. Ordi 2000. aasta majandusaasta aruanne. [[http://agent.aripaev.ee/files/businessyear/reports/5/38/83/Ordi\\_2000.pdf](http://agent.aripaev.ee/files/businessyear/reports/5/38/83/Ordi_2000.pdf)]. 10/01/2010.
93. Ordi 2001. aasta majandusaasta aruanne. [[http://agent.aripaev.ee/files/businessyear/reports/6/38/83/Ordi\\_2001.pdf](http://agent.aripaev.ee/files/businessyear/reports/6/38/83/Ordi_2001.pdf)]. 10/01/2010.
94. Ordi 2002. aasta majandusaasta aruanne. [[http://agent.aripaev.ee/files/businessyear/reports/7/38/83/Ordi\\_2002.pdf](http://agent.aripaev.ee/files/businessyear/reports/7/38/83/Ordi_2002.pdf)]. 02/01/2010.
95. Ordi's homepage. [<http://www.ordi.ee/EPood/BrowseDocuments.aspx?DocID=7>]. 02/06/09.
96. **Papadakis, V. M., Barwise, P.** How Much do CEOs and Top Managers Matter in Strategic Decision-Making? – *British Journal of Management*, 2002, Vol 13, pp 83-95.
97. **Pettigrew, A. M., Fenton, E. M.** *The Innovating Organization*. London: SAGE Publications Ltd, 2000, 335 p.
98. **Pfeffer, J., Salancik, G. A., Leblebici, H.** The Effect of Uncertainty on the Use of Social Influence in Organizational Decision Making. – *Administrative Science Quarterly*, 1976, Vol 21, Issue 2, pp 227-245.
99. **Phua, F. T. T.** Determining the Relationship between Fee Structure and Project Performance between Firms: An Empirical Study Based on Institutional and Task Environment Perspectives. – *Construction Management & Economics*, 2005, Vol 23, Issue 1, pp 45-56.
100. **Price, J. L.** *Handbook of Organizational Measurement*. – *International Journal of Manpower*, 1997, 18, 4-6, 305-558.
101. **Price, A. D. F., Newson, E.** Strategic Management: Consideration of Paradoxes, Processes, and Associated Concepts as Applied to Construction. – *Journal of Management in Engineering*, 2003, Vol 19, No 4, pp 183-194.
102. **Pärl, Õ.** Ordi juht Sulev Sisask usub, et tasa ja targu jõuab kaugele. – *Äripäev*, 26.06.2002.
103. **Ray, S., Ramakrishnan, K.** Resources, Competences and Capabilities Conundrum: A Back-To-Basics Call. – *Decision*, 2006, Vol 33, No 2, 25 p.
104. Regio Ltd. Homepage. [<http://www.regio.ee/?op=body&id=13>]. 01/03/2009.

105. **Reino, A., Kask, T., Vadi, M.** Organizational Culture and Environment: Dynamics in Dynamics. Case of Ordi. – Journal of the Humanities and Social Sciences, 2007, Vol 11, No 2, pp 124-138.
106. RFC Sourcebook. [<http://www.networksorcery.com/enp/protocol/tcp.htm>]. 20/05/2009.
107. **Rothwell, R.** Successful Industrial Innovation: Critical Factors for the 1990's. – R&D Management, 1992, Vol 22, No 3, pp 221-239.
108. **Rozenthal, V.** Regio pakub oma tarkvara maailmas Reach-U nime all. – Äripäev, 21.08.2001.
109. **Rozenthal, V.** Regio maskott Teet Jagomägi tõmbub tagasi. – Äripäev, 10.04.2002.
110. **Saar, Enn.** (The CEO of MicroLink). Notation by K. Kala. Tallinn, April 2008.
111. **Saar, Enn.** (The CEO of MicroLink). Author's interview. Notation. Tallinn, 5<sup>th</sup> May 2010
112. **Sagie, A., Elizur, D., Koslowsky, M.** Decision Type, Participative Decision Making (PDM), and Organizational Behavior: An Experimental Simulation. – Human Performance, 1995, Vol 8, No 2, pp 81-95.
113. **Schneider, S. C., De Meyer, A.** Interpreting and Responding to Strategic Issues: The Impact of National Cultur. – Strategic Management Journal, 1991, Vol 12, No 4, pp 307-320.
114. **Schoen, J., Mason, T. W., Kline, W. A., Bunch, R. M.** The Innovation Cycle: A New Model and Case Study for the Invention to Innovation Process. – Engineering Management Journal, 2005, Vol 17, No 3, pp 3-10.
115. **Schumpeter, J.** Capitalism, Socialism and Democracy. 1942. In: Van deVen, A. H. Central Problems in the Management of Innovation. – Management Science, 1986, Vol 32, No 5, pp 590-607.
116. **Shekhar, V.** Perspectives in Strategic Management. – ICFAI Journal of Business Strategy, 2009, Vol 6, No 2, pp 43-55.
117. **Sherlock, J., Reuvid, J.** PART 2: International Marketing – Principles and Practice: Methods of Market Research. – Handbook of International Trade, 2005, pp 54-69.

118. **Sisask, Sulev.** (The CEO of Ordi). Author's interview. Audio recording. Tartu, 30<sup>th</sup> April 2010.
119. **Stoner, J., Freeman, R.** Management, 4<sup>th</sup> edn. Englewood Cliffs: Prentice Hall, 1989, 852 p.
120. **Teder, A., Hommik, H. Aron, K., Teder, S., Vaher, T., Vilumets, Ü.** AS Ordi ajalugu ja organisatsioonikultuur. History and organizational culture of Ordi Ltd. Manuscript. University of Tartu, 2005.
121. **Tee, Mati.** (The developer of information system technologies in Regio). Notation by Karin Kala. Tartu, April 2008.
122. **Teece, D. J., Pisano, G., Shuen, A.** Dynamic capabilities and strategic management. – Strategic Management Journal, 1997, Vol 18, pp 509-233.
123. **Terreberry, S.** The evolution of organizational environments. – Administrative Science Quarterly, 1968, Vol 12, No 4, pp 590-614.
124. The Global Information Technology Report 2008-2009. Global Competitiveness Network. World Economic Forum, Geneva, 2009, 406 p. [<http://www.weforum.org/pdf/gitr/2009/gitr09fullreport.pdf>]. 07/06/09.
125. Tiigrihüppe Sihtasutuse kodulehekül. [[www.tiigrihype.ee/tiiger\\_programm/ajalugu](http://www.tiigrihype.ee/tiiger_programm/ajalugu)]. 09/06/09.
126. **Tornatzky, L. G., Fleischer, M.** The Processes of Technological Innovation. Lexington, MA: Lexington Books, 1990. In Damanpour, F., Gopalakrishnan, S. The Dynamics of the Adoption of Product and Process Innovations in Organizations. – Journal of Management Studies, 2001, Vol 38, Issue 1, pp 45-67.
127. **Tregoe, B. B., Zimmerman, J. W.** Strategic Thinking: Key to Corporate Survival. – Management Review, 1979, Vol 68, Issue 2, pp 8-14.
128. **Trott, P.** Innovation Management and New Product Development, 2<sup>nd</sup> edn. Harlow: Pearson Education Ltd, 2002, 426 p.
129. **Tähismaa, I.** Baltimaade suurim IT-firma tuleb umber teha. – Äripäev, 01.10.2001.
130. **Utterback, J., Abernathy, W.** A Dynamic Model of Process and Product Innovation. – Omega, 1975, Vol 3, No 6, pp 639-656. In Mauri, A. J. The Influence of Technology on Strategic Alliances: An Application of the Utterback and

- Abernathy Model of Process and Product Innovation. – Academy of Management Proceedings, 1993, pp 137-141.
131. UUCP Project. [<http://www.uucp.org/info.shtml>]. 20/05/2009.
  132. **Van de Ven, A. H.** Central Problems in the Management of Innovation. – Management Science, 1986, Vol 32, No 5, pp 590-607.
  133. **Van der Leeuw, S. E., Torrence, R.** What's New? A Closer Look at the Process of Innovation. Oxford: Routledge, 1989, 353 p.
  134. **Von Hippel, E.** The Sources of Innovation. New York: Oxford University Press, 1988.
  135. **Walker, G.** Modern Competitive Strategy, 2<sup>nd</sup> edn. New York: The McGraw-Hill Companies, 2007, 346 p.
  136. **Walmsley, K.** Partner profile: Reach-U connects with success. – Ericsson's homepage, 02.12.2004. [[http://www.ericsson.com/developer/sub/articles/case\\_studies/04dec01](http://www.ericsson.com/developer/sub/articles/case_studies/04dec01)]. 01/12/09.
  137. **Watson, R. T.** Influence on the IS Manager's Perceptions of Key Issues: Information Scanning and the Relationship with the CEO. – MIS Quarterly, 1990, Vol 14, Issue 2, pp 217-231.
  138. **Westland, J. C.** Global Innovation Management. A Strategic Approach. New York: Palgrave Macmillan, 2008, 383 p.
  139. **Wind, J., Mahajan, V.** Issues and Opportunities in New Product Development: an Introduction to the Special Issue. – Journal of Marketing Research, 1997, Vol 34, pp 1-12.
  140. **Yin, R.** Case Study Research: Design and Methods. London: Sage Publications, 1989, 166 p.
  141. **Zaltman, G., Duncan, R., Holbek, J.** Innovations and organizations. New York: Wiley, 1973. In Van de Ven, A. H. Central Problems in the Management of Innovation. – Management Science, 1986, Vol 32, No 5, pp 590-607.
  142. **Zhou, Z. K., Yim (Bennett), C. K., Tse, K. D.** The Effects of Strategic Orientations on Technology- and Market-Based Breakthrough Innovations. – Journal of Marketing, 2005, Vol 69, pp 42-60.

## Appendixes

### Appendix 1. Common myths about innovation

Myth	Reality
Innovation is about creating exciting new products	Much of the world's innovation goes unseen because they are architectural. They make production more efficient and controllable, offering consumers lower prices and higher quality.
Innovation requires creativity	This myth of the "mad scientist" is enduring, and promoted by some of the more successful innovators. But it belies the reality of hardnosed management required to create a truly exciting customer experience.
Innovation is expensive and takes time	Some fields, like pharmaceuticals, take time and money; others are not as resource intensive. In either case, not innovating is even more expensive in the long run.
Innovation requires hundreds of product ideas because failure rates are high	Every innovation has its own life-cycle of application. Effective innovation management assesses the maturity and profitability of innovations at every phase and eliminates or sidelines projects that cannot contribute. Good managers will concentrate on just a few of the most profitable innovations to avoid losing focus.
Metrics, financial and otherwise, can assure the right innovation and technology choices	Only in the broadest sense. Accounting and financial metrics were designed for industrial economies with heavy physical resource usage. We still do not have good metrics for managing innovations; this is one significant source of innovation risk.

Source: Rothwell (1992).

**Appendix 2.** Comparison of the dynamics of MicroLink's, Regio's and Ordi's turnover and profit during 1997-2004 (in millions EEKs).

Year	Turnover			Profit		
	ML	Regio	Ordi	ML	Regio	Ordi
<b>1997</b>	183	10	35	1,9	0,7	0,8
<b>1998</b>	431	12	79	2,4	1,2	3,5
<b>1999</b>	640	18	106	6,2	1,4	3,5
<b>2000</b>	258	21	147	-77	1,6	6,2
<b>2001</b>	941	32	206	3	-0,6	9,1
<b>2002</b>	958	19	245	8,3	-4	8,4
<b>2003</b>	905	23	274	42	15	6,3
<b>2004</b>	556	24	305	317	12	5,6
<b>2005</b>	197	45	377	4,9	2	4,4
<b>2006</b>	280	54	424	13	2	9,9
<b>2007</b>	365	52	495	0,5	3,5	7,9
<b>2008</b>	367	72	309	-11	5,9	-15

Source: Baltic Business News.

**Appendix 3.** Interview with Allan Martinson, the CEO in MicroLink's during 1998-2004.

Palun periodiseerige MicroLink'i tegutsemisaega! Milliseid perioode saab eristada? Milliseid strateegilisi otsuseid tehti nendel perioodidel ja millised olid peamised ettevõttesisesed ja –välised tegurid, mis mõjutasid otsustamist?

MicroLink (ML) asutati 1991. aastal. Eesti poisid tõid Singapurist juppe ja panid siin kokku. Bränd oli suurem kui firma ise, kuid riistvara käive ikka suur, lisandväärtus väike. 1993.a. mindi juba Läti ja Leetu. 1995. aastal aitasin Leedu kontorit püsti panna. Etteotsa jõudsin alles 1998. aastal, mil lähtekoht oli tugev. Tugev bränd, tugev meeskond – heas mõttes agressiivne, kohe sihid rahvusvahelistumisele, ka Venemaa vahet tegime ühtteist. Sel ajal olid IT ettevõtted Eestis ikkagi väga eestikesksed. Kui mina tulin, siis oli ettevõttes veel viis-kuus ettevõtet grupis - tegelesid 1998ndal internetilahenduste pakkumisega, jaemüügikohad, serverite müügid, raamatupidamistarkvara – kõik need ettevõtted kuulusid ühe valdusfirma kätte, kus polnud ühtegi töötajat. Olid isiklikud sõprussidemed, ühised tuttavad, kuid ühist ettevõtet polnud. Hulgimüügi-distribuutorfirma müüdi Ameerika firmale CHS. Tulud viidi äramütudavasse osasse, kulud allesjäävasse firmasse, et kasum üles lüüa. Kaks asutajat said CHS-lt raha, nii et enam rahavajadust ei olnud, neil tekkisid ka uued huvid, seega tõmbusid eemale. Mulle anti tegutsemisel edaspidiseks vabad käed. See oli hea võimalus, sest sai teha omi vigu/kordaminekuid. Ühinemine Astrodataga toimus 1998.a. suvel. Üritasime siis gruppi moodustada – moodustati ML juhatus, ühised käitumishormid, eelarve –, kuhu läks siis aasta aega. Kuus-seitse ettevõtet ühendati suurde gruppi, kokku sai palju inimesi, kes varem üldse kokku ei puutunud. 1999.a. tulid fondid, investorid, kes olid huvitatud raha panemisest gruppi. *Privat equity* oli turul, arengukapital, riskifondid siis olemas, mida ML ära kasutas. Ettevõttesse tuli 40 miljonit krooni, vanad omanikud said ka mingi osa veel. Strateegilises mõttes oli plaan väga rahvusvaheliseks minna, aasta pärast oli ettevõtte keel inglise keel. Kaks missiooni: esiteks geograafiliselt laiemaks ostmiste ja ülevõtmisega, teiseks kommertsportaalide alustamine. Siin väga tugevad mõjud *.com-l, yahhool, e-bayl* – nendelt võeti šnitti, kopeerisime Eestisse ja Baltimaadesse. Esimene katsetus oli *online.ee*, millest kasvas Delfi välja. 55 ettevõtet oli Delfi ja BNS-i vahel. Nüüd 100%



ML vahel. Sealt edasi oli laienemise missioon, 1999.a. kaks Saksamaa missiooni. Aastaga kasvas ettevõtte viiekordselt, viis korda kasvas käive, töötajate arvu suhtes sama palju, ainult 6% olid vanad töötajad võrreldes 2000. aastat 1998. aastaga. Põhimõtteliselt oli tegemist täiesti uue ettevõtte loomisega, osteti ja asutati, liideti kokku 15 ettevõtet. 2000.a. keskpäigaks oli kokku 30 ettevõtet. Sel ajal pakuti veel raha, .comi *crash*'i polnud veel olnud. Raha polnud tegelikult vaja, aktsionärid ei tahtnud aktsiaid müüja, kuid toona oleks see olnud kõige otstarbekam – hiljem said nad müügist toonasest hinnast 2/3. NASDAQ'iga aktsia hinna suhe täpselt üks sajale, esimesed emissioonid 165/16500, kõige kõrgem hind 500, NASDAQ'il 50000. Nii et kui NASDAQ kukkus kokku, ka ML kukkus kokku – tugevas korrelatsioonis NASDAQ'i ja .comiga. Siis oli kiiresti vaja uut kasvu. Usuti, et saadi normaalse hinnaga raha sisse, kuid firmad olid väga erinevad grupis. Taheti Baltikumi vingemat IT firmat. Kaotati aga üks aasta. Kahjum oli 110 miljonit krooni, mis ei olnud aga planeeritud. Seetõttu tuli bilansid teha puhtaks. Siis olid integratsioonijamad, Delfisse oli vaja aga raha panna, paljudel ettevõtetel ei läinud nii, kui vaja. Siis kukkus börs kokku. Palju oli laenuraha, kahjum sõi ära põhikapitali laen/põhikapital = 10/1 (kardeti isegi, et Hansapank võtab firma ära) ning tehti hädaemissioon madalate hindadega – väga piiri peal mäng oli. Siis 2002. aastaks olid rasked ajad möödas, saadi ettevõtte paika, paarimiljonilised kasumid, amortisatsioon oli suur, *cash flow* läks positiivseks – asjad hakkasid ülespoole minema. ML-i suurim viga, et oldi ennast positsioneeritud riskikapitali peal, palju passiivseid aktsionäre. 70-80% olid inimeste käes, kes vajasisid väljapääsu, kuid seda ei saadud refinantseerida, börsile oleks tulnud minna. Tõugati selgelt strateegilise müügi poole hiljemalt aastal 2005. Kogu ettevõtet oli väga raske müüa, seetõttu müüdi osade kaupa – portaal norrakatele, SAF tehnika börsile, arvutitootmine müüdi *management*'ile, ülejäänud osa Telekomile – kogu grupp lakkas olemast. Delfi portaali müügist saadi 80 miljonit krooni, tänasel päeval, kolm aastat hiljem (2007 – T.K.) on selle väärtus aga 500 miljonit. Delfi oli kõige väärtuslikum, müüdi liiga vara. Kui oleks börsile viidud, oleks veel väärtuslikum olnud, kõik ju kasvab, majandus, ettevõtte, praegu oleks tegelikult väga kasumlik ettevõtte. Telekomid läksid tülli omavahel, Eesti ja Läti omad. Eesti omad integreeriti Elioniga, Läti omast pool inimesi ära läinud, ettevõtte hakkab nime vahetama. ML oli minu käes. Kolm ML-i on nüüdseks läinud oma teed. Balti turul

kolm ML-i, eri riikides, eri omanike käes. Oleks olnud ideaalne börsiettevõtte, ideaalne katapult järgmistele ettevõtmistele...

Millised tegurid eriti mõjutasid nende perioodide jooksul ettevõtte käekäiku?

Dot.com'i kokkukukkumine, 1998. aasta Venemaa kriis, mis mõjutas kogu Eestit NASDAQ, majanduskasv, Euroopa Liit – piirid avanesid, oli võimalik Balti turult kaugemale müüa. Seesama SAF Tehnika sai Lätist edasi areneda. Kuid väliskeskkonnaga ei olnud väga palju ML seotud, oli mingi oma visioon, tehti pikaajalisi otsuseid. Paljud meie kallal toona küll virisesid, et kõik pahasti, Äripäev kirjutas esikaane lugusid. Oli küll tegemist suurte riskidega, kui tegelikult ei mindud üle piiri – kõik mida taheti teha, investeringud, osutusid edukaks. Need, mis ebaedukad, pandi kiiresti ka kinni. Omanikele kindlasti kasumlik ettevõtte - 300 miljonit kasumit ühel aastal, teisel aastal ligi 400 miljonit kasumit. Selles mõttes need vahepealsed kahjumid said kompenseeritud. Aga väliskeskkonnast saadi inspiratsiooni pigem, kuid organisatsioon toimis ikka traditsiooniliselt – kulude kokkuhoid, kasvatad müüki, organisatsiooni toimimise tagamine. Kuid mingit rabelemist ei olnud, et nüüd oli krahh ja nüüd peame tingimata kõike teistmoodi tegema – seda ei olnud.

Vaadates nüüd tagantjärele, siis milliseid valikuid tehti, millised eesmärgid saavutati, millised mitte?

Saavutasime kõik oma eesmärgid, mis ei olnud nii selgelt formuleeritud. Kuid MicroLink ei üritanud olla selline opereeriv ettevõtte kui näiteks Ordi või Helmes, kes vaatavad kasumit, käivet, palju on kasvatud. ML oli investeerimis- ja arendusettevõtte, mis tähendab, et me võisime minna Baltikumi, teenida kõige suuremaid kahjumeid, kuid samas teenida ka suurimaid kasumeid. Selles mõttes hoopis teine ettevõtte kui opereeriv. Meie eesmärk oli ikkagi Balti mastaabis teha suuri kasumeid, viia edukad börsile ja seal võimalikult kõrge hinnaga maha müüa.

Vaadates joonist, siis kas Teie arvates on Eesti IT sektori areng õigesti positsioneeritud; mis juhtub edasi nii globaalsel kui ka Eesti turul?

1990ndatel pandi rõhk sellele, et asju sisse tuua või maha müüa, osteti arvuteid laua peale. 1990 teisel poolel hakati tegema apliksioone ja IT-d mõistlikult kasutama – riigi infosüsteemid ja pangasüsteemid. See oli aeg, kus olid Tiigrihüpped, e-valitsused jne. Siis 3-4 aastat oli vaikelu, öeldi, et midagi uut ei tule ja aastaks 1999 oli kõik juba ära

tehtud. Kuid siis 2003 tuli järgmine laine – Skype ja Playtech ja siis need 90ndatel alustatud asjad – e-valitsus, e-maksuamet, delfiportaal, kes saavutasid väga suure kvalitatiivse hüppe aastaks 2005, kui paljud inimesed hakkasid neid laialdaselt kasutama. Kuid eelkõige ikkagi Skype ja Playtech, kelle tulekut ei osanud keegi ette näha. Ükski EAS või majandusministeerium ei toetanud, nad tulid ise. Mis sest välja tuleb, on raske öelda. Seal on palju raha riiki tulnud. Skype'i ja Playtech'i mõju kestab veel aastakümneid, praegu väga raske ennustada. See on väga-väga positiivne. Mis on natuke negatiivne on see, et IT töötajate palgad on see viinud lakke, kuid sellega on ka nii, et kelle hea, kellele halb. Eesti on tänasel hetkel igal juhul kõige edukam Ida-Euroopa riik väärtuse loomise ja tehnoloogia kasutamise vallas. Ka riskikapitali hulk seetõttu suurem, üheski teises riigis pole nii palju. Võrreldes teiste riikidega on Eestis ühe elaniku kohta investeeringumaht umbes paarkümmend korda suurem. Aga kuhu see nüüd kõik välja viib, on raske öelda.

#### Teie juhtimisaja jooksul, millised olid peamised organisatsioonilised probleemid? Millal saavutati küpsusfaas?

Viimasel paaril-kolmel aastal saavutati küpsusfaas. Väga erinevad firmad üle Baltikumi olid koos, kus erinevad brändid, ajalood, kultuurid. Nende kokkusuldamine võttis päris palju aega. Kui enne oli 30 ettevõtet, siis lõpuks oli neid kolm. Palju selgem juhtimine, palju vähem inimesi, palju efektiivsem. 2003. aastal sai korda ja siis visioon teises – kui enne quick-and-dirty, siis nüüd juba nõ kontori koristus. Juhtimislikult muutus igavaks, kuid normaalselt juhitavaks kontserniks. Know-how oli ülebaltiline, back-office'i asjad olid maapõhised, maatriksstruktuur mõeldi välja. Toimus inimeste vahetus – kes olid stardiinimesed, läksid eemale, asemele tulid igapäevatöötajad. Ma ise samuti ju lahkusin selle tõttu enne, kui ta müüdi – ma ei pea igapäevast administreerimist enda tugevaks küljeks. Minu roll oli ikkagi deal-maker, investor. Aga et iga päev kell kaheksa tööle tulla ja inimesi kamandada – ma ei pea ennast rutiiniohvriks.

#### **Appendix 4.** Interview with Rivo Noorkõiv, former CEO of Regio.

Palun periodiseerige Regio tegutsemisaega! Milliseid perioode saab eristada? Milliseid strateegilisi otsuseid tehti nendel perioodidel ja millised olid peamised ettevõttesisesed ja –välised tegurid, mis mõjutasid otsustamist?

Regio sai alguse väikeettevõtlusest. Minu teada oli see viies väikeettevõtte Eestis, mida sai teha kahel moel – alguses oli see kergetööstusministeeriumis, hiljem sai ettevõtet teha ehituministeeriumi alt. Tol ajal oli Teadus- ja arendusfirma Regio (TAF), mis sai tehtud Peeter Palu käskkirjaga... Regio ajalugu algab sealt, kui oli liberaliseerimine. Seega sai alguse 1988-1989.a. Tallinna Pedagoogilise Instituudi ruumides olime tollal, mis kasvas välja sealse uurimistegevuse juures. Mõte oli see, et kui nahunii tekkisid juba lepingulised kliendisuhted, siis miks mitte teha iseseisev ettevõtte. See kestis poolteist aastat. Andsime välja postkaarte ja mõte oli tollal – teeme asju ilusti, süsteemselt. Kuid aeg oli kehva ja teadust ei finantseeritud. Selle firma alt tegime ka seaduseelnõu toleaegele plaanikomiteele – need ettevõtted, mis asuvad Tallinnast väljapool, võiksid saada toetust. Ja see läks isegi läbi ja võeti küll määrus vastu, kuid kui taheti aasta pärast tulemusi, siis see oli tol ajal suhteliselt keeruline, neid näidata nüüd konkreetselt. Oli huvitav aeg, andis vabadust oma asjade üle otsustada ja teine asi oli see, et pääsesime välja ülikooli bürokraatiast. Kuid me ikkagi leppisime ülikooliga kokku, et panime välja ülikooli all teaduspreemiad: parimale noorteadlasele rahaline preemia. Kuid esimesel perioodil lihtsalt otsiti ennast.

Kuna ma olen ise geograaf, siis oli Tartus selline vahva mees nagu Jüri Jagomägi. Temaga ja ta vendadega arutasime, et võiks teha kaarte ja mida kõike võiks üldse ära teha, eriti kaardivaldkonnas. Tollest hetkest saime idee, et tuleb kindlasti ära teha Eesti teedeatlas, eestikeelne gloobus, pinnamoe kaardid, vetekaardid, morfoloogiline kaart, kus oleksid reljeefid. Olime kuulnud, et kusagil Gruusias anti plastmassist ruumilisi kaarte välja. Meil oli mingi 60-70 ideed - väga palju ideid, hakkasime otsast pihta. Tol ajal oli aga vaja riigilt erinevaid lube kaartide tegemiseks ja siis me mõtlesime, et proovime teha Eesti vetekaardi ja selle me tegimegi esimesena. Riias oli kaardivabrik ja seal me käisime õppimas, kuidas kaarte teha – tegime käsitsi, kleepisime. Siis ma käisin Taanis tudengivahetusprojektiga. Regio alt oli teadusprojekt, mille raamis toodi tudengeid Tartu Ülikooli. Igal juhul tõin sealt ühe arvuti 1990. aastal. Selle pealt

hakkasime väljatrükke tegema – mitte enam kirjutusmasinaga ei trükinud kohanimed, vaid arvutis. See oli väga kõva sõna tollal, kuidas tehnoloogia siseneb taolisesse valdkonda, sest ülejäänud tehnoloogia oli praktiliselt käsitöö. Hakkasime tegema vanu geograafilisi kaarte järgi, turul nõudlust oli, ja kuna need olid üsna harvad kaardid, siis me arvasime, et see oleks üks igavesti vahva tegu, kui aitame inimestel mälu taastada läbi kaartide. Tegime ka postkaarte edasi, kuid siis olid äriplaanid ja teadusplaanid kaks erinevat asja, teadusele tuli juurde maksta. Kuna ma olin tookord selle firma direktor, siis ma jõuga suunasin postkaartidelt teenitud raha teadustegevusse. Kuid osad inimesed, kes postkaarte tegid, ei olnud sellega nõus, ja nii me leppisime kokku, et nad teevad postkaartide äri ise edasi, nii et nad lahkusid firmast. Samas teadust ei tahetud tookord ja siis hakkas kaart tulema ja endal oli ka huvi ja Jüri Tartust oli tõeline kaardifänn.

Seega algas regionaaluuringutest, läks üle geograafiliste kaartide peale, tegime Faximi'le väljaandeid päris mitmeid, ka Eesti Vabariigi aegsetest kindralstaabi kaartidest. Tol ajal oli võimalus ja tekkis mõte teha eestikeelseid kaarte, vaadata, kuidas on maastik muutunud ja see kirja panna. Meilt küsiti, et kas me ei taha seda edasi arendada. Nii et Teet käis Ameerikas õppimas ja kirjutas meile, kuidas arvutite peal seal kaarte tehti. Kui Teet tuli poole aasta pärast tagasi, siis sai selgeks, et senine kaarditegemine ei ole eriti mõistlik. Kuna meil oli üks osa ettevõtmisest Tartus, teine Tallinnas, siis tegime Tartu osakonna Tartu Ülikooli praktikabaasiks. Praktiliselt kogu kartograafia tudengkond käis meil kaarte tegemas, see oli 1990ndate alguses. Siis ilmuski Eesti teedeatlas, mida polnud olnud üle 50 aasta, see oli nõ läbimurre. Leningradis käisime ka ennast täiendamas. Nii et äriplaneerimine jooksis Tartus ja Tallinnas ning Riias ja Leningradis käisime õppimas. Äril hakkas väga hästi minema. See oli ka missiooniküsimus – ajada Eesti kaardi asja. See oli teine etapp.

Kolmas etapp algas siis, kui Teet tuli tagasi ja pandi juhiks. Oli 26-aastane väga noor juht, kuid õige otsus, sest kartograafia läks üle kõik arvutite peale, nii palju kui tookord oli võimalik teha. Geo-infosüsteemi (GIS) tähendas see. Meil oli mõte, et mida rohkem me maa kohta infot kogume, seda parem on. Meil olid tollal väga võimsad arvutid, praktiliselt sama võimsad kui Hansapangal. Satelliidi pealt võtsime koordinaate GISi jaoks. Nii et siis oli väga selgelt kartograafia ja ruumiinfole spetsialiseerumine.

Nägime, mida kõike saab ruumiinfoga teha, nii et hakkasime otsima finantseerimisvahendeid. Vahepeal võtsime ka Maapangast laenu, kuid hakkasime otsima ka partnereid.

Nii et siit algaski neljas etapp, kui Balti Ameerika Fond pani Regiosse riskiraha sisse. Siis hakkas tõsine reaalne äritegevus peale, sest nemad nõudsid tohutuid aruandeid, ülevaateid. See võis olla aastal 1994. Siis Teet sai juhatajaks ja mina läksin siis valitsusse Lauristini nõunikuks, kuid jäin osalusega sisse ja olin nõukogus. Seal see kasv oli päris kiire, tehnoloogiline areng oli kiire ja oli olemas nägemus, mida sellega kõik saab teha.

Viies etapp oli see, kui ameeriklased müüsid kogu kupatuse maha, mis lõppes meile kõigile päris traagiliselt, kuna meie ei teeninud midagi. Ameeriklased ja soomlased teenisid hästi. Meil oli arusaamine, et meil on väga hea toode, see positsioneerimine. Käisime mööda pankasid, et finantseerimist leida, kuid keegi ei saanud aru, mida see toode tähendab. Meile soovitati võtta korterite peale laenusid, kuid mitte tehnoloogilise lahenduse peale, tootearenduseks. Nii et me ei saanud raha. Ja sealt tuli mõte, et ei jää muud üle, kui tuleb Done'le. Siis oli IT tipp, kahe kuuga kukkus aga kokku. Regiole anti Done aktsiaid, ameeriklastele sularaha, hiljem kukkus Done aktsia kokku, nii et Regio kannatas kõvasti.

Viimane etapp ehk ameeriklastega „mängimine“ viis selleni, et saime lepingu Ericssonilt. See oli suur läbimurre, et saad sellise suurusega partneri siit väiksest Tartust. Ka EMT-ga tehti ühisfirma U-Kine. Ega meid näha siis ei olnud, kuid Ericssoni kaudu tekkisid sidemed ja tekkis arusaamine, et suudetakse konkureerida maailmas. Kaardi tegemisest andmete müügini on asi läinud. Müüakse andmeid, mida kombineeritakse ruumis, mis annavad täiesti uusi võimalusi. Meil oli olemas missioon, visioon, tõsine äriplaan, mis küll võibolla 5 lehel, kuid murrang oli siis, kui defineerisime ennast kartograafia firmast positsioneerimisfirmaks. Mina olin seniajani Regios nõukogu liige, kuni soomlastele ära müüsid, kuni aastani 2000.

#### Millised tegurid eriti mõjutasid nende perioodide jooksul ettevõtte käekäiku?

Esimene oli see, et väljamaalt saime tehnoloogiat sisse, mis oli pöördepunkt. Mindi arvutibaasi peale, teine oli see, et hakati arvutiga selekteerima infot, mida hakati

pakkuma meie klientidele. Seal tuli see positsioneerimine, mis sai võimalikuks tänu sellele, et mobiiltelefonid tulid kasutusele. See oli oluline tegur väliskeskkonnas, tekkisid vahendid, mis muutusid tavapäraseks – siis me tegime Päästeametile programmi, et kui inimene on metsas ja eksinud, et siis ta saab helistada ja sellega saab ära määrata tema asukoha. Eesti oli esimene riik, kellel üleriigiline kaetus. Neid riike ei olnud väga palju, kus sai sellist teenust võtta riigi tasemel. Teine oluline tegur oli rahvusvahelistumine, Ericsson. Ettevõtluskeskkonnas oli oluline tegur selles, et tekkis välisruumi Eesti firmade vastu, kogu erastamisprotsess.

Vaadates nüüd tagantjärele, siis milliseid valikuid tehti, millised eesmärgid saavutati, millised mitte?

Esimene valik oli see, et „teeme ilusaid asju“ – näiteks Eesti gloobus, see oli omamoodi kinnisidee, sest terve Vene aeg ei olnud Eesti gloobust olnud. Sellega saadi hakkama. Teine roll valikute tegemisel oli see, et inimesi, kes oskasid neid asju teha, neid ei olnud. Seetõttu me olime seotud TÜ geograafia instituudiga, mis oli kahtepidi kasulik: tudengid said õppida reaalselt kartograafiat ning teisalt me saime endale valida sealt inimesi. Tartu selles mõttes olulise tähtsusega koht. Kui oleks olnud Tallinnas, siis poleks saadud neid inimesi tööle. Olulise tegurina olid meie partnerid, kes hakkasid ka teatud mõttes kallutama, näiteks EMT kallutas positsioneerimise suunas, mis tähendas, et panime selle peale ka rohkem ressursse. Hiljem Ericsson... Eesmärkide kohta ma ei tahaks enam midagi öelda, kuna pole enam Regios.

Vaadates joonist, siis kas Teie arvates on Eesti IT sektori areng õigesti positsioneeritud; mis juhtub edasi nii globaalsel kui ka Eesti turul?

Ma arvan, et võiks isegi innovatsiooni faasi ettepoole tõsta. IT-ga tegelesid tookord TIP-s juba enne 1990. aastat. Me tegime uuringuid ja me kasutasime juba arvuteid ankeettöötlusel. Statistika oli kõva, baasuuringud. See oleks ülekohtune, nii et kindlasti oli juba 1970ndatel. IT sektor läheb kindlasti edasi. IT alal on Eestis väga tugevaid praktiliste väljunditega tegijaid. Kasvõi Regio, et kui tal õnnestub veel rohkem läbi murda, siis läheb kindlasti edasi. IT on kindlasti Eestis üks vedavaid harusid, nii meditsiinis kui biomeditsiinis. Minu arusaamine on see, et Eesti tähtsus globaalsel turul kasvab. IT enda osatähtsus Eesti turul ka kasvab.

Teie juhtimisaja jooksul, millised olid peamised organisatsioonilised probleemid? Millal saavutati küpsusfaas?

Mul on raske vastata, kuna ei ole enam selle sees. Praegu on Regio ikka tundmatuseni muutunud. Neid kaasaegseid juhtimismeetodeid, mida alguses tegime intuitsiooni põhjal, tehakse nüüd ikkagi teadlikult, näiteks team-work. Neid organisatsioonilisi asju on seal kogu aeg tehtud. Aga jah, et sooviks anda rohkem hinnanguid.



# RESÜMEE

## INNOVATSIOON KUI STRATEEGILISTE OTSUSTE TULEM ORGANISATSIOONI KESKKONNA KONTEKSTIS: EESTI INFO- JA KOMMUNIKATSIOONITEHNOLOOGIA ETTEVÕTETE JUHTUM

Triin Kask

Innovatsioonist on saanud ettevõtete ellujäämise võtmetegur. Jätkusuutlikkust on võimalik saavutada vaid tulevikku vaatava ja uutele lahendustele orienteeritud mõtteviisiga, mis hõlmab nii organisatsioonilisi arenguid kui ka uute toodete arendamist. Väga raske on aga ennustada, millised tooted ja teenused kindlustavad tarbijate hulga kasvu, milline peaks olema strateegia dünaamilise ja keerulise väliskeskkonna tingimustes, mis omakorda põhjustab ebakindlust tuleviku suhtes.

Käesolev magistritöö keskendub innovatsiooni ja strateegiliste otsuste vaheliste seoste väljatoomisele, et kindlaks määrata tegurid, mis mõjutavad strateegilisi otsuseid, mis omakorda viivad innovatsioonini. Vaatluse alla on võetud Eesti info- ja kommunikatsioonitehnoloogia (IKT) ettevõtete areng alates 1991. aastast – ajast, mil Eesti Vabariik saavutas taas iseseisvuse ning hakkas arenema uudsetes ja paljude võimalustega turumajanduse ja demokraatia tingimustes. 1990ndatel ja 2000ndate aastate alguses tegid ettevõtted strateegilisi otsuseid pigem lähtuvalt turuolukorrast ja väliskeskkonna tingimustest kui et innovatsioonist ja selle saavutamise vajadusest. Seetõttu juhtusid paljud sündmused ettevõtete arengus mitte konkreetse strateegilise juhtimise tulemusena, vaid juhuslikult, k.a innovatsioon.

Sellest tulenevalt püstitab käesoleva magistritöö autor töö eesmärgiks välja selgitada, kuidas strateegiliste otsuste tulemusena on innovatsioon välja arenenud organisatsiooni keskkonna kontekstis, kasutades kolme Eesti IKT ettevõtte näidet. Eesmärgist tulenevalt on püstitatud järgmised uurimisülesanded:

1. analüüsida innovatsiooni ja tema tüüpide teoreetilist raamistikku;
2. tuua välja olulised aspektid strateegiliste otsuste tegemisel, selgitades seejuures ka organisatsiooni sise- ja väliskeskonna rolli;
3. läbi viia empiiriline uurimus kolme Eesti IT ettevõtte, MicroLink'i, Regio ja Ordi juhtumite põhjal;
4. analüüsida juhtumettevõtete arengut;
5. tuua välja peamised aspektid kolmele juhtumanalüüsile tuginedes, kuidas strateegilised otsused on välja kujunenud ning toonud kaasa innovatsioone.

Magistritöö esimene osa keskendub empiirilise uuringu teoreetilise raamistiku loomisele, selgitades innovatsiooni, strateegiliste otsuste, organisatsiooni keskkonna ning IKT ettevõtete olemust. Konkreetsemalt tuuakse välja erinevad lähenemised innovatsiooni tüüpidele, keskendudes siin OECD Oslo Käsiraamatu poolt eristatud toote, protsessi, turunduse ja organisatsiooni innovatsiooni tüüpidele. Strateegiliste otsuste olemust analüüsitakse läbi strateegilise juhtimise protsessi, tuues välja organisatsiooni keskkonna olulisuse otsuste tegemisel. Samuti püstitab töö autor teoreetilises osas viis hüpoteesi, mida kontrollitakse Eesti IKT ettevõtete kontekstis töö empiirilises osas.

Töö teises osas antakse kõigepealt lühiülevaade Eesti IKT sektori arengust ning tutvustatakse uurimismetodoloogiat ja uuringu plaani. Seejärel antakse ülevaade kolme Eesti IKT ettevõtte, MicroLink'i, Regio ja Ordi juhtumitest, et analüüsida nende arengut strateegiliste otsuste ja innovatsiooni kontekstis. Juhtumanalüüsides põhjal tuuakse välja olulisemad tulemused ning tehakse järeldused IKT ettevõtete kohta üldisemalt.

Ettevõtete valikul lähtuti nende omadustest, mis suures osas kattuvad üldiste IKT ettevõtete omadustega, andes samas hea ülevaate Eesti IKT ettevõtte profiilist, kes alustas oma äritegevust 1990ndate alguses ning on endiselt tegutsev ettevõtte. Empiiriline uuring baseerub avalikele materjalidele, ettevõtete majandusaastaruannetele ja intervjuudele, mis viidi läbi MicroLink'i, Regio ja Ordi endiste ja praeguste tegevdirektoritega. Intervjuud endiste juhtidega viidi läbi 2007. aasta veebruaris ning praeguste juhtidega 2010. aasta aprillis ja mais.

Innovatsiooni defineeritakse käesolevas magistritöös lähtuvalt Oslo Käsiraamatu (Onodera 2008) definitsioonist: „innovatsioon on uue või märkimisväärselt täienenud toote/teenuse või protsessi, uue turundusmeetodi, või uue organisatsioonilise meetodi rakendamine ettevõtte praktikas, organisatsioonis või välissuhetes“. Samuti lähtutakse Oslo Käsiraamatust innovatsiooni tüüpide valikul ning eristatakse toote, protsessi, turunduse ja organisatsiooni innovatsiooni, mis on asetatud arhitektuuri ja komponendi teadmuse konteksti. Teaduskirjandus keskendub peamiselt toote- ja protsessiinnovatsioonile, jättes organisatsiooni- ja turundusinnovatsiooni tähelepanuta, mistõttu käesolev töö aitab ka nende innovatsioonide olemust paremini mõista.

Strateegilised otsused tuleb teha vastavalt ettevõtte keskkonnale, mis sisaldab nii väliskeskkonda kui ka organisatsiooni võimekusi. IKT ettevõtete väliskeskkond on äärmiselt dünaamiline ning mõjutegurite rohke, kus nii primaarne kui teisejärguline keskkond omavad mõjuteguritena olulist rolli, ja see omakorda põhjustab ebakindlust otsuste tegemisel. Et olla kooskõlas kiirelt areneva keskkonnaga, tuleb IKT ettevõtetel pidevalt arendada ja täiustada oma kompetentse ja ressursse, et saavutada eelis dünaamiliste võimekuste näol.

Üldine arvamus on, et enamik innovatsioone, eriti edukad innovatsioonid, tulenevad teadlikust ja eesmärgipärasest innovatsioonivõimaluste otsimisest. Kuid käesolevas töös võetakse lähtekohaks tõsiasi, et 1990ndatel ei olnud Eesti ettevõtted keskendunud innovatsioonile. Seetõttu kasutatakse töös innovatsiooni kui strateegiliste otsuste tulemi analüüsimiseks järgmist protsessi: kõige pealt tuuakse välja strateegilised otsused, seejärel analüüsitakse iga otsuse puhul organisatsiooni võimekusi ja väliskeskkonda ning lõpuks, tehakse kindlaks need otsused, mis viisid ettevõtte kas toote-, protsessi-, turundus- ja/või organisatsiooni innovatsioonini.

MicroLink'i, Regio ja Ordi juhtumanalüüside tulemustest selgus, et 1990ndatel ja 2000ndate alguses oli innovatsioon juhuslik nähtus IKT ettevõtete arengus, kuid seda teadvustati pärast olulisi organisatsioonimuutusi, mis ettevõtetes aset leidsid. Need muutused olid tingitud vajadusest tõhustada organisatsiooni toimimist ja juhtimist, mis omakorda viitab tõsiasjale, et innovatsioon on pigem pragmaatiline kui strateegiline küsimus Eesti IKT ettevõtetes. Seega on ettevõtetel võimalik innovatsioonist kasu lõigata

ka lühema aja jooksul, kui ta arvestab organisatsiooni täiustamist kui järjepidevat protsessi, mis toetab üldist visiooni ja strateegiat.

Teise olulise uuringutulemusena saadi, et peamised erinevused ettevõtetes avaldunud innovatsioonide vahel olid tingitud ettevõtete strateegiliste eesmärkide erinevustest. Ordi peamine strateegia keskendus jätkusuutlikkusele ja kindlale kasvule, kohanedes pidevalt turuvajadustega, ning näitas innovatsiooni põhiliselt organisatsiooni tasandil. MicroLink, kelle strateegia oli agressiivne geograafiline laienemine läbi liitumiste ja ülevõtmistes, oli innovaatiline peamiselt kohaliku turu tasandil. Regio oli aga ainuke ettevõtte kolmest, kes saavutas oma innovatsioonidega globaalse turu tasandi, rakendades nišistrateegiat ning kontsentreerudes tootearendusele. Need tulemused viitavad ka sellele, et mida proaktiivsem on ettevõtte, seda edukam ta on innovatsiooni mõistes, kuid reaktiivsed ettevõtted saavutavad harva globaalse innovatsiooni taseme.

Samal ajal olid ka peamised organisatsiooni keskkonna tegurid juhtumettevõtetele samad, kuigi nende fookus oli erinevatel teguritel, mis avaldus ka ettevõtete finantsnäitajates. Nimelt keskendusid Regio ja MicroLink peamiselt organisatsiooni võimekuste suurendamisele ning ei arvestanud piisavalt väliskeskkonnaga ja see omakorda tõi olulistel hetkedel kaasa suuri finantskahjusid. Seevastu Ordi püüdis pidevalt kohandada oma võimekusi vastavalt välistingimustele ning see võimaldas tal säilitada stabiilset kasvu ka ajal, mil üldised majandustingimused IKT sektoris olid keerulised. Seega on dünaamiliste võimekuste olulisus IKT ettevõtete jaoks ilmselge ja jätkusuutliku kasvu seisukohast isegi vältimatu.

Kokkuvõttes võib öelda, et isegi kui IKT ettevõtte ei kaalu strateegiliste otsuste tegemisel innovatsiooni omaette eesmärgina, on tal ikkagi olemas võimalused olla innovaatiline selle põhilises tähenduses. Ettevõtte potentsiaal saavutada erinevaid innovatsioonitüüpe organisatsiooni, kohaliku turu ja globaalse turu tasandil on sageli piiritletud ettevõtte üldise strateegilise visiooni ja proaktiivse natuuri poolt, mida peaksid omakorda toetama tema dünaamilised võimekused. Kui ettevõtte keskendub peamiselt kohalikule turule, siis strateegiliste otsuste tulemusel kaasnev innovatsioon on samuti tajutud ainult organisatsiooni või kohaliku turu tasandil. Kui aga ettevõtte püüab arendada oma strateegiat globaalse turu kontekstis, siis ka tema otsuste tulemusena kaasnevad innovatsioonid võivad saavutada globaalse turu tasandi. See tähendab, et nii

primaarse kui teisejärgulise keskkonna tegureid tuleks arvestada strateegiliste otsuste tegemisel ja dünaamiliste võimekuste täiustamisel.

Magistritöö edasiarendusvõimalustena pakub töö autor välja peamiselt kahte alternatiivi. Esiteks, kuna uuring baseerus peamiselt intervjuudele, mis olid tehtud ettevõtete endiste ja praeguste tegevdirektoritega, võib eeldada, et innovatsiooni ja organisatsiooni arenguid võivad ettevõtte töötajad teisiti tõlgendada. Seetõttu võiks edasine uuring keskenduda töötajate seisukohtade selgitamisele ja olulisuse määramisele ettevõtte võimekuses olla innovaatiline. Teiseks tuleks uuringutulemusi võrrelda mõne teise sektoriga, näiteks biotehnoloogiaga, mis arvatakse olevat järgmine valdkond, kus hakkavad toimuma suured muutused, tuues kaasa maailmamastaabis innovatsioone. See oleks äärmiselt huvitav valdkond, mille ettevõtete innovaativsus ja arenguid uurida. Samuti aitaks taoline võrdlus paremini avada Eesti perspektiivikate sektorite omapärasid ning mõju ettevõtete arengule.