Aalto University
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Growth Phases and Survival of Born Globals - Case: Finnish Software Firms

International Business

Master's thesis

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ABSTRACT

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Objectives of the Research

This study was part of the "Born Global Growth and Survival" joint project by Aalto University School of Economics and University of Vaasa.

Based on a literature review and an empirical research, the growth phases of Born Global firms and factors that influence the growth and survival of these firms are introduced. This particular thesis contributes by focusing specifically on the Born Global firms in the software business. The literature review covers such topics as international business, management, growth, cycles, and internationalization. Software business in general and particularly in Finland is additionally discussed.

Method of Research

The empirical research of this thesis is based on a multiple case study of four Finnish software firms, three Born Globals and one Born International. A central tool used is the preliminary conceptual framework that was devised based on the extensive literature review.

Findings and Conclusions

Research findings suggest that *commercial and global breakthrough* of Born Global software firms is positively related to the industry growth rate, industry globalization drivers, the amount of firm resources and managerial experience, the existence of substantive, dynamic, and networking capabilities, high-levels of entrepreneurial orientation, compatibility with dominant players in the market, lock-in effects, appropriate software business models and growth strategies, existence of luck, internationalization and localization capabilities, and creativity. The *maturity and global rationalization* in turn is found to be positively related to increased global seller concentration, existence of networking capabilities, low level of entrepreneurial orientation and industry growth rate, and having appropriate software development processes in place. Finally, *survival* of these firms were found to be positively related to the industry growth rate, the amount of resources and managerial experience, the existence of substantive, dynamic, and networking capabilities, low level of entrepreneurial orientation, luck, capability to focus, and lower levels of growth aspirations.

Key Words: Born Globals, International New Ventures, Growth, Survival, Software Industry, Software Business

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1. INTRODUCTION

1.1 Background

In the 1960s, the business slogan in Finland was “Export or die”, in the 1970s and 1980s “Internationalize or die”, and in the 1990s and 2000, “Globalize or die” (Luostarinen & Gabrielsson, 2004). With the development of computers and the Internet, and improvements in many other communication and transportation infrastructure, the world seems to have become one big “global” market.

For decades, many researchers have studied the internationalization process of firms. Much of the existing theory related to firms’ internationalization process was developed during the 1970s and 1980s (Rialp, et al., 2003). The mainstream theory has been that firms internationalize following a slow, gradual, evolutionary path of development (Rialp, et al., 2003; Luostarinen, 1979) after a stable domestic period. For example, Johanson and Vahlne (1977) introduced a model whereby firms gradually acquire, integrate, and use knowledge about foreign markets and operations, and incrementally increase commitments to foreign markets after a long domestic period. Luostarinen (1979) has stated that one of the reason for this is the lateral rigidity in decision-making by the managers. In other words, managers are rigid in a lateral direction towards new alternatives, but are elastic forwards, towards already known alternatives. Also, Johanson and Wiedersheim-Paul (1975) proposed an “establishment chain” theory based on their study of four Swedish firms and postulated that a firm’s engagement in a specific foreign market develops according to an establishment chain.

During the 1990s, following rapid change in the global business environment, a new phenomenon, ‘Born Global’ firms emerged (Kuivalainen, 2001; Laanti, et al., 2007, also see Luostarinen & Gabrielsson, 2006). These firms that start their business in foreign markets at inception have been studied as “deviations” to the conventional internationalization theories (Luostarinen & Gabrielsson, 2006). This new phenomenon can be increasingly seen all over the world and seemingly have changed the ways firms start up and grow due to external environmental changes. Some factors, causing this phenomenon, that have been identified include “falling trade barriers, deregulation and

privatization, maturity in domestic markets, faster information flows, improved communication and transportation networks, social developments such as more homogeneous consumer needs, tastes, and values, globally standardized products, high technology investments that cannot be covered by sales in domestic markets only, combined with shortening product life-cycles, other economies of scale benefits, global sourcing of resources and ideas, globalizing competitors and competition, and free movement of capital goods, services, and people." (Laanti, et al., 2007, p.1105).

Compared to conventional firms, Born Global firms' resources are constrained by their young age and usually by small size (Oviatt & McDougall, 1994). However, these Born Globals somehow manage to take the world from day one, with exceptional skills. For example, some of the traditional theories argue that firms incrementally internationalize step by step after learning from their domestic period (Johanson & Vahlne, 1977), but Born Globals may already have the required knowledge even before they start to internationalize, as the key personnel could have gained international experience elsewhere in another firm prior to joining or the firm may have good connections within their network, thus decreasing the need of its own learning process (Kuivalainen, 2001).

The interesting question is then, how do Born Global firms grow and sustain their competitive position to become a mature firm after their initial introductory phase? What are the factors for survival and growth of these special types of firms throughout their life cycle? A joint project led by Professor Mika Gabrielsson and Peter Gabrielsson started between Aalto University School of Economics, University of Vaasa, and some partner firms including Finpro, Biohit, IonPhasE, Innohome, Map Vision, and Hartwall Capital, in order to deepen our knowledge regarding Born Global firms' growth and survival.

While the general objective of the Research Group is to find out what are the growth phases of Born Global firms and what are the factors influencing the growth and survival of those firms, this particular thesis contributes by focusing on the Born Global firms in the software business. The reason that the software business has been chosen is because software has become a critical element of our life, in everyday operations and business development. Software industry has been growing rapidly over the years and is

an increasingly essential component of products and services in other industries (Hertzen, et al., 2009; Hoch, et al., 2000). It is thus interesting to study Born Global firms in such business area. Also, a significant portion of the current literature cover Born Global firms in the high-technology business area (Kuivalainen, 2001; McAuley, 1999; Rialp, et al., 2005) and the software sector (Bell, 1995; Coviello & Munro, 1997; Coviello, 2006), which imply that good case studies are likely to exist. Finland was chosen as the country to select the case firms from, since Finland is a good example of a small and open economy (SMOPEC). SMOPEC countries usually face double jeopardy of targeting narrow niche markets in limited domestic markets (Luostarinen, 1994; Saarenketo, 2004) which themselves attracts foreign competition due to its openness. New start-ups from SMOPEC countries typically are pressured to globalize their business quickly compared to those originating from large nations, which have huge domestic markets (Luostarinen& Gabrielsson, 2004). As such, in the empirical section, four firms conducting software business in Finland will be studied.

1.2 Research Gap and Research Problem

The Born Global phenomenon is by now quite well documented, as described by Rialp, et al. (2005). There has been increasing research focused on describing, understanding, and interpreting the reasons underlying the actual emergence of Born Global firms. For example, Laanti, et al. (2007) discuss the globalization process of business-to-business Born Globals in the wireless technology industry, paying attention to how the founders and managers, networks, financial resources of the firms, and innovations behind the firms have roles in these firms' emergence. Saarenketo (2004) also lists earlier international experience, global vision, and high-risk tolerances of managers as having a positive affect on rapid internationalization of small firms.

However, despite the number of studies, little has been studied on how these Born Global firms progress in the future, specifically what are the growth phases of Born Global firms and what factors impact towards transformation to the next stage. Also, little has been researched on the actual survival and failure of Born Globals (Gabrielsson & Gabrielsson, 2009; Mudambi & Zahra, 2007; Sapienza, et al., 2006).

Zahra (2005) has pointed out that there has not yet been enough research on the probability of survival of Born Global firms after they have been established, and what becomes of those firms that do actually survive.

In order to fill this gap in contemporary international business literature, the joint Research Group seeks to address the following major research problem:

> *How can innovative Born Globals grow to become truly global firms while also surviving, taking into consideration their limited resources to address the global market opportunities and required holistic management of the process?*

1.3 Research Objectives and Questions

A number of Master's thesis is being written as part of this research project, each focusing on a specific area. This paper focuses on software business and examines holistically the growth and survival of Born Global software firms. Building on the shared concepts developed by Gabrielsson and Gabrielsson (2009b), this paper aims to contribute by adding software specific factors that affect the growth and survival of Born Global firms doing software business.

Thus, the research objectives can be stated in the form of a research question and sub-questions as follows:

> *How do Born Global firms in the software industry become adults and what factors impact their global growth and survival?*
>
> - *What are the growth phases of these firms?*
> - *What are the factors that impact the growth and survival of these firms?*
> - *How do differences in the business model (software products, software services, and hybrid solutions) affect the different paths that firms should take to grow and survive?*

1.4 Structure of the Study

In order to answer to the research questions and ultimately the research objective, this thesis is separated into six chapters as shown in figure 1.

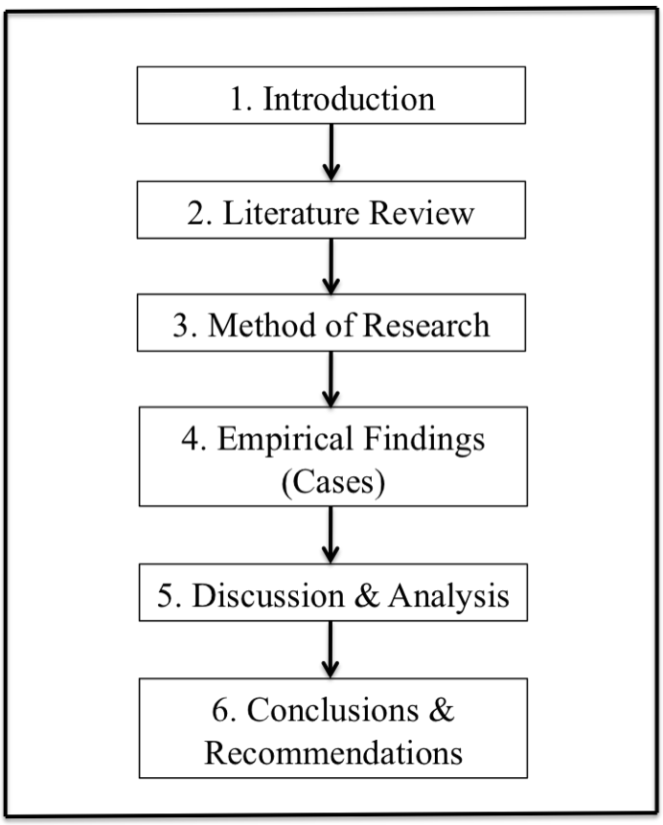


Figure 1. Structure of the study

The first chapter is the introduction, which contains a brief background to this study and lay out the research problem, objectives, and questions. The second chapter then provides a review of relevant literature on international business and software business. This chapter is further divided into seven sections. Chapter 2.1 will give a general overview of "Born Globals" and their characteristics, chapter 2.2 describes the software business, and chapter 2.3 lays out the general growth models of firms from relevant literature. Chapter 2.4 and 2.5 continues with identifying the growth phases and survival of Born Global firms as identified in recent studies. Chapter 2.6 gives an overview of various external and internal factors, which may influence the growth and survival of

Born Global firms. Finally, at the end of this chapter, a synthesis of the literature review will be presented with a preliminary theoretical framework and propositions related to growth and survival of Born Global software firms.

The third chapter includes a description of the methodology, summarizing the research approach and material collection, as well as the limitations of this study. The empirical results of the in-depth case analysis of four software firms in Finland are then presented and discussed in the fourth and fifth chapters. Finally, some important implications for managers and policy makers are drawn from the findings.

2. LITERATURE REVIEW

In an attempt to establish a preliminary theoretical framework for empirical research, this literature review chapter examines earlier works of prominent academicians related to growth stages of firms, Born Global phenomenon, and internationalization. By synthesizing existing studies from the international business, management, and software business field, hints for answers to the research questions may be found, which can be utilized for empirical research in examining the growth stages and factors for growth and survival of Born Global software firms in Finland.

First, definitions and characteristics of a Born Global are reviewed. This is important since Born Globals are rather distinct type of firms compared to the so-called traditional firms. Next, the software business field is studied, putting the focus on Finland. Then, earlier works on general growth models of firms and growth phases are investigated. It develops two dimensions; global growth and growth in the size of the firm. This is followed by review of the literature on survival of firms and tries to identify the factors that affect the growth and survival of Born Global software firms. Finally, a preliminary theoretical framework and propositions that explain the influence of the variables identified in the literature are presented.

2.1 Definitions and Characteristics of a Born Global

This section defines the term "Born Global" and lays out the basic characteristics of these types of firms.

2.1.1 Various Terms and Definitions

Since the early 1990s when Born Global firms seem to have started to increasingly spring up, many researchers have attempted to explain their existence and analyze the emergence of the new type of phenomenon (Luostarinen & Gabrielsson, 2006, McDougall, et al., 1994; Rialp, et al., 2005). Across the management and entrepreneurship literature, various terms are used to point to a similar concept.

International New Venture (INV), which is the most common term used thus far, is defined as firms that "*from inception, seek to derive significant competitive advantage from the use of the resources and the sale of outputs to multiple countries*" (Oviatt & McDougall, 1994, p.49). Oviatt & McDougall (1994) has identified four different types of INVs; 1) *Export/import start-ups*, 2) *multinational traders*, 3) *geographically focused start-ups*, and 4) *global start-ups*. This fourth type of INV, *global start-ups,* are the most difficult form to develop because they require skills at both geographic and activity coordination, but once successful, they appear to have the most sustainable competitive advantage.

Global starts-ups, identified by Oviatt & McDougall (Ibid.) are also often referred to as *born globals* (Knight & Cavusgil, 1996). Knight and Cavusgil (1996, p11) define Born Global firms as being "*small, technology-oriented companies that operate in international markets from the earliest days of their establishment*". Other similar terms used in the literature are *High Technology Start-ups* (Jolly, et al., 1992), *Instant Exporters* (McAuley, 1999), *Instant Internationals* (Fillis, 2001; McAuley, 1999), *Born-Internationals* (Kundu and Katz, 2003), *Micromultinationals* (Dimitratos, et al., 2003), and *Early Internationalizing Firms* (Rialp, et al., 2005). Whatever terms may be used, researchers have attempted to understand the emergence of new firms that go global from inception, which seems to deviate from the traditional internationalization approach.

For the sake of being consistent throughout this paper, the term "*Born Global*" will be used, as I believe it best describes the characteristics of the firms under review.

Born Globals can be defined in many ways. Global vision, time before starting to export, and export versus global growth are some criteria that have been used by different researchers for a firm to be called a Born Global (Gabrielsson, et al., 2008). For example, Knight and Cavusgil (1996) claimed that a Born Global firm management views the world as its marketplace from the outset, begins exporting one or several products within two years of establishment, and tends to export at least a quarter of total production. Luostarinen and Gabrielsson (2006) defined Born Globals as having a clear global vision and are on a global growth path, enter global markets at the outset, and makes over 50% of their sales outside its home continent. Oviatt and McDougall (1994) have put the focus on the age of the firm when they become international, and not its size, as a factor for being a Born Global.

Focusing on the age or time period before starting to export can be a bit tricky because there tends to be a difficulty of defining the exact starting time of Born Globals due to their often long R&D period until the product is actually ready (Zahra, 2005). Gabrielsson, et al. (2008) also points out that exporting is not straightforward, especially for start-up companies with limited international experience, and that we should be flexible about the time period of when the Born Globals started to actually export. Focusing on the ratio of exports or range of geographic international activities can also be flawed since those numbers could be influenced by the size of the Born Global's country of origin and economy, the country's neighbor markets, and other factors such as the type of industry (Gabrielsson, et al., 2008). Kuivalainen, et al. (2007) also emphasized the need to distinguish firms even within the Born Global category: "true born global" and "apparently born-global (born international)", whereby the former operate in more distant markets and the latter go into culturally closer markets and follow strategies which resemble more the traditional internationalization process.

In order to avoid the strict numerical criteria related to export ratios and speed of export, some researchers have viewed Born Globals from the strategic perspective, (Luostarinen & Gabrielsson, 2004), whereby Born Globals

a) start international operations even before or simultaneously with domestic ones,

b) base their visions and missions mainly on global markets and customers from the inception,

c) plan their products, structures, systems and finances on a global basis,

d) plan to become global market leaders as part of their vision,

e) use different product, operation and market strategies than firms have traditionally done,

f) follow different global marketing strategies, and

g) grow exceptionally fast on global markets.

In this paper, the above strategic perspective is adopted in addition to the following criteria for the purpose of selecting Born Global firms for qualitative case study.

1) Foreign sales have reached 25% within three years of establishment.
2) Sales from outside the home continent have reached 25% within six years of establishment.

2.1.2 Characteristics of Born Global Firms

Before stepping into the world of Born Global software firms, it may be beneficial to shortly highlight the general characteristics of Born Globals, as those characteristics differentiate themselves from other multinationals in their growth stages.

The definition of Born Globals from the strategic perspective (Luostarinen & Gabrielsson, 2004) was introduced in the previous section. Born Globals typically operate in a narrowly defined market niche, which makes it harder to grow in a single, small home market (SMOPEC), such as Finland. A high degree of specialization requires internationalization if the firm wants to achieve substantial growth (Kuivalainen, et al., 2006). Although multinationals following the traditional internationalization approach and Born Globals both internationalize their activities at some point in order to grow, Born Globals are disadvantaged with respect to three aspects. Born Globals suffer from the liability of 1) foreignness (Zaheer & Mosakowski, 1997), 2) newness (Stinchcombe, 1965), and 3) smallness (Zahra, 2005). These

liabilities are discussed in more detail in chapter 2.5. Born Globals often possess unique resources and capabilities such as entrepreneurial orientation of the founders, innovation behind products and technology, accumulated knowledge of the founders and managers from previous work experience, and networking capabilities (Laanti, et al., 2006)

A significant portion of the current literature cover Born Globals in the high-tech business area (McAuley, 1999; Rialp, et al., 2005), but there has also been studies covering Born Globals in the low-tech field such as clothing, traditional food, and furniture (Gabrielsson, et al., 2008). For example, McAuley (1999) has conducted a study of "instant internationals" in the Scottish arts and crafts sector. Luostarinen and Gabrielsson's (2004) pilot studies showed that Born Globals can be found from 1) high-tech businesses, 2) high-design businesses, 3) high-service businesses, 4) high-know-how businesses, and 5) high-system businesses. It can be argued that Born Globals are typically found in niche business areas where products are unique, and require high amount of research and development (Luostarinen & Gabrielsson, 2004).

As for geographic locations of these Born Globals, their headquarters can be found in various countries, such as the United States, New Zealand, United Kingdom, Switzerland, Germany, France, Brazil, Israel, and Singapore (McDougall, et al., 1994). Rich and large countries give birth to Born Globals, as these countries have potential demand for unique products, plenty of global managerial and marketing professionals, and rich source of financial support. Foreign demands for unique products then often pull these firms to globalize quickly. On the other hand, Born Globals can also be found in SMOPEC. These firms often need to globalize quickly due to small market at home and pressure from competition coming from abroad. (Luostarinen & Gabrielsson, 2004)

2.2 Software Business and Born Global Firms

This section provides an overview of the software business in general, emergence of Born Global software firms, and a deeper look into the software business specifically in Finland.

2.2.1 Characteristics of Software Business

The software industry has grown at a fast rate during the last two decades (Kuivalainen, et al., 2006) although it suffered during 2001-2002 due to the collapse of dot coms and telecommunications firms which was accompanied by a dramatic decline in the value of high-tech stocks, and tightening of wallets for technology spending by corporate customers in nearly all sectors around the world (Cusumano, 2004). According to Datamonitor (2008), the global software market grew by 6.5% in 2008 to reach a value of $303.8 billion and in 2013, this market is forecast to have a value of $457 billion, an increase of 50.5% since 2008. In general, United States is the largest single information technology market, however a more precise data on the number of firms in the software and information service industries worldwide as well as country comparisons are difficult to obtain because of lags in data collection and variations in definitions (Cusumano, 2004).

The boundaries of the software industry are somewhat unclear and the definition differs according to various sources. Rönkkö, et al. (2007) defines the software business to be a "business, which is based on selling software owned by the company either as licenses or as services, and all other services which are tightly linked to this business". Datamonitor (2008) divides software business to two subgroups: systems and application software. Systems software comprises operation systems, network and database management, development tools and programming languages, and some other systems software. Application software comprises general business productivity and home use applications, cross-industry and vertical market applications, and utilities and other application software. Software business is often hard to clearly define due to the pervasive nature of software. Software is a key component of many modern technology products, and is often provided as an integrated element with other services (Rönkkö, et al., 2008).

For the purposes of this paper, software business is divided into five types, combining Hietala, et al.'s (2004) and Hoch, et al.'s (2000) categorization: *packaged software products, embedded software, enterprise solution, customer-tailored software, and professional services*. This division is not to be a comprehensive or exhaustive

classification of different areas of software industry, but rather serves the purposes of this paper.

The five different software types are defined next. The degree of productization, which is the standardization of the elements in the offering, can be used to distinguish the different types. As Figure 2 shows, on one end of the extreme lie the packaged software products that usually consist of packaged physical software products. Typical examples include business solutions (CRM, ERP, and SCM), productivity applications (office tools and messaging applications), development tools (databases and integration tools), system tools (security packages, operating systems, drivers, and utilities), media and content, and games (Hertzen, et al., 2009). Software products have a unique characteristic in a sense that once it is developed, it can be replicated at close to zero marginal costs, and is often referred to as packed, mass-market, or shrink-wrap software (Hietala, et al., 2004). Software of this kind can be sold to millions of customers without any customer tailoring (Hietala, et al., 2004).

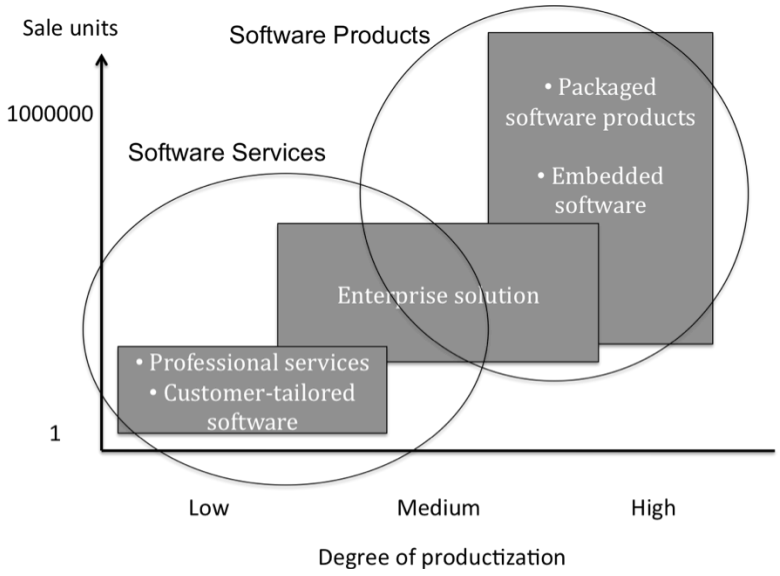


Figure 2. Various types of software depending on productization degree (*Source: adapted from Hoch, et al., 2000)*

Embedded software also has a high degree of productization. Embedded software is built into other products, such as refrigerators, paper machines, and cellular phones

(Hietala, et al., 2004) in order to handle information so that the hardware and software form a component of some larger system that may be expected to function with minimal human intervention (Hertzen, et al., 2009).

On the other end of spectrum in Figure 2 lies the customer-tailored software, which is developed to the specifications and needs of single customers, thus has many characteristics of a service (Hietala, et al., 2004). This type of software requires a close interaction between buyer and seller to provide extensive client support in terms of consultancy, systems design, customization, installation, training, upgrading, and after-sales services (Bell, 1995). This puts limit to the numbers of customers a firm can sell to, compared to software products. Professional services also have a low degree of productization and is typically consulting related to software development.

In between these two extreme within the spectrum lies the enterprise solution business, in which case it is necessary to add some modification to the pre-developed software products to meet to customer's specific information systems and infrastructure (Hietala, et al., 2004). It also often accompanies consulting services when dealing with enterprise customers.

In order to simplify the identification of factors for growth and survival and the comparison of various growth paths and phases, these five software types are divided into three different business models, whereby the high end of standardization degree is grouped as the "software products" business, and the lower end as "software services" business, with an overlap above the enterprise solution type as the "hybrid solutions" business. This grouping is sometimes also referred to as soft and hard services (Erramilli, 1990; Kuivalainen, 2001). Software products business is a form of business model whereby firms *"get all or most of their revenues from new product sales (called "software license fees")"* (Cusumano, 2004, p4). Software services business is a form of business model whereby firms *"get a majority of their revenues from IT consulting, custom software development, integration work, technical support, systems maintenance, and related activities"* (Cusumano, 2004, p4). Finally, hybrid solutions business is a form of business model whereby firms get *"some new product sales but derive as much as 80 percent of their revenues from services and maintenance*

(incremental product updates or special enhancements sold through long-term contracts to the purchasers of the initial software license)" (Cusumano, 2004, p4). As Nambisan (2002, p. 146) points out, the boundary between service business and product business is becoming increasingly fainter, *"with more and more firms successful straddling the two sectors"*. Most software firms need to have a good balance of product and service revenues to survive in bad times and to grow rapidly and profitably in good times (Cusumano, 2004).

In general, business related to software has a short product life cycle before a new technology, substitute products, or competitors capture the same market (Kuivalainen, 2001). Both software products and services are also unique in a way that the value is often dependent on the number of other users of the product (Kuivalainen, et al., 2006). Table 1 summarizes the main differences in characteristics between software products and services that may affect strategies for firm growth and survival.

Table 1. Characteristics of software products versus software services

	Software services/soft services	**Software products/hard services**
Type of product	Tailor-made, specifically designed for individual customers.	Often tangible in the form of a packaged boxed product.
Heterogeneity	Often customized to individual needs.	Standardized, though may require some localization of package, manual, and GUI.
Export Channels	Need direct contact with customers.	No need for physical interaction with customers, enabling sales through intermediaries.
Duration of relationship	Often long-lasting.	Ends at purchase or occasional interaction again when requiring upgrades.
Sales forecasting	Revenue forecasting may be difficult but once deal is made, large income is expected. A variable-cost structure.	Possible to forecast demand based on sales history and general economic conditions. A fixed-cost structure.
Holy grail	Economies of scope	Economies of scale
Marketing Strategies	Building relationships with potential customers and educating them takes time.	General advertising and mass sales promotion can increase sales.

Source: author

The software products business is mainly about volume sales – selling or licensing as many copies of a standardized product as you can. The basic growth strategies are scaling or duplicating what you have done in similar markets (Cusumano, 2004). The Holy Grail in this business is to achieve economies of scale. Mass marketing and distribution skills are critical. On the other hand, the software services business is mainly about people and building specific customer relationships. It is about getting enough profitable accounts to keep your consultants and developers busy close to 100% of the time (Cusumano, 2004). Software services also have unique characteristics: inseparability, intangibility, perishability, and heterogeneity (Erramilli, 1990). The Holy Grail in this business is economies of scope. This can be achieved by managing projects, customizing applications, conducting user acceptance testing, or reusing design frameworks and even pieces of code across different projects and customers, as well as implementing excellent account management.

The distinction between these two categories is not black and white. Even a packaged software product could be integrated into another software product (Kuivalainen, 2001), thus requiring a different type of relationship with the customer, in which case the customer would be a partnering company requiring a long-term relationship. There may also be a need to localize standardized software products such as the package, manual, and GUI (graphical user interface) (Kuivalainen, 2001).

The global software industry is currently experiencing consolidation and seeing several new modes of operation emerging. This consolidation is a sign that the industry itself is maturing and acquisitions have become one of the most important ways to grow for some of the larger companies (PriceWaterhouseCoopers, 2008). In addition to industry maturity, the software industry is facing some acute challenges. First of all, traditional hardware vendors are expanding their business by developing software of its own, cannibalizing existing business by bundling those new software platform into their own hardware (Rönkkö, et al., 2008). Naturally, the third-party vendors that used to provide the software to hardware vendors lose business. Such an example is Nokia in Finland, who is increasingly developing software products to be bundled in their mobile phones (McKay, 2001). Second, some developing countries such as India started to grow as

information technology powerhouse, increasing competition for cheaper personnel costs and outsourcing (Maps of India, 2010). Finally, popularity of open source software is challenging the existing business by providing a zero cost licensing model and benefits of user-driven innovation (Rönkkö, et al., 2008) which in turn decreases profit margins.

2.2.2 Emergence of Born Global Software Firms

Many researchers have examined both internal and external key driving forces and triggering factors behind the emergence of Born Global firms (Rialp, et al, 2005) in general. What are especially applicable to software firms are the fact that software product life cycles are exceptionally shorter due to technological developments, and globalization of markets and technologies (Kuivalainen, 2001) and operates in a narrow niche market scattered thinly across different countries (Saarenketo, 2004), all of which encourages firms to globalize quickly. Furthermore, consumer's tastes and needs have become similar across different countries, enabling firms to quickly expand their sales outside of their own country or even continent, in order to achieve economies of scale and cover their high up-front R&D costs.

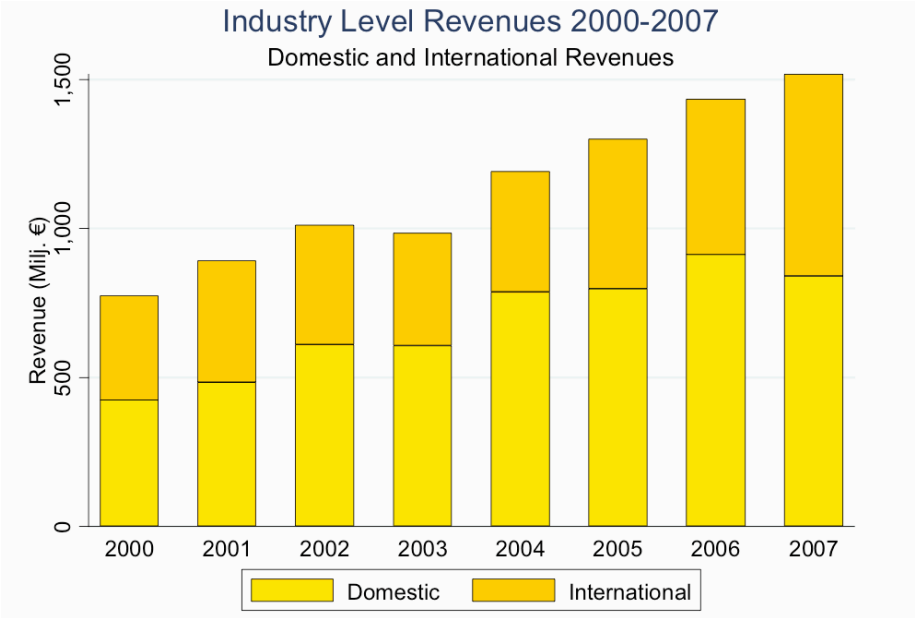
Proliferation of computing devices and popularity of broadband access has certainly helped software firms to develop and grow globally (Rönkkö, et al., 2008). Especially the wide adoption and use of the Internet has opened up simple channels to deliver software products easily and fast to any location in the world. This has allowed many software products to be delivered to customers electronically (Coviello & Munro, 1997).

The software industry characteristic has also promoted emergence of Born Global software firms. The development and marketing agreements between hardware vendors and software developers is an industry norm, thus the software industry is characterized by inter-firm cooperation (Coviello & Munro, 1997). As Coviello & Munro's (1997) research on four small software firms in New Zealand has identified, partnering with large, internationally established hardware vendors during their early growth phases provided the catalyst and resources for international growth, supplementing the resource-constraint that is typical of small software firms.

2.2.3 Software Business in Finland

Although Finnish software industry has grown rapidly since the 1990s, Finnish and other European firms have lagged behind the US firms especially in the software product business, due primarily to small and diverse home markets, as well as to the low degree of productization (Kuivalainen, et al., 2006). In 2007, the revenue of software product business in Finland grew by 8.6% and was €1.52 billion. International revenue grew by 12 % and was 45% of total revenues of the industry (Rönkkö, et al., 2008).

Figure 3. Industry level revenues 2000-2007



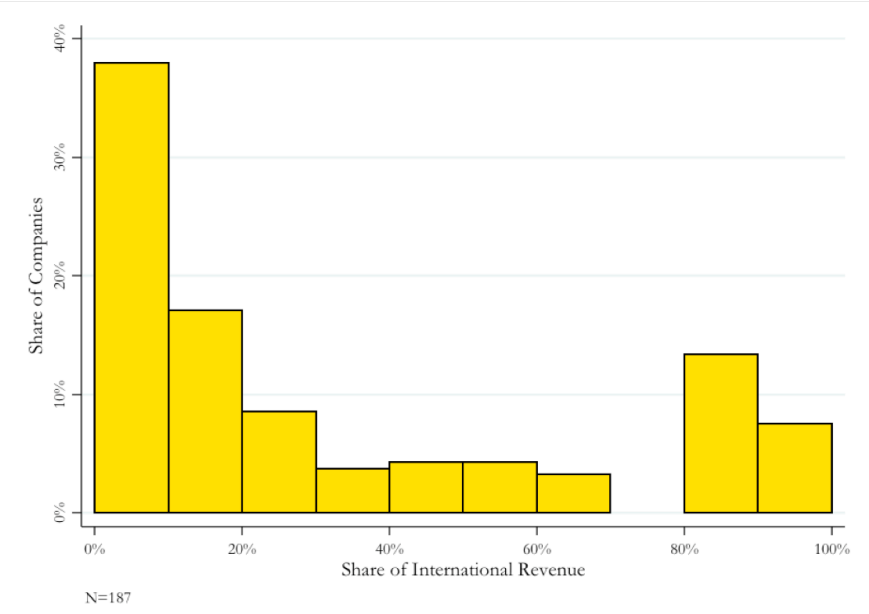
Source: National Software Industry Survey 2008 (Rönkkö, et al., 2008)

There were about 8,500 firms employing 49,000 employees in the Finnish IT sector in 2007 of which 25,500 people were in the software industry (note that this figure only covers firms whose main business is software). Typical software firm is very small; sometimes there are fewer than 5 employees. The given explanation for this is that software firms in Finland are so easy to establish, with very little capital and personnel. Most software firms are located in the largest cities, such as the capital district (Helsinki, Espoo, Vantaa, and Kauniainen), Tampere, and Turku, due to the fact that

those cities are also home to technology centers and universities. Universities are a source of innovation for new technologies and products, giving birth to new ideas, entrepreneurs, and skilled work force. (Rönkkö, et al., 2008)

Finland is a country with small home market, thus internationalization is often considered a natural step in the life course of software firms (Rönkkö, et al., 2008). According to Rönkkö, et al.'s (2008) national software survey in 2007, half of the firms with international sales received only 20% or less of their revenue from abroad (see figure 4). On the other hand, almost one fifth of the firms generated more than 80% of their revenues from abroad. It seems that most of the Finnish software firms internationalized only a little if selling abroad can be easily done, and others who were successful at internationalization gained substantial growth, increasing foreign sales rapidly, surpassing domestic revenues from the small market. Also, many small service-based firms were found, which does not seek fast growth nor international expansion since service business lacks some of the economies of scale present in product business and thus the possible gains from internationalizing are probably not worth the risks and costs associated with it. (Rönkkö, et al., 2008)

Figure 4. Extent of international operations of firms with international revenue



Source: National Software Industry Survey 2008 (Rönkkö, et al., 2008)

There are some challenges that Finnish software industry faces. First, the home market is too small. Second, Finland lacks large firms that could consolidate smaller ones through acquisitions, which is one of the ways for smaller firms to grow or survive. Third, Finnish software firms have so far been too technology driven, missing out on the importance of marketing capabilities and truly understanding the market and customers. Last but not least, these firms are finding it difficult to grow, lacking contacts especially when trying to internationalize. Some do, in fact, remain small intentionally due to lack of motivation and/or due to the type of service they provide. (Rönkkö, et al., 2008).

2.3 General Growth Models of Firms

Amongst the various authors in management literature related to firm growth, Penrose's (1959) resource-based view has received much attention. She presented a theory whereby firms grow because they have underutilized resources within the firm and because profit seeking entrepreneurial motivation and accomplishment seeking managerial motivation exists. Firms can grow if there is a good balance between exploitation of current resources and exploration of new ones (Penrose, 1959).

Many other authors have introduced stage models of firm growth, which shares an underlying logic where growth stages emerge in a well-defined sequence so that the solution of one set of problems or tasks leads to a new set of problems or tasks that firms must address (Kazanjian & Drazin, 1989). Examples can be found of three-stage models, four-stage models, and even five or more stage models (Kazanjian & Drazin, 1989).

Kazanjian (1988) suggested a four-stage model for technology-based new ventures; Conception and Development, Commercialization, Growth, and Stability. This model assumed that there are dominant problems at a given point in firm's history and these dominant problems pushes firms to change their organizational structures and routines to respond to these problems (Kazanjian & Drazin, 1989) which facilitates growth, welcoming new problems with further changes and growth. Similarly, Greiner (1972)

argued that firms move through five stages of evolution and revolution, each phase ending in a management crisis leading to the next stage. The small difference between these two models is that Kazanjian (1988)'s reference to dominant problems arise from issues encountered in the technological development, funding, marketing, and manufacturing of the product itself whereas Greiner (1972) saw crisis arising internally from social interactions amongst personnel (Kazanjian & Drazin, 1989).

Churchill & Lewis (1983) criticized earlier models for not being applicable to smaller businesses since they assumed that firms must grow and pass through all stages of development or die in the attempt, and they also did not put any particular focus on early stages of firms' origin and growth. Growth models for smaller businesses have been developed by authors such as Steinmetz (1969), Barnes & Hershon (1976), Churchill & Lewis (1983), and Scott & Bruce (1987). Churchill & Lewis (1983) presented a five-stage growth model consisting of 1) Existence, 2) Survival, 3) Success, 4) Take-off, and 5) Resource maturity, and advised managers to understand existing problems and anticipate future challenges. Based on the model of Churchill & Lewis (1983), Scott & Bruce (1987) also developed a five-stage model for small businesses consisting of 1) Inception, 2) Survival, 3) Growth, 4) Expansion, and 5) Maturity.

A commonality amongst these different stage models is that transition from one stage to the next is often accompanied by a crisis that may be either external or internal to the firm. If the crisis is not managed well, firms can fail at any point during its growth (Gabrielsson & Gabrielsson, 2009; Scott & Bruce, 1987). Managers should be in a position to predict future problems (Greiner, 1972) and be proactive rather than reactive (Scott & Bruce, 1987). For this, managers with a sense of its own firm's history may anticipate and prepare for the next developmental crisis, which can be turned into opportunities for growth (Greiner, 1972).

Kazanjian's (1988) four-stage model, mentioned above, was significant in a sense that it focused on technology-based new ventures which are set apart from other type of firms by the important role technology plays in their product designs (Kazanjian & Drazin, 1989) which must be incorporated into their processes at all times. However, this theory did not necessarily focus on "international" new ventures (Born Globals) since

expansion of the business into new geographic territories and markets is mentioned only in the final "stability" stage, whereas it is assumed with Born Global firms that they start their sales to global markets at inception. Also, the model held only for firms selling physical products and explained only internally generated growth, not growth by acquisition or merger (Kazanjian & Drazin, 1990). Churchill and Lewis's (1983) five-stage model incorporated a possibility that "high-technology start-ups" may jump over stages due to their motivation to grow rapidly depending on the resources provided by outside capital. Yet again, similar to Kazanjian's (1988) model, this five-stage model did not focus particularly on firms that globalize at inception.

On the other hand, McHugh (1999) proposed a growth model specifically for early stage software firms, whereby firms typically go through stages 1) version 1, 2) roll-out, 3) early growth, and 4) high growth. This model is significant as it studied specifically the software firms but did not focus particularly on firms that globalize at inception.

2.4 Development and Growth Phases of Born Global Software Firms

Gabrielsson, et al. (2008) has attempted to analyze the evolution of Born Global firms in different stages of their development, and have introduced three distinctive phases: 1) introductory, 2) growth and resource accumulation, and 3) break-out phases. However, this model did not include a phase where Born Globals may become multinational corporations (Gabrielsson & Gabrielsson, 2009b). Luostarinen and Gabrielsson (2006) introduced a seven-stage model where the three preliminary stages include 1) research & development, 2) domestic, and 3) entry, and the latter four major stages include 4) starting, 5) development, 6) growth, and 7) mature. However, each phase was not analyzed in depth as these stages were used primarily to categorize their case sample companies instead of studying how each firm evolves from one phase to another and what factors impact the survival of these firms.

When looking at the growth of firms, it is important to take note that there is two dimensions to consider related to growth (Gabrielsson & Gabrielsson, 2009b). The first dimension is of firm size. Firm size can grow with respect to their cumulative sales or number of employees (Coad & Hölzl, 2009; Delmar, et al., 2003; Greiner, 1972) and

can be, for example, categorized into micro, small, medium, and large size. According to the European Commission's 2005 classification, micro-size is defined as an enterprise employing fewer than 10 persons with less than €2 M in sales revenue, small-size as fewer than 50 persons with less than €10 M, and medium-size as fewer than 250 persons with less than €50 M (Summaries of EU legislation). Thus, large-size enterprise would be employing more than 250 persons with more than €50 M in sales revenue.

The other growth dimension is the rate of foreign expansion (Oviatt & McDougall, 1994). This can be measured, for example, by the firms' internationalization degree (the extent of sales originating from outside of the home country), globalization degree (the extent of sales derived from outside of the home continent), and the increasing commitment the firms have in their operation modes to other countries (Luostarinen & Gabrielsson, 2006). Most of the stage model of firm growth introduced in the earlier section has neglected this dimension.

Based on Gabrielsson and Gabrielsson's (2009b) framework, Born Global firms are expected to go through four phases during their growth: *1) introductory, 2) commercial breakthrough and foreign growth, 3) global breakthrough and expansion, and 4) global rationalization and maturity* phase. Each of the phases is described in detail in the following section, incorporating software firm specific features, and summarized in table 2.

Table 2. Description of the growth phases of a Born Global software firm

Phase	1. Introductory	2. Commercial breakthrough and foreign growth	3. Global breakthrough and expansion	4. Global rationalization and maturity
Key strategy	Development of commercially acceptable products, securing adequate finance, developing market, and receiving first sales revenues.	Making further successful foreign entries, selling products in large volumes to reach economies of scale and managing the rapid growth.	Expansion to new continents and penetration to countries in which presence has been established to leverage economies of scope.	Alignment of global operations and marketing across countries to benefit from global synergies.
Growth and size of the firm (sales, employees)	Micro-sized with only a few employees with priority on making the first deal.	High relative sales and employment growth, becoming an SME in size.	Positive relative sales and employment growth continues becoming a bigger SME.	The growth rate starts to slow down when reaching a large size.

Foreign expansion (markets/share)	Entry to first foreign markets with below 25% internationalization degree. Sales in less than six countries.	Expansion to foreign markets continue, 25-50% internationalization degree. Sales in size or more countries.	Expansion to new continents and penetration to existing countries with globalization degree of 25-50%. Sales in at least three continents.	Global presence with globalization degree over 50%. Sales in all major continents.
Operation mode and networks.	Mainly exporting for software products, building networks and piloting with MNCs or other channel partners. Network is especially important for software services.	In addition to exporting, sales subsidiaries may be established. Producing, selling, and distributing in large volumes. Growth using MNC and foreign channels.	Large variety of operation modes in use. Independence from large MNCs and establishing own channel network.	Alignment of operation modes and channels.
Products	Reaching concept proof of products.	Focused product offering. Localization of packages and documentation material for packaged software products may begin for major countries.	Expansion of the product offering by introducing new products to current customers, or expanding marketing activities to reach new customers (within the same country). Software product firms enter the service arena.	Adopting modular product structures to achieve economies of scope. Search for new growth opportunities through new product development, diversification (of products & markets), or acquisition.
Organizational structure	Systems, structures, and formality are almost nonexistent with informal communication.	Founder remains central to decision-making but adopts more functional, formal structures.	Decentralized structure, more responsibility given to the managers in the field, with greater authority and incentive. Formal communication and business processes supported by IT systems.	Bureaucratic principles, formal structure with standardized rules and procedures. Centralization and decentralization balanced. Emphasis on improving software development processes.
Survival crisis	Failure in obtaining needed managerial expertise, resources, and capabilities needed for the next phase.	Failure in safeguarding the continued growth and change towards more professional management, balancing hierarchy and freedom.	Failure to align activities to avoid cost inefficiencies and duplication of efforts, and inability to respond to competitors and global customer needs.	MNC-specific challenges (outside the scope of this study).

Source: adapted from Gabrielsson & Gabrielsson, 2009b ("Organizational structure" section added)

2.4.1 Introductory Phase

In the introductory phase, Born Globals primarily focus on inventing and developing a product and/or technology, securing adequate finance, and identifying market opportunities (Kazanjian & Drazin, 1989). They must find ways to expand from one key

customer to broader audience, and have enough cash to cover different activities (Churchill & Lewis, 1983). Entry to first foreign market starts during this phase, with 0-25% internationalization degree and sales in less than six countries (Gabrielsson & Gabrielsson, 2009b).

Software product firms tend to, on average, grow larger and faster than software service firms due to the fact that it is easier to grow internationally by exporting physical products than to do the same as pure software service firms. Software products, which can be replicated at close to zero marginal costs once it is developed, can be sold to millions of customers without any customer tailoring (Hietala, et al., 2004). Thus, it is easy to start exporting software products to other countries via intermediaries such as distributors and Internet channels once the software is replicated and packaged. Software products also enable scalable business models introducing potential for fast growth (Rönkkö, et al., 2008).

Whether the software firm is in the software products business or services business, they tend to externalize their activities during the initial internationalization process, often relying on network relationships for market selection as well as mode of entry (Coviello & Munro, 1997). This is due to limited resources at the beginning and if the firm decides to collaborate with multinational enterprises (MNEs), it may achieve rapid growth (Gabrielsson, et al., 2008). For software service firms, simply "exporting" to foreign markets is not possible because the nature of services require production and consumption to be physically proximate (inseparability) (Erramilli, 1990). Thus, software service firms are expected to heavily network with partners when starting to internationalize, often going abroad primarily in order to serve the overseas affiliates of their domestic clients (Erramilli, 1990; Rönkkö, et al., 2008).

Systems, structures, and formality are almost nonexistent (Churchill & Lewis, 1983; Kazanjian & Drazin, 1989) and communication among employees is frequent and informal (Greiner, 1972) during this phase. Employees work long hours (Greiner, 1972), which is often accompanied by strong motivation to succeed and getting a piece of ownership advantages.

The development of the first product is crucial thus skillful R&D personnel should be put in place (Luostarinen & Gabrielsson, 2006). However, when trying to achieve commercial breakthrough towards the next phase, it is important to allocate early enough competent marketing and sales personnel, which are substantially different types of resources than the R&D personnel. Also, the young founders of Born Global firms are usually technically or entrepreneurially oriented (Greiner, 1972), and often rely on their own abilities and skills, attracting similar employees to the management team with little business experience (Luostarinen & Gabrielsson, 2006). However, as the firm continues to grow, managing more employees with informal structure and organization starts to become chaotic, requiring placement of formalized systems and record keeping (Scott & Bruce, 1987). Founders tend to hate stepping aside, though they may not be the most suitable business managers (Greiner, 1972). If the firm fails to obtain necessary managerial expertise and evolve the organization to match to the changing environment *before* the firm and its challenges get any bigger, the firm's survival may be at risk.

2.4.2 Commercial Breakthrough and Foreign Growth Phase

In the commercial breakthrough and foreign growth phase, the market accepts Born Global firms' products and services and revenue starts to grow with solid sales pipeline. Expansion to foreign markets continue, reaching 25-50% internationalization degree with sales in six or more countries, and sells products in large volumes to reach economies of scale (Gabrielsson & Gabrielsson, 2009b). Many software firms in Finland are initially entering countries that are geographically nearby (Sweden, Norway, Estonia, and Russia), and countries that have big markets such as USA, Germany, UK, and China (Rönkkö, et al., 2008). Subsidiaries may be established to better cater to different markets in addition to export activities (Gabrielsson & Gabrielsson, 2009b).

During this phase, pressure to attain profitability is high, and firms must carefully balance profits against future growth (Kazanjian & Drazin, 1990). To maintain a solid equity base and to finance the growth, further capital will need to be issued (Bruce & Scott, 1987).

Customer feedback becomes critical, especially to software products firms, if they want to target mainstream users. What customers are saying about the product in the field and about what features they want in the next version must be heard and incorporated into the software development process (Cusumano, 2004). Software product firms may also start to localize some of the documentation, package material, and GUI (Graphical User Interface) to target more users in countries where English is not their first language.

Due to the limited resources that Born Globals usually face, they collaborate even more with MNEs as in the previous phase. However, in doing so, there is a risk of becoming overly dependent on a particular relationship (Gabrielsson & Kirpalani, 2004; Gabrielsson, et al., 2008).

The founder often remains central to all decision-making, but throughout this phase, there is an increasing sense of hierarchy, need for functional specialization and division, and the move towards more professionally trained and experienced personnel (Kazanjian & Drazin, 1990). In most cases, functional organizational structure is introduced, accounting systems for inventory and purchasing are put into place, and incentive and budget standards are adopted (Bruce & Scott, 1987; Greiner, 1972). Communication becomes more formal and impersonal as hierarchy of titles and positions are created (Greiner, 1972). Although young entrepreneurial firms tend to dislike bureaucracy, it is essential for managers to come up with a way to enforce these structural controls at the same time as leaving room for some creativity and flexibility (Cusumano, 2004). Software development process should especially be emphasized if not done so already.

Firms also need to increase the amount of personnel as they continue to grow during this phase. As the firm becomes more and more structured, centralized, and formalized, lower-level specialists start to feel torn between following procedures and taking initiatives on their own (Greiner, 1972). They look back to the “good old days” when friends were working together, having fun. Also, trying to control different geographic locations start to become difficult, demanding for decentralization and delegation (Bruce & Scott, 1987). It is often difficult for managers to give up their power and responsibility, but unless firms are able to change the organization and start delegating,

lower-level personnel with specialized skills may leave the firm (Greiner, 1972). Firms must also be careful with overtrading during this rapid growth phase (Bruce & Scott, 1987). If too much investment is done at the same time in many geographic locations, firms may realize too late that resources have been overstretched, and face bankruptcy.

2.4.3 Global Breakthrough and Expansion Phase

In the global breakthrough and expansion phase, expansion to new continents and penetration to countries with existing presence continues. Globalization degree is at 25-50% with sales in at least three continents (Gabrielsson & Gabrielsson, 2009b). As product matures the firm, fearing the loss of overseas markets, firms will start to establish their own sales office in the form of foreign direct investment (FDI) instead of solely relying on exports and partners, in order to further exploit its monopolistic advantage (Vernon, 1966). FDI will enable firms to have direct contacts with customers in addition to using various distribution channels. Dependency on multinational corporations as sales partners may start to decrease, but increasing amount of marketing partnership will be made. Firms will start to become more like a SME through the increase of personnel to support the growth and expansion (Gabrielsson & Gabrielsson, 2009b).

During this phase, especially software service firms may actually start to face a different type of challenge, which they did not face during the initial foreign expansion phase. When trying to achieve global breakthrough, firms will start to take on more distant and challenging markets, thereby facing increasing difficulties in cultural, legal, and localization issues (Rönkkö, et al., 2008).

In order to penetrate the markets where they are already present, firms will need to expand their product offering by introducing new products to current customers, or expand marketing activities to reach new customers (within the same country). Software product firms who expanded rapidly at the beginning due to its “hit product”, may struggle at this point to come up with continuous stream of new products that sell in both bad and good economies, thus eventually pushing them into a more service-oriented approach with their business, which may secure continuous stream of revenue

in the form of longer-term maintenance contracts (Cusumano, 2004). Commoditization of the products market may also drop the price points down, further encouraging firms to start providing services and maintenance. Other ways to fend off commoditization are to release new, more advanced products, emphasize quality, or market heavily with a strong emphasis on the brand (Ibid.). However, since managing a software product business and software service business is inherently different, managing the change in its business model is of utmost importance to firm survival.

Within the decentralized organizational structure, more responsibility is given to the managers in the field, and with greater authority and incentive, they are able to penetrate larger markets and respond to customer needs quicker (Greiner, 1972). However, this brings on a new type of crisis, where top executives feel they are losing control over a highly diversified field operation (Greiner, 1972). The firm increasingly face cost inefficiencies and duplication of efforts between countries (Gabrielsson & Gabrielsson, 2009b). Also, even if the delegation style was sought in, the increasing amount of new "professional" managers do not have the same commitment or spirit compared to the older employees who sacrificed themselves for the sake of the business. This brings on the "crisis of culture" (Scott & Bruce, 1987). Unless these numerous challenges are faced seriously, the firm may be at survival risk.

2.4.4 Global Rationalization and Maturity Phase

The major challenge during the global rationalization and maturity phase is to maintain growth momentum and market position (Kazanjian & Drazin, 1990). Globalization degree is over 50% with sales in all major continents (Gabrielsson & Gabrielsson, 2009b).

By this phase, the firm has become a stable operating firm characterized by bureaucratic principles, formal structure with standardized rules and procedures (Kazanjian & Drazin, 1990) and will become more or less like a MNC (Gabrielsson & Gabrielsson, 2009b). The firm will constantly be under the pressures from stakeholders to ensure the future of the firm (Scott & Bruce, 1987). In order to balance the benefits and disadvantages of centralization and decentralization, firms will increasingly adopt the

collaboration style whereby social control and self-discipline is emphasized and matrix-type structure is introduced (Greiner, 1972). There is an increasing need for alignment of operations and marketing to be able to reach global synergies (Gabrielsson & Gabrielsson, 2009b). Firms should also have adopted modular product structures by this phase, if not sooner, in order to achieve economies of scope (Cusumano, 2004).

Born Global software firms which typically initially develop their niche products for the niche market target vertical markets such as a specific industry (e.g., software for the healthcare industry), a technical specialty (e.g., computer-aided design programs), or a platform-specific market (e.g., an application that runs only on a particular operating system and computer hardware combination). If the firm has reached the maturity phase in a specific vertical market, the firm may perhaps move on to master another vertical market. If the firm is able to master several vertical markets, it may expand to horizontal markets, which covers most or all PC users, regardless of their industry or functional specialization. By segmenting markets both horizontally and vertically, software firms obtain a blueprint for diversification and expansion while still remaining close to their core of expertise (Cusumano, 2004). Firms may also diversify product offerings and the organizational structure by creating new, small business units to target new product opportunities (Cusumano, 2004).

If firms see a potential of growth stopping due to saturated market or not being able to come up with next generation products, they may decide to go for mergers and acquisitions with other similar firms, in order to maintain the growth momentum and seek new opportunities. As Delmar, et al. (2003) stress, organic growth tends to be associated with smaller firms, younger firms, and emerging industries, whereas acquisition growth is more likely in older and larger firms, and in mature industries.

Mature firms may have some slack to improve the software development process, which is critical to software firms (Cusumano, 2004). Reducing defects and improving the ability to trace bugs back to their sources can save enormous time and effort when it comes to software debugging and stabilization, which is one of the most important element in creating a reliable software product. Enhancing process capabilities for better

managing schedules, budgetary constraints, change requests, and customer feedback, can contribute to the continuous growth and survival of software firms.

Once firms have grown up to this phase, they risk a danger of facing ossification. Ossification is characterized by a lack of innovative decision-making and avoidance of risk-taking, commonly seen in large firms with large market share, buying power, and financial resources to keep them viable (Churchill & Lewis, 1983). It is important to continue cultivating the innovative culture to develop new products, or eventually competitors can eat the firms up.

As seen from the general growth theories of firms, when firms go through different phases, they may face crises, questioning their survival. Hence, the following discusses survival in the context of Born Global software firms.

2.5 Survival of Born Global Software Firms

Survival of firms is an important topic since only those that survive can benefit their national economies (Gabrielsson & Gabrielsson, 2009a). "Survival of Born Globals" in this research does *not* necessarily mean that the firm has *not* gone bankrupt. A firm is not classified as a successful Born Global if it had set out to conquer the whole world but after the initial introductory phase, decide to withdraw from all markets other than nearby ones and its home market. It has failed if the original vision of the Born Global is not pursued for one reason or the other (Gabrielsson & Gabrielsson, 2009b). Gabrielsson and Gabrielsson (2009a) pointed out that Born Globals face three risks when moving toward 'adulthood': a) they do not succeed in growing beyond their initial phase, b) they encounter financial problems and are acquired or merged by larger firms, or c) they go bankrupt.

Earlier research suggested that probability of failure of new ventures is highest in the firm's early years, and that it usually declines as the firm ages (Zimmerman & Zeitz, 2002). Yet, there has not been enough research on the survival rates of Born Global firms after they have been established (Zahra, 2005) and the factors that influence them.

According to Zahra (2005), Born Globals experience three types of liability that influences their survival. First of all, Born Globals are new and inexperienced in the market so they have limitation to accessing resources and existing networks. This *liability of newness* (Stinchcombe, 1965) also means that Born Globals' various stakeholders are not yet confident about the firm. Second, Born Globals are usually *small* in size, and this limits the slack resources that they have to overcome challenges of internationalization. Third and final liability that Zahra (2005) focused on is Born Globals' *foreignness*. Born Globals have to work hard to overcome barriers to entry, build networks to customers and suppliers, and gain acceptance from potential customers. Additional coordination costs, unfamiliarity with the local culture, lack of information networks and political influence in the host country may also be problematic (Zaheer & Mosakowski, 1997). Any of these liabilities can increase the risk of Born Globals' potential failure.

In addition, Shrader, et al. (2000) suggested that accelerated internationalization involves significant international risks that must be managed *"by trading foreign location, entry mode commitment, and foreign revenue exposure off against each other in each country they enter"* (Shrader, et al, 2000, p.1228). Mudambi and Zahra (2007) also acknowledged that Born Globals may face substantial handicaps, but in their study of how survival probabilities of firms progressing via the traditional internationalizing approach (incremental, step-by-step) and firms expanding immediately to foreign countries differ, they found that survival rates may not differ, as long as the latter would have appropriate resources and competences to overcome the various liabilities and challenges.

In an attempt to understand how firms can avoid survival risks, Oviatt and McDougall (1994) argued that international experiences make managers more aware of the challenges associated with conducting businesses on a global scale. However, Zahra (2005) argues toward this by pointing out that experience might induce rigidity as managers develop their own preferred ways of dealing with the challenges of multinationality. These mental shortcuts may deprive Born Globals of a potentially rich source of innovativeness in their operations, thus experimentation and openness to

experimentation are said to be essential for Born Globals to *"discover the winning business model and market receipt"* (Zahra, 2005, p.24). Autio, et al. (2000) have also similarly suggested that younger firms do not have established routines that hinder their learning opportunities in foreign settings, so they may be able to use their learning advantage of newness to grow more rapidly. Shepherd, et al. (2000) who particularly focused on the liability of newness concept, which is largely dependent on the degree of novelty (ignorance) with regards to three dimensions, viz.: to the market, to the technology of production, and to management, suggested that if information is acquired and distributed quickly and appropriately, mortality rate may decrease.

Zaheer & Mosakowski (1997) found out in their study that firm-level sources of competitive advantage such as technology adoption and nonhierarchical modes of control increased the rate of survival of foreign firms. Raz and Gloor's (2007) study of Israeli software start-ups indicated that firm size and firm age impacts survival. The older a company is, the better is its chance to survive. The larger a firm is, the better its chance to survive. These may well be factors for survival in the later stages of Born Global software firms but does not help in the early stages when they are typically small in size that just started their business. Garengo and Bernardi (2007) points out that a factor for small and medium sized firms' survival lies in its capability to implement managerial processes not in their later years but early in advance before management crisis hits them.

During the data-gathering period (2001-mid 2002) in their study, Luostarinen and Gabrielsson (2006) found that 10.1% of the Born Globals examined had entered liquidation or had been acquired or merged with another firm. New ventures usually have a higher risk of failures (Shepherd, et al., 2000). Some studies have also shown that only a low percentage of new and small firms are able to survive (Westhead, 1995). It is apparent that Born Globals operate in a highly challenging business environment with very limited resources.

In the following section, factors influencing the growth and survival of Born Global software firms are reviewed in more detail.

2.6 Factors Influencing the Growth and Survival of Born Global Software Firms

Earlier research has recognized some factors that are essential for growth and survival of Born Global firms, often grouped under industry and firm factors (e.g. Mudambi & Zahra, 2007), while Nambisan (2002) made a literature review on firm growth from software firms' perspective and found out several external and internal factors that determine software firm growth, as summarized in table 3.

Table 3. Determinants of software firm growth and evolution: a literature review.

External Factors	Internal Factors
Industry Characteristics (market structure, competitive environment, etc.)	**Founding Condition of the Firm** (Initial technology strategy, initial financial resources, etc.)
Technology Characteristics (technology life cycle, technology standards, etc.)	**Strategic Factors** (strategic aggressiveness, strategic alliances, product strategy, etc.)
Economic and Technological Infrastructure (venture capital, manpower resources, telecommunication infrastructure, etc.)	**Firm Resources and Competencies** (managerial capabilities, development processes, marketing skills, etc)
Regulatory Infrastructure (taxation & fiscal incentives, intellectual property regime, etc.)	**Internal Stakeholder** Characteristics (personality traits, demographics, experience, innovation-orientation, etc.)
Regional Culture & External Stakeholder Characteristics (innovation-orientation, experience, regional networks of learning ,etc.)	

Source: Nambisan, 2002, p. 152.

In line with Gabrielsson and Gabrielsson (2009b), industry factors, firm factors, and entrepreneurial orientation and lateral rigidity are discussed in the following section. To direct the focus towards software business, relevant literature connecting these factors with software business is also briefly covered in some sections.

2.6.1 Industry Factors

Based on earlier research, Gabrielsson and Gabrielsson (2009b) suggest that, as industry factors, industry growth rate, rate of penetration by foreign firms and seller concentration in the industry, and industry globalization drivers potentially have impact on the growth and survival of Born Global firms.

a) Industry Growth

The industry growth rate (Hennart & Park, 1993, Vernon, 1966) can be expected to influence Born Global growth phases and survival (Gabrielsson & Gabrielsson, 2009b). For example, a firm in a rapidly expanding market may need to add employees quickly which ignites organizational changes and growth, whereas poor market conditions may hit the firm hard in a way that firms cannot overcome turbulent times (Greiner, 1972). High-growth industries, such as the software industry, are resource-rich environments with opportunities for firms to grow (Mudambi & Zahra, 2007).

b) Penetration by Foreign Firms and Seller Concentration in the Industry

A higher level of existing foreign penetration of an industry reduces the probability of survival for the newcomer as competition intensifies and finding a space in the niche market may be difficult (Mudambi & Zahra, 2007). Mudambi & Zahra (2007) also argued that higher seller concentration reduces the probability of survival. This may lead us to believe that firms should try to be a first mover into the niche market so to gain first access to distribution channels, develop good will with customers, or develop a positive reputation, all before other competing firms do (Barney, 1991). However, Christensen, et al. (1998) argue that, in a fast-paced industry, firms should enter the market during the "window of opportunity", which is a bit after the first movers but long before many others. This is because in a fast-changing industry, technology changes rapidly, so that capabilities and knowledge gained at earlier stages in an industry's development may become obsolete quickly. Firms entering too early may miss the most attractive value network and spend too much resources in acquiring knowledge that may become obsolete, and firms entering too late may face heavy entry barriers (Christensen, et al., 1998).

c) Industry Globalization Drivers

Yip (1989) argued that industry globalization drivers that are related to market, cost, government, and competition affect the possibilities to grow. For example, favorable trade policies, compatible technical standards, homogenous customer needs, and common market regulations open up the global market for new, Born Global firms to enter and grow. In addition, Luostarinen (1994) presented the idea that the peripheral location, smallness, and openness of the home market are expected to *push* firms originating from those market to globalize, while large size and openness of the target markets is expected to *pull* those firms to globalize.

2.6.2 Firm Factors: Resources and Capabilities

Firm factors that are important for growth and survival of Born Globals are the amount of resources, various capabilities (Teece, et al., 1997), managerial and international experience (Mudambi & Zahra's, 2007), resource fungibility (Sapienza, et al., 2006), and the availability of government support (Knight & Cavusgil, 2005).

Resource Amount

Some researchers have argued that an abundance of resources is necessary for survival and growth (Laanti, et al., 2007) while others asserted that it may also cause problems (Autio, et al., 2000).

Specifically, following resources are needed for growth and survival:

- Financial resources such as cash and borrowing power (Churchill & Lewis, 1983) are needed.
- Personnel resources: the quality of staff and suitable amount at the relevant growth stage is needed (Churchill & Lewis, 1983). This is especially an important factor in a knowledge-intensive industry like the software industry, where competitive advantage often arise from the skills and know-how of personnel than from other resources the firm possesses (Cusumano, 2004; Rönkkö, et al., 2008).

- Adequate system resources such as sophisticated information and planning and control systems are needed (Churchill & Lews, 1983).

However valuable, rare, imperfectly imitable, and unsubstitutable these resources could be, resource fungibility is also essential in facilitating development of new capabilities (Sapienza, et al., 2006), especially in a volatile international business environment. Sapienza, et al. (2006) argue that resource fungibility, the extent to which resources can be deployed for alternative uses at low cost, is more important for growth and survival of firms than the actual amount of resources that these firms possess.

Managerial and International Experience

Mudambi & Zahra's (2007) study showed that firms with higher levels of international experience had a higher probability of survival. McDougall, et al. (1994) also emphasized that founder's experience and internal training programs are important factors for success of Born Global firms.

When assessing managerial and international experience as factors for growth and survival, it is important to distinguish between stock, variety, and stream (Reuber & Fischer, 1999). Stock refers to the experience the founders and managers bring into the firm, stream refers to the learning that happens within the firm, and variety means breadth and depth of their experience. The survival probability of Born Globals is higher especially at the early growth stages if the entrepreneurs have experience with previous start up firms (stock), thus being able to cope with uncertainty, conflict, and confusion that tends to reside in growing small organizations (Shepherd, et al., 2000). If there is not enough stock when needed, the firm should think about hiring a professional management team to bring both experience and contacts into the firm (Rönkkö, et al., 2008). The variety of international experience is also important. Different types of people could be hired to the advisory board to provide the firm with advice. Use of the expertise of the venture capital firms that invest in the firm's business is also beneficial, as they often employ experienced business managers who have large contact networks (Luostarinen & Gabrielsson, 2006). Stream of experience becomes important if firms

want to grow. Each customer case, even the failed ones, should be studied so to gain experimental knowledge (Ruokolainen, 2008).

Capabilities (Substantive, dynamic, and networking)

Capabilities differ from resources in a sense that the former is needed to be able to deploy and coordinate the various resources the firm has in order to achieve its goals (Gabrielsson & Gabrielsson, 2009a; Sapienza, et al., 2006). Knight and Cavusgil (2004) have noted how capabilities are essential for Born Globals rapid internationalization and their subsequent growth.

Capabilities that affect growth and survival of Born Globals can be divided into three types: Substantive, dynamic, and networking (Gabrielsson & Gabrielsson, 2009a). Possession and management of all three types of capabilities can increase firm's competitive advantage, increasing the chance for growth and survival.

Substantive capabilities

Substantive capabilities are sets of abilities and resources that enable firms to solve problems or achieve an outcome (Zahra, et al., 2006). Substantive capabilities, which are factors for growth and survival of Born Global firms, can be further divided into three categories; management capabilities, technological capabilities, and networking capabilities (Gabrielsson & Gabrielsson, 2009a).

Management capabilities: Earlier management practices that suited smaller sized firms may not necessarily suit firms that are growing. Unless management are able to abandon past practices and undergo organizational changes that suits the firm at a new point, the firm may not survive (Churchill & Lewis, 1987; Greiner, 1972). Garengo and Bernardi (2007) also point out that small and medium sized firms tend to dedicate most of their attention to operational and technological aspects, neglecting organizational and managerial problems. Especially in software business, the founders are generally technology-oriented yet manages the business at the same time as developing the new products. These founders' operational abilities in doing marketing, investing, producing, and managing distribution are essential to the survival of the firm in the early stages

(Churchill & Lewis, 1987), but if these abilities are not good enough as the firm grows, it is best to step aside and give way to other experienced managers.

Technological capabilities: Mudambi & Zahra's (2007) study showed that firms with higher levels of technological competences had higher probability of survival. Technological capabilities include R&D, manufacturing, design, technological knowledge, architecture knowledge, and aesthetics knowledge (Gabrielsson & Gabrielsson, 2009a). Especially having a technological leadership, being at the leading technological edge of its industry, as well as using advanced technologies in its products, methods, and other outputs, is essential for growth (Knight & Cavusgil, 2005). Similarly, Nambisan (2002) has also pointed out that in software business, technology leadership is essential to create and capture new markets and to grow, and as such it is a critical success factor.

Marketing capabilities: Traditionally, Finnish software firms have been too technology oriented, considering their technology to be the source of competitive advantage, but now when new software products are increasingly fast to build relying on existing technologies, understanding of the market and customers is becoming increasingly important (Rönkkö, et al., 2008). As such, marketing capabilities have been identified as one of the important capabilities for Born Globals to position themselves in foreign markets. When firms possess high-levels of marketing capabilities and international marketing orientation, firms can develop unique products, focus on quality, and find competent foreign intermediaries such as distributors. (Knight & Cavusgil, 2004). It is also important to have different marketing capabilities depending on who are the target customers, since marketing to individual customers or enterprise customers has a big difference (Cusumano, 2004).

Dynamic capabilities

Dynamic capability is the dynamic ability to change or reconfigure existing substantive capabilities, routines, and resources, *"in the manner envisioned and deemed appropriate by the firm's principal decision-maker(s)"* (Zahra, et al., 2006, p.924). With dynamic capability, firms can create new resource configurations as markets

emerge, collide, split, evolve, and die (Eisenhardt & Martin, 2000). Possession of dynamic capabilities alone does not necessarily provide any substantial advantage to firms, but being able to manage the dynamic capabilities to achieve their strategic goals provides performance-related advantages to firms (Ibid.). In addition to the substantive capabilities mentioned above, which address current challenges, having dynamic capabilities to redeploy or configure those substantive capabilities according to the strategic goals will help firms grow and survive as they face changes within the internal and external environment (Zahra, et al., 2006).

Networking capabilities

Networking capability can be defined as the firm's *"ability to develop and utilize inter-organizational relationships to gain access to various resources held by other actors"* (Walter, et al., 2006, p. 542). Walter, et al. (2006) suggest that managerial attention should focus on increasing coordination, relational skills, market information, and internal communication to develop network capability, which was found to positively affect growth of university spin-off firms. Coviello & Munro's (1997) study on small software firms originating from New Zealand also showed that managing existing networks and establishing new network relationships is one of the key competitive capabilities for international growth. Raz and Gloor (2007) studied the progress of Israeli software start-ups from the dot-com economic growth era to eight years later when the dot-com bubble burst, and found that firms that have larger informal communication networks – the weak ties - increased their chance of survival. Weak ties provide access to non-redundant knowledge, ideas, and different social capital, which normally requires years to obtain (Raz & Gloor, 2007; Rönkkö, et al., 2008).

Networking capabilities are important for all types of software firms. Partners can provide firms with key resources (capital, marketing, distribution, etc.), which tend to be lacking in small Born Global firms. Particularly, tailor-made software usually involve cooperation or co-development in projects with the customer, thus, if the domestic customer/partner decides to internationalize, the software firm may also follow suit (Kuivalainen, et al., 2006). For packaged software products, networking helps in channel building in international markets and building alliances in the industry.

As Nambisan (2002) summarizes, external networks are critical for software firms not only for understanding market requirements and evaluating product feasibility, but also for filling critical internal technology gaps and deploying innovative marketing strategies. Hence, having the ability to choose the right partner at the right time is extremely important for growth and survival of Born Global software firms.

Government Support

Because Born Globals in general tend to be young, inexperienced, and lack resources that are essential to the survival in the international market, government support may be able to contribute to the growth and survival of these firms by providing training, financial support, information, and other resources (Knight & Cavusgil, 2005). Especially the need for support in marketing planning and implementation is high (Luostarinen & Gabrielsson, 2006).

2.6.3 Entrepreneurial Orientation and Agility

Industry factors influencing growth and survival of Born Globals are beyond the control of managers, but managerial choice and decision-making related to the firm factors may have great impact on the growth and survival (Christensen et, al., 1998; Gabrielsson & Gabrielsson, 2009a). Such a dimension is the firm's entrepreneurial orientation. Entrepreneurial orientation is associated with managerial vision, innovativeness, and pro-active competitive posture in international markets (Knight & Cavusgil, 2005). Entrepreneurial characteristics include autonomy, risk-taking, innovativeness, proactiveness, flexibility, readiness for change, and advantage-seeking behavior (Gabrielsson & Gabrielsson, 2009b; Karagozoglu & Lindell, 1998; Laanti, et al., 2007). In their study, Knight & Cavusgil (2005) found that possession of entrepreneurial orientation by Born Globals drove superior international performance.

Kuivalainen, et al. (2007) found that different dimensions of entrepreneurial orientation are more important than others in different stages of firm's life cycle. Younger and smaller firms at the beginning of rapidly internationalizing phase may still be risk taking and proactive compared to the more advanced globalized firms, in order to expand their

business to further markets. On the other hand, the more globalized and established Born Globals might not anymore be proactively looking for new markets or opportunities but may compete in a more aggressive manner in their present markets and follow a market-penetration strategy. Walter, et al. (2006) regarded entrepreneurial orientation as an entrance ticket that allows for a higher impact of competencies on performance but argued that entrepreneurial orientation alone is not enough to guarantee growth. Their claim is that if it is combined with firm's network capability, it can have positive influence on performance. In any case, entrepreneurial orientation in decision-making seems to be an important element for rapid growth of Born Globals. However, the more entrepreneurial orientation the firm has, the more risks it would take for rapid growth, thus the higher the risk of non-survival (Gabrielsson & Gabrielsson, 2009a).

The earlier stage-wise internationalization models (Johanson & Vahlne, 1977; Luostarinen, 1979), which suggested that firms internationalize in slow, incremental steps, were built on the behavioral theory of the firm (Cyert & March, 1963). Firm's decision-making was described as having a number of conflicting objectives, seeking simple-minded decisions, and focusing on the short-term. This has been characterized as firm's decision-making being laterally rigid. According to Vaivio (1963), lateral rigidity means that firms try to stick to their plans and even when faced with a shock, firms tend to make only minor adjustments to their behavior. Built on this, Luostarinen (1979) argued that internationalization efforts of firms are characterized by a laterally rigid decision process, whereby firms are laterally rigid towards new alternatives but are elastic forwards, towards known alternatives. Thus, lateral rigidity in decision-making enhances the probability of the survival of the firm by taking risk-cautious path (Gabrielsson & Gabrielsson, 2009a). However, this naturally slows the growth of firms in the international market, which contradicts to the characteristic of Born Globals.

Autio, et al. (2000) found that firms that are relatively young when they first internationalize benefit from leaning advantages of *newness*, which was one of the liabilities of survival of Born Globals, mentioned earlier. The younger the firms are, the more novel approaches they adopt for internationalization, such as fewer routines, simpler decision-making, and flexibility to rapidly learn new competences. However,

these characteristics decrease with age and the ability to internationalize and grow abroad decrease the longer the firm waits to do so. This behavior is in line with the laterally rigid decision-making described earlier for established firms if the age of the Born Global is considered to reduce lateral rigidity. Born Globals may be less rigid and more entrepreneurially oriented due to their previous international experience and/or innovativeness that lowers the lateral rigidity that would otherwise rule. Therefore, the younger a firm is at the stage of its first international entry, the more entrepreneurial its orientation and the lesser the lateral rigidity in its decision-making. Thus, the growth can be expected to be more rapid, although the risk of non-survival may also increase (Gabrielsson & Gabrielsson, 2009b).

Entrepreneurial orientation and agility/lateral rigidity are characteristics that are usually formed by the key persons in the firm. Young founders of Born Globals are usually entrepreneurially oriented (Greiner, 1972) and often remain central to all decision-making, especially during the first two phases of growth. In addition to the entrepreneurial orientation as a key factor for growth and survival, Rönkkö, et al. (2008) found that the founder's growth aspirations and growth willingness is one of the most important requirements for successful growth of Finnish software firms. Growth aspirations refer to the idea of the scale to which the firm would like to grow and growth willingness refer to the degree to which growth is emphasized in the firms. They explain that one of the reasons why so many Finnish software firms remain small is because the founders have low level of growth aspirations and are unwilling to grow the business considering the increased level of risk associated with it. Quite often when founders have achieved a good standard of living from the firm they founded, they lose willingness to take risks and hunger for more growth. Thus, if a personal level target setting and will on the part of the founders and managers are low, growth seems to be highly unlikely. (Rönkkö, et al., 2008)

2.6.4 Software Business Specific Factors

In addition to the industry and firm-level factors, there are also specific factors related to the software business that may contribute to the growth and survival of Born Global

software firms. Here, it is assumed that theories for general software firms are also applicable to Born Global software firms.

Compatibility with Dominant Players

Software is not useful unless there is a platform on which it can be executed, namely hardware and systems software. In this sense, software products and other platforms complement each other to provide the intended value to customers. Thus, compatibility with other hardware and software is an important element in developing software. (Rönkkö & Pöyry, 2006)

However, there is always uncertainty about which products or systems actually become a success and adopted by customers. In this sense, software firm's growth and survival can depend on whether they have complemented the product/system that actually becomes a dominant one in the market. These are long-term strategic decisions that can go very right or very wrong (Cusumano, 2004). Pouring all the precious R&D resources into developing software compatible for certain new hardware/operating system, which ends up being pulled out of the market due to low customer demand, can have a detrimental effect on the software firm.

Ensuring compatibility with numbers of vendors is also important. As Coviello & Munro's (1997) study revealed, in their early phases of growth, some small software firms may develop products specifically for their partner's hardware platform, increasing dependency on that firm. Although being an exclusive partner to one leading hardware firm has its advantages, total dependence on one firm can be risky in case that partner firm encounters financial difficulties of its own for various reasons or loses market share to their competitors. Ensuring compatibility not only with dominant players, but also with wide number of vendors is important for growth and survival.

Lock-in Effects

Rönkkö and Pöyry (2006) argued that the ability to build lock-in is one of the corner stones for creating sustainable competitive advantage. Lock-in happens when a customer for some reason is either unable to or unwilling to change the current provider

of a product or service (Cusumano, 2004). Once the software firm has developed certain features or cost-structure that makes it difficult for the customer to switch to another product or service later on, this software firm can enjoy a long-term revenue flow in a form of maintenance and upgrade agreements. Software firms that enter a new market early enough also have a good chance for their products to become standards or platforms, which can eventually make it difficult for customers to switch from one vendor to another (Cusumano, 2004).

If the software firm's products or services have absolutely no lock-in effect and is easy to switch to competitor products for whatever reasons, this software firm's survival may be at stake.

Software Development Process

Nambisan (2002) pointed out that software firms have traditionally lacked rigor and discipline in their development process and that the software industry has been notorious for the large number of project failures, project delays, and cost overruns. Cusumano (2004) argues that managing software design and development better is central to firms' survival. Software development process usually consists of everything from defining product requirements and system architectures to final testing and technical support, including the feedback mechanisms during the different phases and the functions involved in completing a product. Problems in software development can hurt a firm's short-term profits and long-term credibility with customers.

Sometimes, good software engineers tend to be too creative and individualistic (Cusumano, 2004), leading to a situation where many individual engineers work on different projects and codes, leaving chaos behind with little coordination. Cusumano (2004) has identified common problems inherent in software firms in general, which applies to Born Global software firms as well. For younger firms who usually dislike bureaucracy and have to complete with lean budgets in fast-paced markets, it is important for managers to create enough structure to keep projects under control but not so much that "the process" disturbs creativity and flexibility. For more mature, larger firms, managers must obtain process capabilities to better manage schedules, cost

overruns, change requests, and overall quality of the process as well as the products. (Nambisan, 2002; Cusumano, 2004).

Software product firms must always try to understand general user needs and incorporate those needed features into the product and release it much quicker than their competition. Software service firms who work closely with particular customers must find ways to incorporate sudden change requests and scheduling demands. As such, adapting easily to change during a project at the features level, and producing incremental releases relatively quickly are essential elements to any kind of software businesses. There is no one best way to develop all software for all kinds of customers (Cusumano, 2004) but it is essential that top management's attitude towards process rigor and discipline assumes importance since without that, proper investments may not be made in implementing appropriate processes (Nambisan, 2002).

Open Source Software

The most striking thing about selling software product licenses compared to software services is the relative gross profit margins (Cusumano, 2004). The cost of software license fees consists mainly of materials such as compact discs, printed manuals, packaging, freight, inventory, third-party royalties, and amortization expense related to capitalized software development costs, and thus the gross profit margin is much higher compared to firms providing software services. Distributing software electronically via the Internet is also increasingly popular. This is why venture capitalists often assess software product firms to have high growth potential.

However, with the proliferation of computing devices and the Internet, millions of people around the world are instantly connected, providing an environment for cross-border communication and cooperation. In this way, open source software has become popular, threatening those software product firms who seek profit, as open source software is often provided free of charge to anyone (Rönkkö, et al., 2008).

The term "open source" refers to software programs whose source code is freely available, such as through the Internet, and generally not owned and sold by any one person or organization (Cusumano, 2004). Programming engineers from all over the

world can basically contribute by fixing bugs, improving ideas, or even making the software do something entirely new. Although open source programs have brought various positive impacts to the software industry, the fact that they are as good or sometimes even better than commercial software products, and on top of that free-of-charge, can have negative impact on software firms.

The challenge for software firms then is to make their own products so much better than the open source versions so that people will pay for them. Coming up with a viable licensing and pricing model, adding support services and other professional services, and establishing credibility and trust especially with corporate customers, can help firms survive the competition against open source network.

Software business models and growth strategies

Rapidly growing firms have much better chances of survival (Cusumano, 2004). There is three types of growth strategies, identified by Cusumano (2004), which firms can adopt: scaling, duplicating, and granulating. Scaling is simply about doing more of what the firm is already doing, such as launching a bigger marketing and sales campaign to sell more of the same software to similar customers. Duplicating is to extend the same strategy to other geographical markets or very similar product markets (e.g., targeting different vertical markets). Finally, granulating is about diversifying product offerings to related product lines and technologies, and adjusting the organizational structure by creating new, small business units to target new product opportunities. Software firms should carefully select the right growth strategies, as selecting the wrong strategy such as the wrong diversification strategy, may risk the survival of the firm.

When times are good, it is easy for software product firms to grow revenues, but when times are bad, revenues can collapse because customers can simply stop buying new products. It is also sometimes challenging to come up with new products after the "hit product" that made the firms grow rapidly in the beginning. The firms most likely to survive the down times are those with a solid base of loyal, satisfied customers who pay "recurring" fees over long-term contracts for product updates, bug fixes, customization, and other services (Cusumano, 2004).

As such, pure software product firms are more and more moving into the service arena, making them more of a "hybrid solution" firms. However, as discussed in the earlier chapters, software product and service firms differ in their business model so much that unless firms understand the differences, they are likely to fail in their transition. Firms must choose a primary strategic orientation since selling mainly software products to new customers requires very different strategies, organizational capabilities, and financial investments compared to selling mainly software services and product upgrades to an existing customer base (Cusumano, 2004). If a software firm has been mainly a software product firm specialized in making mass copies of the same hit product and distributing them through vast channel networks, they must learn how to interact with customers, where sales cycles are much longer, and require understanding of different sets of customer needs and requirements. Understanding the differences in these business models and making adjustments when necessary is an important key to survival of these firms in the turbulent times.

For pure software product firms, they also have a challenge of strategizing clearly who are their target customers. Selling shrink-wrapped packaged software to individuals through vast distribution network and the Internet channels is rather different from selling the same product to enterprise customers. Enterprise customers usually require "whole solution", which includes good documentation, thorough technical support, and a full array of complementary products and services (Cusumano, 2004), eventually pushing the software product firm to enter the "service" business model. When bigger enterprise customers start demanding for special features to that product, which would take up most of the firm's R&D efforts, maintaining the standardized product sold to individual customers gets pushed to the background, eventually ending up with various versions of the same product. It can be said that growth through only selling to individual customers may be limited, but targeting also the enterprise customers which may guarantee continuous revenue stream in the form of maintenance contracts (usually paying additional 15-25% annually of the initial cost of the software product) and up selling (selling other software products that the firm develops), may contribute to longer growth.

If pure software product firms are completely unwilling to or unable to enter the service market, they may still be able to secure predictable revenue stream by creating upgraded versions that are incompatible with older file formats or at least make old software programs more difficult to use with new versions of the same programs. Guaranteeing some measure of backward compatibility (i.e., you can read old files with new programs) but not forward compatibility (i.e., you can not read new files with old programs) will push customers to buy the upgrade version, securing new license fee revenues for the firm.

In summary, there has been a gap in contemporary literature regarding growth phases and factors influencing growth and survival of Born Global firms. Research on firm growth stages has traditionally focused more on the development of the structure and domestic operations. However, in this modern business environment, there is a call for a two-dimensional model for growth that takes into account the growth in size as well as the growth in the international direction. Also, understanding the underlying factors that influence the growth and survival of these new types of firms helps to deepen our knowledge on the Born Global phenomenon. The following section provides a framework that synthesizes the literature review into a conceptual tool for analyzing the growth phases and survival of Born Global firms, especially in the software industry.

2.7 Preliminary Theoretical Framework and Propositions

On the basis of the literature review, the preliminary theoretical framework is introduced in this section. The framework seeks to explain graphically the answers to the research questions presented in section 1.3. More specifically, the first framework attempts to explain the growth phases of Born Global software firms and the second the factors that influence growth and survival of such firms, both based on Gabrielsson & Gabrielsson (2009b). The novelty of this paper is in directing the focus particularly to software firms.

2.7.1 Growth Phases of Born Global Firms

Figure 5 shows the preliminary theoretical framework for the growth phases of Born Global software firms. Born Global software firms are expected to evolve through four phases during growth towards large firms:

1) Introductory,
2) Commercial breakthrough and foreign growth,
3) Global breakthrough and expansion, and
4) Global rationalization and maturity phase.

As the firms go through each phase, they are faced with different types of challenges and problems, which they need to overcome in order to proceed to the next growth phase, or they may face failure. As described earlier in section 2.4, Born Globals grow with respect to size in employees and sales revenue as well as in international direction.

On the other hand, Born Internationals, which enters nearby markets rapidly but fails to expand to other continents (Kuivalainen, et al., 2007), are expected to go through only the first two phases before the growth matures.

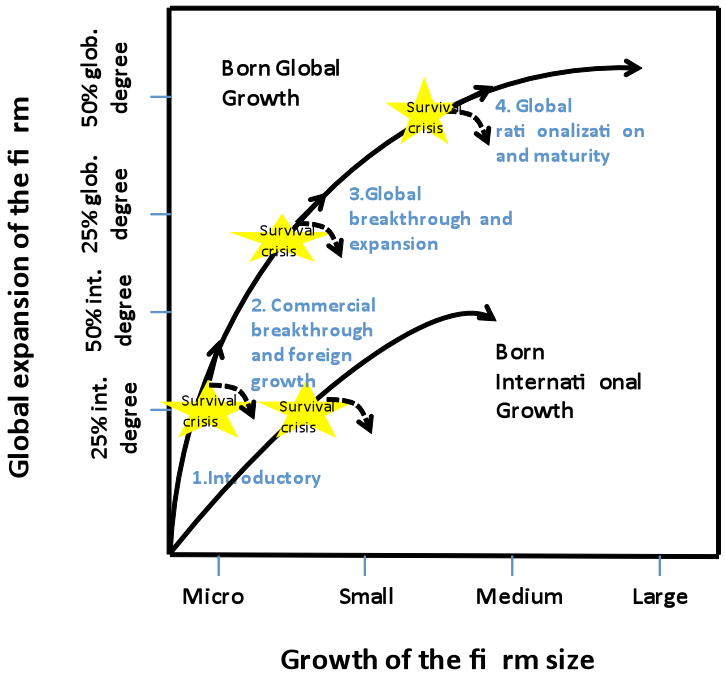


Figure 5: Growth phases of Born Global firms

Source: Gabrielsson & Gabrielsson, 2009b

2.7.2 Factors for Growth and Survival

Figure 6 shows the preliminary framework for growth and survival factors of Born Global software firms. It consists of growth and survival outcomes as dependent factors and the anteceding factors for these. As described in the earlier literature review section, these factors can be grouped into four categories: 1) industry factors, 2) firm factors, 3) entrepreneurial orientation and agility, and 4) software business specific factors.

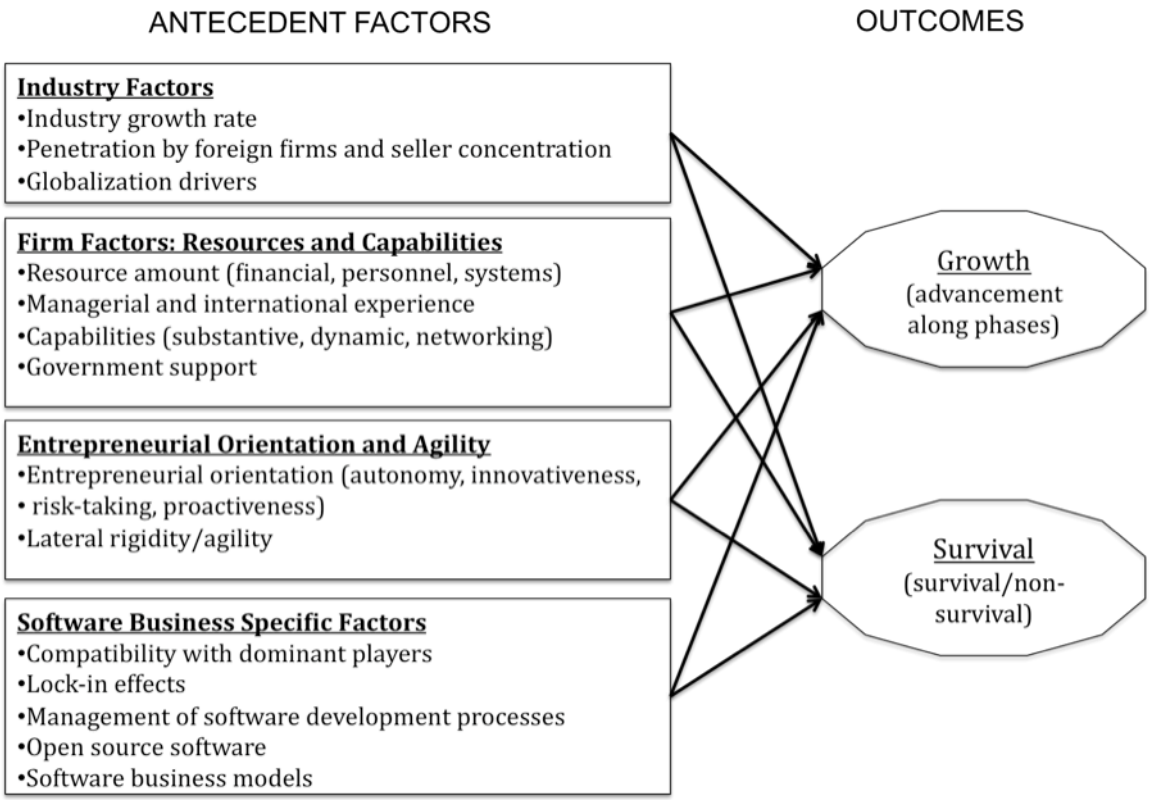


Figure 6: Framework for the growth and survival of Born Global software firms

Source: adapted from Gabrielsson & Gabrielsson, 2009b, by inserting a new section on software business specific factors

Industry factors include the industry growth rate (Hennart & Park, 1993, Vernon, 1966) and penetration by foreign firms and seller concentration (Driffield & Munday, 1997). Also, the extent the industry is globally integrated and global enablers are present is expected to impact positively on global growth opportunities (Oviatt & McDougall,

1994; Shrader, et al., 2000) and may influence survival as well (Mudambi & Zahra, 2007).

Firm factors that may have influence on growth and survival of Born Global firms include various resources including managerial experience (Reuber & Fischer, 1999), resource fungibility (Sapienza, et al. 2006), different types of capabilities (Teece, et al., 1997), and entrepreneurial orientation (Knight & Cavusgil, 2005). Entrepreneurial orientation and agility are factors related to the growth aspirations of the founders, and how balanced the characteristics such as risk-taking and flexibility goes with the laterally rigid decision-making processes. Firm size and governmental support are factors that have been proposed to affect survival, but only the former has found support in recent studies (Mudambi & Zahra, 2007).

Software business specific factors include the compatibility with dominant players (Cusumano, 2004), lock-in effects (Rönkkö & Pöyry, 2006), open source software (Rönkkö, et al., 2008), software development process, and growth strategies and business models (Cusumano, 2004).

Born Global software firms are expected to grow and survive by fostering these various factors in the often volatile and competitive software industry. It is important to note that the anteceding factors are not expected to influence growth and survival to the same extent. These two key outcomes have proved to be conceptually distinct, and their empirical relationship quite complex (Sapienza, et al., 2006). Due to the gap in contemporary knowledge as to this relationship, this paper hopes to shed more light onto the topic.

2.7.3 Propositions for Empirical Study

The literature review and the preliminary theoretical framework introduced earlier helps to draw up propositions that are expected to emerge from the empirical case studies. The propositions have been based on Gabrielsson & Gabrielsson (2009b), further including additional insights for the Born Global software firms, which is the focus of this paper.

Born Global growth

Although resource is assumed to play a critical part in the growth of Born Globals, they suffer from resource limitations (Oviatt & McDougall, 1994), amount of resources (Hannan, 1998), and resource fungibility (Sapienza, et al., 2006). Managerial experience in terms of stock, stream, and variety (Reuber & Fischer, 1999) are also considered important for growth. However, resources as such do not provide growth if firms do not possess capabilities for deploying and coordinating the various resources (Verona, 1999). Based on previous studies, long-term growth may only be achieved if these capabilities are of a substantive and dynamic nature (Zahra, et al., 2006). In addition, entrepreneurial orientation should be high (Knight & Cavusgil, 2005), and founders and management team members should be experienced enough so that the firm does not suffer from lateral rigidity (Luostarinen, 1979), which may limit firms from exploring new opportunities and methods and instead go with the known alternatives.

Finally, high industry growth rate and high levels of globalizing enablers are expected to provide growth opportunities (Oviatt & McDougall, 1994). These industry and firm factors are assumed to be critical drivers in reaching the commercial breakthrough (phase 2) and global breakthrough (phase 3). These factors may also drive the start of the global rationalization (phase 4) but in a reverse manner. In other words, when industry growth slows down, the need for firms to rationalize their activities globally is enhanced, driving the need for resource alignment (Douglas & Craig, 1989). Greater seller concentration (Driffield & Munday, 1997) also increases the need to rationalize.

Thus, the following may be postulated:

Proposition 1a: The commercial and global breakthrough of a born global firm is positively related to the industry growth rate, the globalizing enablers in the industry, the amount of resources and managerial experience, the existence of substantive and dynamic capabilities, and a high level of entrepreneurial orientation in decision-making (Gabrielsson & Gabrielsson, 2009b, p13)

Proposition 1b: The global rationalization of a born global firm is positively related to higher global seller concentration, pressure for resource alignment, and a low level of both industry growth rate and entrepreneurial orientation in decision-making. (Gabrielsson & Gabrielsson, 2009b, p13)

Born Global survival

Entering foreign markets usually requires substantial investment (Zott, 2003) in terms of creating new routines and adapting to them (Sapienza, et al., 2006). These investments are especially demanding for Born Globals due to their liability of foreignness (Zaheer & Mosakowski, 1997) and newness (Zahra, 2005). Hence, Sapienza, et al. (2006) argues that the act of internationalizing decreases the chance of survival of Born Global firms. In order to increase the chance of surviving the challenging internationalization process, firms need to possess adequate capabilities to obtain financing such as venture capital (Gabrielsson, et al., 2004), other endowments from founders (Hannan, 1989), and government (Mudambi & Zahra, 2007).

In addition, as Johanson and Vahlne (1977) and Luostarinen (1979) have proposed with their stage-wise internationalization model, it is less risky to advance in stage wise slowly than to jump over stages in an accelerated way like the Born Global firms. In other words, the lower the entrepreneurial orientation (Lumpkin & Dess, 1996) and the more lateral rigidity in decision-making (Luostarinen, 1979) there is, the higher probability for survival. The changes in decision-making behavior that happens as firm's age (Autio, et al., 2000) would indicate that lateral rigidity may increase as firms' age and thus Born Global firms face the greatest risk of failure at the very initial phase of internationalization efforts (Scott & Bruce, 1987). It has also been found that high industry growth rate increases the survival of Born Globals (Mudambi & Zahra, 2007).

Thus, the following may be postulated:

Proposition 2: The survival of a born global is positively related to the industry growth rate, the amount of resources and managerial experience, the existence of substantive and dynamic capabilities, and lower level of entrepreneurial orientation. (Gabrielsson & Gabrielsson, 2009b, p13)

Both growth and survival of Born Global

Looking at proposition one and two, it seems difficult for Born Global firms to have the highest possibility of both rapid growth and survival, as they call for a different type of decision-making behavior. The existence of lateral rigidity (Luostarinen, 1979)

increases the odds of survival but restricts growth. On the other hand, the higher entrepreneurial orientation with lower lateral rigidity in decision-making enhances rapid growth but increases risk for survival.

Based on earlier studies, capabilities of firms play a critical role, and particularly the networking capabilities help Born Globals establish credibility and find international opportunities. With the help of partners, Born Global firms can globalize their activities without making large investments and facing unnecessary risks. Also, networking capabilities are found to be important for Born Globals in different development phases (Laanti, et al., 2007) and for larger MNCs, in addition to external networks, internal networks within the firm becomes important (Andersson, et al., 2007).

Thus, the following may be postulated:

Proposition 3: The commercial breakthrough, global breakthrough, global rationalization, and survival of a born global are positively related to high networking capabilities (Gabrielsson & Gabrielsson, 2009b, p14).

Software business specific factors for both growth and survival

In addition to propositions one to three which may be applied to high-tech firms in general, software business specific characteristics deserve separate attention with regards to growth and survival.

First of all, due to the nature of software products, compatibility with other software and hardware, especially the ones dominating the market, is considered critical (Coviello & Munro, 1997; Cusumano, 2004). If firms pour all R&D resources into another third-party system that eventually gets pulled out of the market, the firm may be at survival risk. Thus, firms should ensure compatibility with numbers of vendors to avoid being reliant on only one platform or system, and this can also enhance growth since more users are able to use the particular software product with various systems. Second, ensuring that software products contain lock-in features that makes it almost impossible for customers to switch to another product also ensure growth in the form of recurring revenue (Cusumano, 2004). If the software firm's product or services do not have any

lock-in features and is easy for customers to switch to other vendors, this firm's survival rate decreases. Last but not least, choosing the right growth strategies in terms of scaling, duplicating, and granulating (Cusumano, 2004) at the appropriate growth phases and understanding the differences in various business models (product, services, or hybrid) are important for both growth and survival. Sometimes product firms may need to enter the services arena in order to continue growing or the product market may get saturated and if the firm does not come up with another "hit" product, they may be at survival risk (Cusumano, 2004).

Also, the longer the firm's product has been in the market, the higher chance that brilliant software engineers all around the world come together through the Internet to create a free open-source version. Software product firms must make their own priced version much better than the open source free versions or they may lose to the competition (Cusumano, 2004).

Thus, the following may be postulated:

Proposition 4a: The growth throughout different phases and survival of a born global are positively related to the level of compatibility with dominant players, existence of lock-in effects, and choosing the appropriate strategies for growth and business models, and are negatively related to the existence of open source software.

Cusumano (2004) argues that managing software design and development better is central to firms' survival. Problems in software development can hurt a firm's short-term profits and long-term credibility with customers by having too many bugs in the products or long delays in delivery schedules. Management of software development especially becomes more complex and complicated as the amount of products and customers increase. As firms mature, they should have some slack to improve the software development process for better managing schedules, budgetary constraints, and change requests can contribute to the continuous growth and survival of these firms.

Thus, the following may be postulated:

Proposition 4b:The global breakthrough, global rationalization (latter two phases of growth) and survival are positively related to mastering the management of software development process.

Finally, when comparing firms in software product business and in software service business, it is much easier for packaged software products to be exported globally through Internet channels and distribution network (Rönkkö, et al., 2008) than software service firms that require customer contacts more frequently. Also, since exporting is not possible for software services, managers marketing those services do not have the benefit of gaining international marketing experience prior to making substantial resource commitments to foreign markets by way of foreign direct investment, which makes the decision to go abroad all the more risky and difficult (Erramilli, 1990). Although software product firms may achieve faster internationalization, when economy is bad or the market becomes saturated, revenues can collapse for product firms since customers can simply stop buying new products. As Cusumano (2004) suggests, firms most likely to survive the down times are those with a solid base of loyal, satisfied customers, who pay "recurring" fees over long-term contracts for product updates, bug fixes, customization, and other services.

Thus, the following may be postulated:

Proposition 4c: Software product firms are expected to grow at a much faster rate than software service firms but there may be a limit to growth, thus they are bound to enter the service arena, creating more and more hybrid firms, doing both software product and service business, in order to increase the chance for survival.

3. METHOD OF RESEARCH

In this section, the selection of the empirical research approach and method is presented and the selection of the data sources involved in this research is clarified. In addition, validity and reliability as well as limitations of the study is presented.

3.1 Research Approach

There are two broad methods of reasoning in research – deductive and inductive approaches. This study will utilize both of the approaches, supporting the view by Saunders, et al. (2000) that uniting these two approaches are advantageous.

Chalmers (1999) summarizes the two approaches in figure 7. *"The laws and theories that make up scientific knowledge are derived by induction from a factual basis supplied by observation and experiment. Once such general knowledge is available, it can be draw on to make predictions and offer explanations."* (Chalmers, 1999)

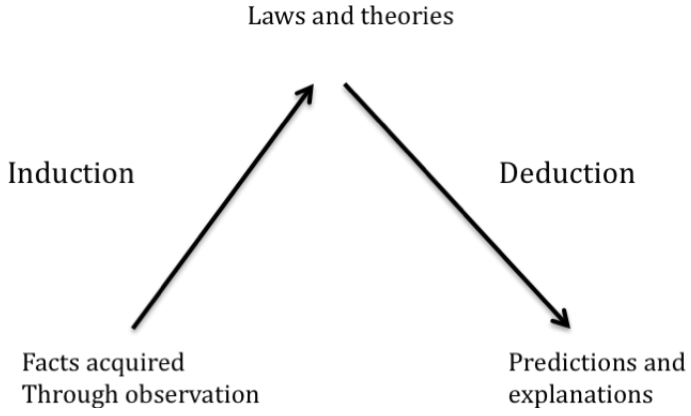


Figure 7. Induction and deduction. *Source: Chalmers, 1999.*

In short, an inductive approach is concerned with the generation of theory from data and empirical observations. Here, theory follows data (Saunders, et al., 2000). Induction is used to obtain an understanding of meanings that humans attach to events (Ibid.). On the other hand, a deductive approach is concerned with testing the theory. As such, scholars in this type of research construct hypotheses or propositions from existing

works of literature, which can then be subjected to empirical scrutiny and thus rejected or accepted (Ghauri & Gronhaug, 2002).

According to Ghauri and Gronhaug (2002), the inductive and deductive approaches are not totally exclusive of each other, with inductive approach including deductive elements and vice versa. As mentioned earlier, Born Global firms' growth phases and factors related to their growth and survival have been under-researched (Rialp, et al., 2005; Zahra, 2005). However, this study has proposed a preliminary theoretical framework and a set of propositions based on various stream of literatures including international entrepreneurship (Oviatt & McDougall, 1994), internationalization theories, Born Global phenomenon, growth models of firms, and software business. Gathering empirical facts to confirm or disprove hypothesized relationships of variables, which have been deduced from contemporary knowledge, adheres to deductive thinking. At the same time, this study tries to generate new theory based on facts derived from the empirical observations, which adheres to inductive thinking. After the empirical analysis, the preliminary theoretical framework is reviewed and revised accordingly. Thus, a combination of inductive and deductive approach underpins the overall research method of this study.

3.2 Selection of Research Method

Research methods refer to rules and procedures, and can be regarded as tools or ways of proceeding to solve the research questions (Ghauri & Gronhaug, 2002). Choosing a method requires understanding of the actual research problem (Ibid.). Generally, research methods are divided into *qualitative* and *quantitative* methods and their superiority is often debated (Silverman, 2005). This research is *qualitative* and *exploratory* in nature, due to the research questions posed ("how" and why") earlier in the study, as well as the fact that still little is known about this particular topic forcing the researcher to explore and provide a starting point for further research.

The research method chosen for the empirical part of this study is multiple-case study method, which provides a dynamic and holistic view of the research under investigation (Yin, 2003). Case studies are preferred when "how" and "why" questions are being

posed, the researcher has little control over events, and when the focus is on a contemporary phenomenon within its real-life context (Yin, 2003, 9). Also, according to Eisenhardt (1989), case study methodology is most appropriate in the early stages of research on a new topic or to provide new insights to an already researched topic. To recall, the research problem of this study is *"How can innovative Born Globals grow to become truly global firms while also surviving, taking into consideration their limited resources to address the global market opportunities and required holistic management of the process? "* and the topic is in the early stages of research (Rialp, et al., 2005).

The phenomena under investigation is too complex to study by surveys or experimental strategies and deals with operational links needing to be traced over time, rather than mere frequencies or incidence (Yin, 2003). The unique strengths of case study method over other methods such as surveys is the ability to deal with a full variety of evidence, such as documents, interviews, and observations (Ibid., 8). In addition, case study method is more likely to generate novel theory with less research bias (Eisenhardt, 1989). However, it has its disadvantages as well. For example, case studies are criticized for lacking systematic handling of data, long and unreadable documents, and their little basis for scientific generalization (Yin, 2003). Yin (2003) answers to these criticisms by arguing that the lack of rigor in some studies may have been caused by the lack of specific guidelines to follow when doing case studies, and that in some cases, case study research may have been confused with case study teaching where "case study materials may be deliberately altered to demonstrate a particular point more effectively" (Yin, 2003, p. 10). Related to the generalization issue, he states:

> *"... case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a 'sample', and in doing a case study, your goal will be to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization)." (Yin, 2003, p. 10)*

Thus, in this study, the goal is not to arrive at statistically generalizable results, but rather to investigate whether the theories are supported by the real-life phenomenon, i.e. the case firms.

After which the case study methodology is chosen, it is necessary to choose between a single- and a multiple- case study. Multiple-case study results in more compelling evidence and a robust overall study compared to the single-case one (Yin, 2003, 46).

In order to identify the phases that Born Global software firms pass as they grow and understand how various factors affect growth and survival of these firms, a multiple-case study methodology will be used, following the principles of data collection established by Yin (2003). In-depth interviews with CEOs, founders, and other core employees of the case firms will be complemented with secondary information obtained from industry publications, press releases, and the media.

3.3 Research Design

The research design of this study is based on the literatures on case study methodology by Yin (2003) and Eisenhardt (1989). According to Yin (2003, p. 20), a research design is *"the logical sequence that connects empirical data to a study's initial research questions and, ultimately, to its conclusions"*. It can be considered as a "blueprint" of research, dealing with at least four problems: what questions to study, what data are relevant, what data to collect, and how to analyze the results (Ibid., p. 21). In the following, this study's research design including the data collection and analysis process as well as the unit of analysis are described.

3.3.1 Data Collection and Analysis Process

Figure 8 depicts the research design and protocol followed in this study.

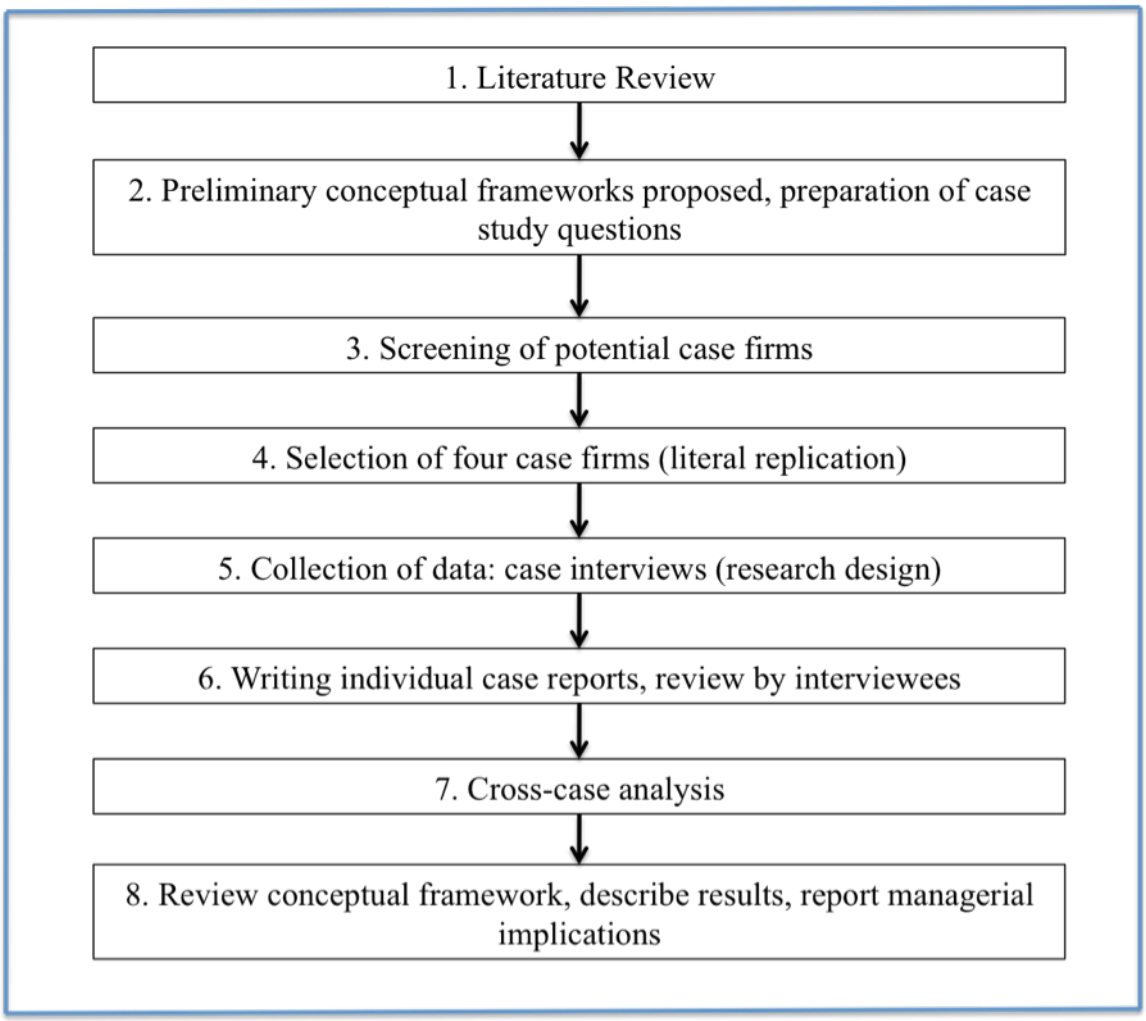


Figure 8. Case study protocol

1. Literature on internationalization theories, Born Global phenomenon, growth models of firms, and software business were reviewed.
2. Based on the literature review, preliminary conceptual frameworks attempting to explain the growth phases of Born Global software firms as well as factors that influence growth and survival of such firms were proposed.
3. The preliminary list of potential case firms was developed by interviewing several industry specialists, and searching through member and participant lists of industry associations in the software business sector.

4. Four case firms were selected for this study. The selection process was rather purposive than random. As one of the focus is on investigating the growth progression of these firms, the criteria for the selection was set as follows:

    - The firm's foreign sales have reached 25% within three years of establishment.
    - The firm's sales from outside the home continent have reached 25% within six years of establishment.
    - The firm should be SMEs which has a global vision or strategic intent from its inception.
    - The firm was established no later than year 2000.
    - The firm has products that are unique.
    - The firm is an independent firm.
    - The firm's headquarter is located in Finland.
    - The firm operates in the software business.

    When selecting the case firms, literal replication logic was used instead of sampling logic. Literal replication logic is used when one has a limited number of cases from which similar results are predicted (Yin, 2003, p. 47). The goal was to replicate and extend the emergent theory under investigation. The case firms were generated based on a number of different characteristics as suggested by Eisenhardt (1989), such as firms having different market and product characteristics, and having grown and survived or failed during their international expansion. The number of cases was selected to fall at the lower limit of the ideal number of cases in a multiple-case study due to the time and resource constraints of a Master's Thesis.

5. As mentioned earlier, this study is explanatory and qualitative in nature. Most of the primary data for the analysis was collected from in-depth interviews of the CEOs and/or founders or key informants identified by the CEO. These respondents were directly involved in decision-making of the high-level strategies either in the past or currently. General interview guide were prepared by the Research Group and modified by the author to fit to each case firm

selected for this Master's Thesis (see APPENDIX for general interview guide). Prior to the interview, each firm was sent one table in electronic form to fill in related to the sales revenue growth, employee growth, and distribution of net sales by market. The main purpose was to collect the demographic data of the case firm beforehand in order to understand how the firm had grown to the present day. This helped to make time spent with the interviewees more efficient as it was hence possible to proceed straight to the theme interview questions. All the interviewees were given a brief explanation of the nature of the empirical research and the nature of the study in general prior to the interview either by phone or email. Each interviews lasted between one and five hours, depending on the availability of the respondents. The interviews were conducted as a semi-structured discussion and guided by pre-defined themes prepared in the interview guide, focusing on longitudinal illustrations and why/how factors related to the elements of the preliminary theoretical framework. Sometimes, different themes were discussed more thoroughly with different interviewees from the same firm. The interviews were recorded and transcripts and database were created for each interview following the case study protocol to ensure validity of the research.

6. Individual case descriptions were written and sent to each interviewee for review and approval. Multiple sources of evidence, including interview transcripts, documents from websites and media, and other archival records, were used. Only the written content was included in the analysis and taken into consideration, i.e. the tone of voice or other similar verbal or non-verbal factors were omitted.

7. A cross-case analysis was written based on the four case firms by comparing the elements of the preliminary conceptual framework.

8. The conceptual framework was revised based on the evidence derived from the empirical analysis and some managerial implications were reported.

Common to many other comprehensive research studies, this study also encountered some issues along the way. First, from the many software firms operating in Finland, it was extremely difficult to screen out just those that fit to the Born Global criteria, namely, "the firm's foreign sales have reached 25% within three years of establishment" and "the firm's sales from outside the home continent have reached 25% within six years of establishment". Most of the software firms are relatively small in size and young in age, and typically do not publish any official annual reports, unless they are listed in the NASDAQ OMX Helsinki. The registration center for firms (rekisterihallitus) did not have any systematic way of screening such firms either. The author overcame this issue by using network of people she knew from working in a software firm herself. Various informants from potential case firms investigated for the author beforehand whether their firms would fit to the Born Global criteria. Secondly, even if potential Born Global software firms were found, many busy executives unfortunately declined to take the interviews, as the general interview guide was estimating the interview to take roughly two hours. The author had to, in those cases, give up pursuing those firms and focus on searching for new ones.

3.3.2 Unit of Analysis

As suggested by Yin (2003, p.22-26), the unit of analysis (the cases) will be defined via general definition, the persons included, the geographic area, and the time boundaries.

General definition: The unit of analysis in the four cases is Tectia Corporation (formerly known as SSH Communications Security Corp), Remedy Entertainment Oy, Smartner Information Systems Oy (now SEVEN Networks International Oy), and Add2Phone Oy (now More Mobile Relations) respectively. The definition of the unit of analysis (the cases) is related to the way the initial research questions have been defined and as such, all the key factors related to firms' growth and survival as well as the firms' holistic growth phases will be considered as the subjects of the case study.

Persons included: Since the research questions call for understanding of the longitudinal development of the case firms' growth phases and factors related to growth and survival, the most appropriate persons to be included in the interview were either

founders or CEOs. For this study, nine interviews were conducted all together. From Tectia Corporation, the founder and the current CEO were interviewed. In addition, the person who was the CEO between 2002-2008 was interviewed. This is because the current CEO only joined after 2008 and the founder had not been involved heavily in the daily operations of the firm since 2003. From Remedy Entertainment, the founder and the current CFO were interviewed. The CEO was not available for one- to two-months timeframe due to traveling abroad preparing for their new game launch at the time. From Smartner Information Systems, one of the founders was interviewed. In addition, one person who had worked in Smartner and continued working after being acquired by SEVEN Networks International was interviewed. From Add2Phone, one of the founders (who currently is also the managing director after being acquired by More Mobile Relations) and the CTO at that time were interviewed. The in-depth and rather long interviews by at least two persons from the same firm guaranteed the collection of high-quality data. (See References for list of interviewees)

Geographic area: Since the growth phases and factors related to growth and survival of the case firms were studied, there were no limitations set on the geographic focus.

Time boundaries: Each case begins from the founding of the firm to March 2010 when the interviews were conducted and case reports written.

3.4 Validity and Reliability of Research

This study follows Yin's (2003, p.33-39) criteria for judging the quality of research designs. The test for *construct validity* is about *"establishing correct operational measures for the concepts being studied"* (Yin, 2003, p. 34) and involves using multiple sources of evidence such as in-depth interviews, press releases, annual reports if available, newspaper articles, and websites, getting the key informants to review the draft case study report, and maintaining a chain of evidence. *Internal validity* is about *"establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships"* (Ibid.) and is ensured by pattern matching between the preliminary conceptual framework and the empirical results. To assist pattern matching, relevant charts, figures, and matrix techniques can

be used. *External validity* is about *"establishing the domain to which a study's findings can be generalized"* (Ibid.) and can be done by utilizing the literal replication logic for the four case firms. Finally, *reliability* is about *"demonstrating that the operations of a study – such as the data collection procedures – can be repeated, with the same results"* (Ibid.). The goal of *reliability* is naturally to minimize errors and biases in the study (Yin, 2003, p. 37). In a case study, an absolute reliability can rarely be reached as the actors (researchers, respondents, and the phenomenon) often change. To reach as high reliability as possible in this particular study, case study protocol was used and case study database created as suggested by Yin (2003).

3.5 Limitations

This study is limited in a number of ways that should be considered when evaluating its merits.

First limitation is the narrow focus of this study on case firms only in the software business in Finland. The purpose of the narrow focus was to be able to do a thorough and in-depth analysis of the business area in question, thus minimizing the impact of inter-industry differences. Also, resource and time constraints limited the case firms to only four.

Second, the author has been working for one of the case firms Tectia for the past 10 years, providing more detailed information of the firm than others. As such, there may be some biased views included, although the author has done her best to be as objective as possible.

Third, the interviewees were asked about events that happened over the course of its history, sometimes dating back to 15 years ago. It is challenging to accurately recreate all the relevant details and sequences of events relying on individual interviewees' memories. In addition, interviewees may not have been willing to fully disclose all information and opinion on the topics discussed. This study has tried to minimize the risk of bias by utilizing considerable amount of information verifiable from other

secondary sources, for example, firms' official documentation such as annual reports, online press releases, and past master's theses investigating the same case firms.

Last but not least, it is important to once again acknowledge that this research was part of a bigger research project. In order to ensure comparability of findings with other researchers and students, this thesis partly built on a shared conceptual foundation and structure. Although the author has contributed to the research project by adding new and deeper insights specifically from software business, the start of the research itself could have been influenced with the already available conceptual framework.

4. EMPIRICAL FINDINGS – Individual Case Descriptions

4.1 Tectia Corporation

4.1.1 Firm Background and Characteristics

Tectia Corporation (Tectia), formerly known as SSH Communications Security Corp., was established in December 1995 and is the market maker in real-time information security software for modern, networked organizations. They create an invaluable Circle of Trust for their customers and their stakeholders by securing, automating, and governing confidential information with their Tectia solutions in fixed, mobile, and cloud environments. Tectia operates in the Americas, Europe, and APAC regions, with headquarters located in Helsinki, Finland. Their shares are quoted on the NASDAQ-OMX Helsinki exchange, under the trading code of SSH1V since 2000.

The size of the firm in sales revenues as well as numbers of employees grew rapidly from year 1995 to 2001. At its peak in 2001, there were 181 employees with 19.9 million euro in revenue. After 2001, due to various strategic changes, the amount of employees as well as net sales decreased, with some fluctuations. At the end of 2009, the firm had 64 employees with 8.8 million euro in revenue (see figure 9 and 10).

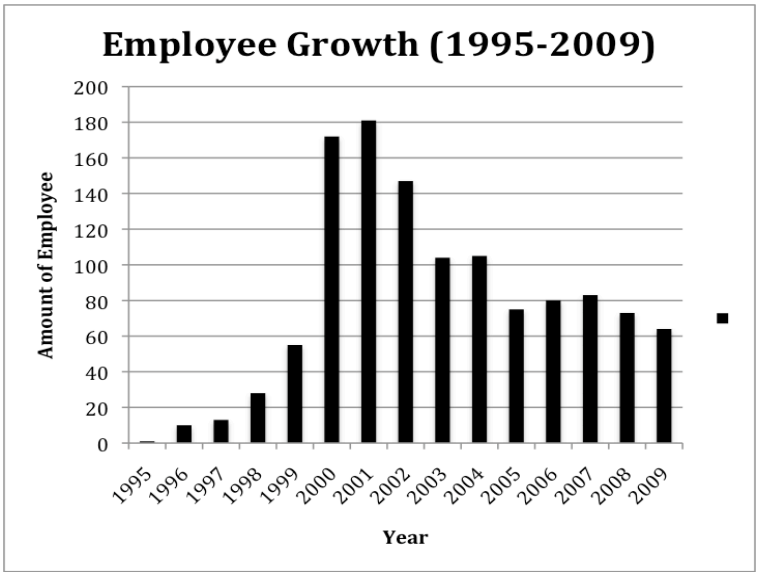


Figure 9. Tectia Corporation's employee growth

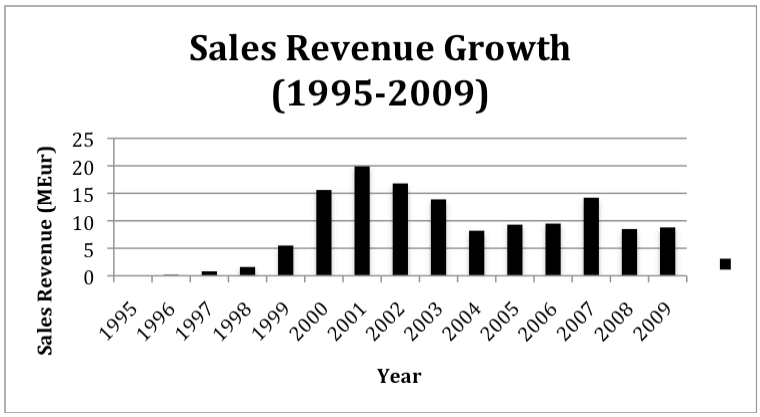


Figure 10. Tectia Corporation's sales revenue growth

The founder of Tectia, Tatu Ylönen, states, "*before founding*" as when it became obvious to him that this new firm was seeking to globalize. Since the first product SSH® Secure Shell™ had already been released as a free version via the Internet during the summer of 1995, there were many users all over the world before the actual establishment of the firm.

Concerning the share of foreign sales, at the end of March 1999, three years after establishment, the internationalization degree was 56.25% and the globalization degree was 37.50%. At the end of 2001, six years after establishment, the internationalization degree was 78.40% and the globalization degree was 62.50% (see figure 11). Thus, Tectia adheres to the Born Global criteria.

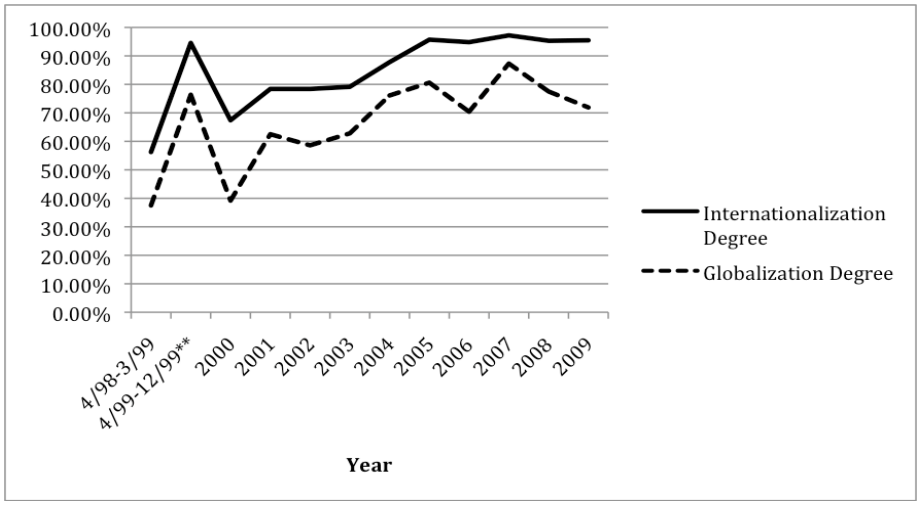


Figure 11. Tectia's internationalization and globalization degree

4.1.2 The Development of Tectia in Phases

Tectia has gone through the first three phases 1) introductory, 2) commercial breakthrough & foreign growth, and 3) global breakthrough and expansion rather quickly, and stayed in the fourth stage 4) global rationalization and maturity for a relatively long period. Figure 12 provides an illustration of organizational development in terms of growth and foreign expansion.

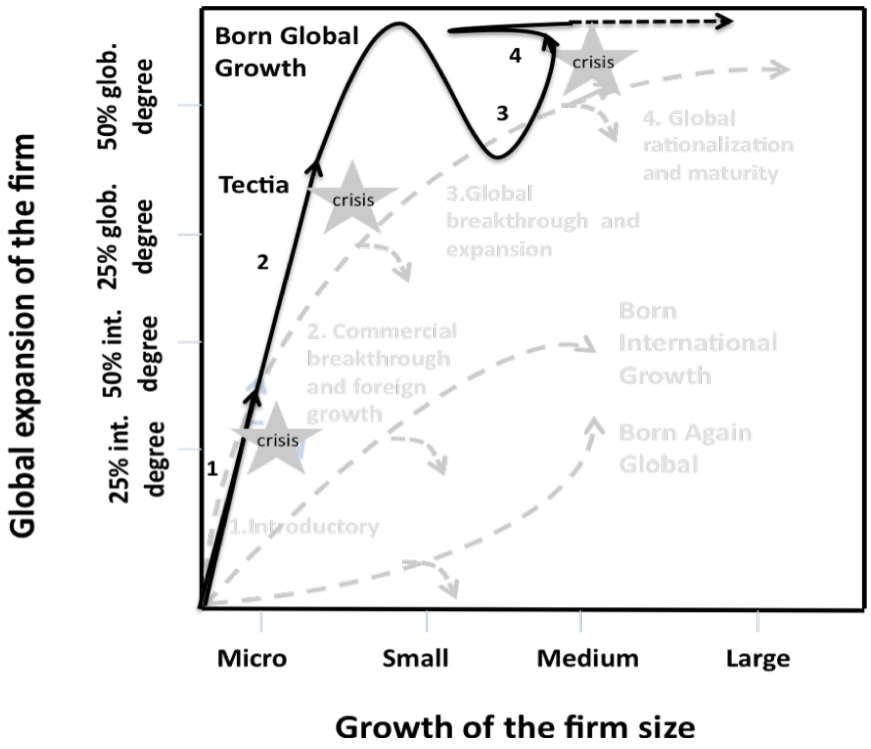


Figure 12. Main path and phases of the growth of Tectia

<u>The Introductory Phase: 1995-1996</u>

The business idea was born in March 1995 when someone broke into the central computer system at one of the facilities in Otaniemi and installed a monitoring system. As a consequence, large numbers of passwords were stolen and changed, and Ylönen, who was studying and working at the Helsinki University of Technology (now Aalto University School of Science and Technology) at the time, came up with an idea to develop software that would enable protection of internet-based communication.

Ylönen then published the free version of this software in July of the same year. As Ylönen recalls *"I wasn't planning to make it a business at that point, however, by the end of the year, I was getting 150 emails per day from people wanting support... I also started getting inquiries from people who wanted to start selling it. And so I decided to start the company."*

Ylönen registered the firm on December 31, 1995. Ylönen was working as a researcher for Academia Finland at that time but resigned his position there, rented a room, and started working alone in this new start-up firm in March 1996. Altogether, five people were working at the end of May 1996. Since the first product SSH Secure Shell had already been released as a free version via the Internet during the summer of previous year, it can be said that it was ready for sales when the firm was established.

In March 1996, an exclusive distribution agreement for the SSH Secure Shell product family (now called Tectia Solution) was made with F-Secure Oyj (former Data Fellows Oy). As such, F-Secure can be considered as the first customer. Although the relationship with F-Secure turned out to be a problematic one later on, it was a natural step for Tectia to make at that time, as they were lacking the business expertise to sell and market their products. An alternative approach would have been to quickly acquire the needed expertise in international business, sales, and marketing, but the environment was moving so quickly and before being able to plan anything, F-Secure had approached them with an opportunity that seemed the correct one to take at that time.

The introductory phase was a rapid growth to about 10 people during 1996-1997. That was a difficult time for Ylönen; *"I had never had that many people working for me, and I had to learn ways of managing the team. I found it somewhat stressful and difficult, and we were busy with all the projects and needed to get groups organized and get things running smoothly.", - Ylönen.* He had a strong technical background but lacked formal training in international business and management. The crisis here can be said that Ylönen not only needed someone who knew how to manage the business and people but also was *"highly stressed and needed some relief", -Ylönen.*

Commercial Breakthrough and Foreign Growth Phase: 1997-1999

Ylönen then hired Jani Hursti as the CEO, who grew the firm from micro to small firm, to about 35 people in terms of amount of employees.

Commercial breakthrough happened between 1997 and 1999. At this time, Tectia was selling both SSH Secure Shell and SSH IPSec Express Toolkit, which were quite different products. SSH Secure Shell was an end-user product sold directly to enterprise customers via F-Secure (at that time) that allowed data to be exchanged using a secure channel between networked devices. On the other hand, SSH IPSec Express Toolkit was sold to device manufacturers such as VPN (Virtual Private Network) manufacturers to integrate security feature (IPSec=Internet Protocol Security) into the devices. For SSH IPSec Express Toolkit product, the breakthrough was in 1999 when they closed major deals with Sun Microsystems, Compaq, and other similar large firms in the USA in April of that year. For the SSH Secure Shell product, the commercial breakthrough was already during 1996-1997, starting from being a free software via the Internet to being sold via F-Secure. When Tectia started to sell the product directly to end customers in 2000, major deals made with UBS in Switzerland and CommerzBank in Germany were significant to the firm. It can be said that commercial breakthrough happened simultaneously as the global expansion. As Ylönen recalls; *"We never focused very much on Finnish customers."*

Jani Hursti resigned from the CEO post in early 1999 so Ylönen assumed the role of CEO again. Tectia continued growing rapidly and established a firm position in the US market with the help of US office, which was established the previous year.

As Tectia continued to expand and grow, Ylönen again faced challenges of a rapidly growing firm. They clearly needed to implement processes and have a leader who understood both technology and international business.

Global Breakthrough and Expansion Phase: 1998-2001

The true global breakthrough happened from 1998 when they opened their own sales subsidiary in the Silicon Valley in the US, where half of their potential business was

located. This was a critical decision-making point for Tectia, as it opened up the IPSec market and created a presence for them there.

In 2000, they opened a sales subsidiary in Japan. The reason for this was because there were many data communication firms to sell the SSH IPSec Express Toolkit product to and the complex nature of the IPSec products made it a necessity to do direct sales, instead of sales through channel partners. However, even before establishing these offices in the US and Japan, Tectia either directly or indirectly (via F-Secure) sold IPSec and Secure Shell products in those countries.

Tectia then continued expanding globally by opening sales offices in Germany in 2001 and in UK in 2002 to serve their existing customers, as they were major markets in Europe. In 2001, representative offices in South Korea and Taiwan were opened to support direct sales for SSH IPSec Express Toolkit product to data communication device manufacturers, as well as in Sweden (2002) to support sales.

Many new products were also introduced during this time. So a new CEO Markku Kangas was hired in early 2000 to control the growing firm.

During this global expansion phase in 1998-2002, Tectia grew from being a small to medium-sized firm in terms of both sales revenue and the amount of employees and various crises occurred, including too rapid growth of the firm in terms of size, product variations, and lack of focus. They were selling too many different products to too many different types of customers and eventually making losses. *"2000, 2001–2002 time certainly can be described as a crisis. If a company makes more than 50 percent of its revenues in losses, it's certainly a crisis." - Ylönen.*

Global Rationalization and Maturity Phase: 2002-2008

Tectia was clearly entering the global rationalization and maturity phase sometime between years 2001-2003 when they realized that they had to start focusing their business in the core competence area. After Kangas resigned as CEO, Ylönen assumed the role again for about one year. Finally Arto Vainio, a new CEO was hired in July 2002 to steer the firm into a different direction. He had a strong vision of focusing the

firm from what seemed to be a too-diversified entity. *"The big decision point was eventually to start downsizing the company and start focusing. And that basically went on until 2005–6, after which we've stayed in approximately the same size." – Ylönen.*

In 2003, Tectia made a critical decision of selling away the OEM products such as SSH IPSec Toolkit to Safenet, Inc., a US based network security firm, for $14 million and 17 employees were transferred to Safenet Finland and three were laid off. Instead of having both OEM and end-user business model, they decided to focus on the end-user business with the SSH Secure Shell product, as the IPSec market was starting to mature.

Tectia also decided to sell away the VPN (virtual private network) hardware business as they were way behind their competitors in terms of technology, pricing, and speed. PKI (public key infrastructure) related products such as SSH Certifier were also sold away.

While trying to change the firm from being extremely diversified to a focused one, Tectia had to reorganize the organizational structure to fit with the new end-user business approach. Many people were laid off and new sales and marketing processes were put into place during 2003. These were very difficult times for the firm. Tectia then focused on selling Secure Shell-based products to large enterprises and concentrated on differentiating themselves from open-source OpenSSH. Some of the offices were also closed to move to a more channel-oriented approach.

With the focused approach, Tectia survived the serious crisis and gradually improved its business results so that year 2007 became financially the best ever in Secure Shell based products and enterprise market segment. During the years 2003-2007, Tectia had to invest a lot to renew and enhance the Tectia Solution to the needs of the new very large enterprise customers, and as a result Tectia won a series of largest ever contracts from Fortune 500 customers. However, a relatively narrow focus also meant a limited niche in the changing markets, especially when considering longer-term scenarios. The firm was also facing some stagnation. In November 2008, a new CEO Jari Mielonen was hired to change the situation. He started to expand the product portfolio, but in a different way than in the earlier years. *"We have been so focused in such a small market, that we nearly killed ourselves.", -Mielonen.* Instead of having various products

sold to different types of customers, like it was in the earlier years, they are now adding new products, which can be sold to the same enterprise customers. It can be said that Tectia is now starting fresh, and heading for rapid growth.

New Growth Phase: 2009-

During 2009, Tectia restructured the organization and implemented new global processes to align various operations to be more efficient and effective. Management team members were also changed, bringing in new fresh air into the firm.

Overall, Tectia is a Born Global that went through all the four phases, retreated backwards in terms of size, but has now started a new phase of growth with internationalization and globalization degree at a very high level.

Survival Crises and Other Challenges

Tectia was very close to running out of cash at around late 1998. However, the firm was able to turn around the situation by closing successful deals with their IPSec product. Otherwise, the firm has never been at a risk of going out of business financially. *"I don't think that we were ever in a place that we would have been at risk of going out of business…. We were on a very solid basis with our own technology, and had very good funding from the stock listing...", -Vainio.*

However, Tectia has faced serious challenges during its growth, one of them being the difficult relationship with F-Secure in the form of exclusive distribution agreement. As Ylönen recalls *"signing the F-Secure deal in early 1996 spring"* as being one of the most critical decisions he has made, they ended up in arbitration at court in year 2000. Court found that both parties had breached the agreement and Tectia eventually had to start paying royalties to F-Secure for their own Secure Shell products that they would sell directly to end customers in the future. Tectia not only lost the control of the market while they could not directly sell between 1996 and 2000 but the loss in arbitration also de-motivated and affected the spirit of Tectia employees. The difficult relationship with F-Secure ended in 2003 and Tectia had a lot to learn from this case, how they can manage relationships better. *"They were rather difficult times …", -Ylönen.*

Another serious crisis Tectia faced is when they expanded their product portfolio too much and started selling so many types of products to different types of customers. Their commercial success with the Secure Shell and IPSec OEM products made them confident to take enormous risks in entering the related VPN hardware business. However, the IT bubble burst in 2000 and the loss of focus within the firm reflected to its huge losses in revenues. This huge risk-taking in diversifying the products and eventually closing it down, did not destroy the firm as such, but had an enormous impact on Tectia's spirits and management style for a couple of years.

This crisis during the global breakthrough and expansion phase was influenced by too rapid growth of the firm in terms of size and product variations, and lack of focus, international management, and control mechanisms. Tectia grew from being a small firm to medium-sized firm in terms of both sales revenue and the amount of employees. At the end of year 1999, there were only 55 employees, but increased to 172 at the end of 2000 and 181 in 2001. *"We had grown uncontrollably. The internal management and control mechanisms were largely lacking, or not functioning sufficiently. We had too many people, we were doing too many things on too many markets. We had too many technologies.", -Ylönen.*

Table 4 summarizes Tectia's developments to date.

Table 4. Summary table of growth phases of Tectia

Phase	**1. Introductory (1995-1996)**	**2. Commercial breakthrough and foreign growth (1997-1999)**	**3. Global breakthrough and expansion (1998-2001) (2009-)**	**4. Global rationalization and maturity (2002-2008)**
Key strategy	Development of commercially acceptable products, securing finance, developing market, and receiving first sales revenues.	Selling products in large volumes. Entering the IPSec OEM market, building direct sales team and penetrating the US market by establishing an office.	Expansion to new continents and penetration to countries in which presence has been established to leverage economies of scope.	Alignment of global operations and marketing across countries to benefit from global synergies. Focus becomes the key.
Growth of the	Sales: increased from 0 to 0.17	Sales: increased to 1.6 MEur.	Sales: increased to 19.9 MEur.	Sales: big fluctuations

size of the firm (sales, employees)	MEur. Employees: grew from 1 to 10. Still categorized as micro-sized firm.	Employees: grew to 28. Growing from micro to small-sized firm.	Employees: grew to 181. Growth to medium-sized firm. ---------- 2009-: Sales 8.8 MEur, Employees 64.	between the range of 8 MEur and 17 MEur. Employees: decreased gradually to 73.
Global expansion (markets, share)	Immediately global. (Precise details unknown due to all sales done by F-Secure)	In March 1999, Internationalization degree: 56.25%, Globalization degree: 37.50%.	At the end of 2001, Internationalization degree: 78.40%, Globalization degree: 62.50%. Sales in at least 3 continents.	At the end of 2008, Internationalization degree: 95.30%, Globalization degree: 77.50%. Sales in all major continents.
Operation mode and networks	Selling via F-Secure, distributor.	Selling via F-Secure, distributor. Active participation in IETF. US subsidiary established to sell IPSec.	Sales subsidiaries opened in US (98), Japan (2000), Germany (2001), UK (2002). Rep offices in South Korea and Taiwan (2001). Sales through channel networks as well.	Sales subsidiaries in USA, Germany, and Hong Kong (2010). Sales through channel networks as well. Various strategic partnerships.
Products	Focused product offering. SSH Secure Shell only. (Product, Services)	Diversifies product offering and goes into OEM market with IPSec in 1998. SSH Secure Shell achieves commercial breakthrough in 1997, IPSec Toolkits in 1999. (Product, Know-how, Services)	Diversifies product offering further with PKI related products and VPN hardware business. Support Services also grows. (Product, services, know-how, systems) 2009-: Growth by product development.	Back to focused strategy by cutting away the PKI and VPN hardware (systems) business. Focus on product, services, and know-how.
Organizational structure	Systems, structures, and formality are almost non-existent with informal communication.	Founder remains central to decision-making and structures and communication are still relatively informal.	1998-2001: Adopts more functional, formal structures. 2009-: Global processes in place. Centralization and decentralization balanced.	Formal structure and processes introduced. Emphasis on improving software development processes.
Survival crisis in end of phase	In need of managerial expertise and the founder nearing burnout.	Again in need of managerial expertise and change towards more professional management and structures.	Lack of focus, too rapid growth of employee size and product portfolio. Failure to align activities.	2008: Stagnated growth level, in need of new growth strategy.

4.1.3 Factors Influencing the Growth and Survival of Tectia

Industry Development Since Establishment

During the introductory phase, network security was still a niche market. Tectia was a pioneer in the encryption products for IT security and they had the first-mover advantage, allowing them to grow fast. Then during the 15 years of their existence, awareness of network security and the need for it increased. This is a positive growth factor for Tectia as the need from enterprises increased dramatically. However, it can also be a negative factor, since network security moved from niche to mainstream market, thereby giving birth to many competitors.

The industry growth rate for Tectia's secure infrastructure market with the Secure Shell-based solution has been about 5-10% per annum in average during the past 10 years, although after the IT bubble burst, the growth rate was rather low, even shrinking. The new MFT market where Tectia is entering now is expected to grow at plus 21% per annum. During the global expansion phase, the bursting of the dot.com bubble had an enormous effect on the growth and survival of the firm. *"It was something that affected us tremendously.", -Ylönen.*

Although customer needs have differed depending on the *size* of the customers' operations, they have been quite similar across countries. Yet, since US market has always been more advanced in terms of awareness of enterprise security issues, Tectia has grown rapidly in the US. Europe and Asia are still in the early stages of adopting IT security so there is a lot of potential from those markets in the future.

There has been some consolidation in the IT security market, but this has not had much affect on Tectia's growth. The competition in the industry has been quite diversified and tough for the firm. For IPSec, some of the large global competitors were RSA Security (USA), Kame (Japan), Hifn (USA), and FreeBSD (open source). For Secure Shell based products, F-Secure (later Attachmate (USA), as F-Secure sold the product to them) and Vandyke (USA) were large commercial competitors, but various open source free

versions such as OpenSSH and Putty also competed against Tectia rather heavily. Large system integrators such as IBM and HP were also sometimes considered as competitors due to the fact that they were selling total solutions, which had security embedded in them. For the file transfer security market, Sterling Commerce (USA), Axway/Tumbleweed (USA), and Globalscape (USA) have been major competitors.

Although there has been a need to obtain export licenses from Finland for their products on a per country basis, they have not faced any trade barriers throughout their history.

Development of Most Critical Resources and Capabilities Since Establishment

Resource Amount

The fundamental innovation with Secure Shell with great technology and human resources (engineers) boosted Tectia to grow at the beginning. Tectia was able to recruit many talented engineers straight out of school. *"If you look at the early stages, we had very good technology and we had very good engineers. And it was a hot technology, a hot company, the best engineers wanted to work there…", -Ylönen.* However, limitation in the knowledge and resources in the VPN hardware business affected negatively on Tectia. *"The company had extremely limited knowledge and resources and execution capability in the hardware business.", -Vainio.*

On the financial resource side, Tectia has almost never had problems. During the first two phases, revenue/funding received through Ylönen's other firm ACR was very important, as it supported Tectia to get into the business. During the global breakthrough phase, Tectia was offered many types of funding from various firms including other Finnish enterprises and banks. Although most of the financial offers were not taken by Tectia, knowing that funding is available encouraged them to take more risks. In December 2000, Tectia conducted an IPO (Initial Public Offering), bringing in to the firm around 40 million euros in new capital. The funding and IPO enabled Tectia to survive the IT depression and product portfolio changes in early 2000. *"Without those financial resources, had we been where we were in late 2001, we would certainly not have survived.", -Ylönen.*

Managerial and International Experience

One of the internal factors limiting growth throughout different phases has been the lack of management skills and experience needed for firms doing global business. There seemed to have been a shortage of skilled managers in Finland who can run various functions compared to, for example, an US firm. Ylönen also regrets not getting in a business manager earlier at the point of establishment as that could have avoided some earlier issues with F-Secure partnerships and other direct sales cases.

Capabilities (Substantive, dynamic, and networking)

Substantive Capabilities

Amongst the substantive capabilities, technological capabilities have been, without doubt, the most important for Tectia. Their differentiator in the market has been primarily technological, allowing them to create solutions that satisfy customers' needs. However, eventually as the firm grew, their technological expertise in Secure Shell seemed to have also ended up being a limitation for further growth, as they were not able to pull out from being a just one protocol-based firm. Sales and marketing has not been as good as their competence in technology. They have been successful in marketing to the world's largest banks and retailers but the efforts have been too expensive and painful. They were not able to find good partners to take part of the load in sales and marketing efforts, thus the firm has often had to do everything on their own. Particularly in the product management function, a combination of technical and marketing understanding was needed to handle the high-tech and complex software products. Understanding the customer's need, matching it with the technology that Tectia can provide, and extracting the relevant technical information to an understandable form for both own sales people and customers was often difficult for the employees, and was limiting the growth. Shortage in sales skills as well as people who understand a certain industry was also a limiting factor for global growth. On the other hand, their managerial capabilities in *focusing* their product and customer strategies helped the firm to survive it's most difficult times during the global rationalization and maturity phase.

Dynamic Capabilities

In general, it can be said that Tectia has been able to adapt to the rapid changes in their environment and renew their resources and capabilities, and as such, they have been surviving as an independent firm now for 15 years. For example, when they started to focus on Secure Shell-based solution, they realized that the free OpenSSH had risen to a level where they had become a major competitor. Tectia eventually changed their business focus, implemented new features that was attractive to enterprise customers, and even changed their product and firm names. Also, when Tectia encountered a huge crisis with the too diversified product portfolio, their ability to change drastically the focus, cut out products, and to reorganize the personnel, certainly contributed to the survival of the firm.

Networking Capabilities

Networks for Tectia have always been very important. However, the founder Ylönen himself was not much of a networker. *"I'm too interested in technology and too busy to spend very much time networking, which is a shortcoming, but you don't have time for everything.", -Ylönen.* To compensate that, there were other individuals within the firm who possessed or acquired valuable network connections.

With the IPSec toolkit product, Tectia had a direct sales model so they were very close and intimate with their customers. The sales and support staff had to be in the customer premises to advise and implement the technology. The firm also participated very frequently in the IETF (Internet Engineering Task Force) meetings, which created new contacts and credibility within the engineering community. This became a door opener for many new IPSec customers. For Secure Shell-based solution, after the firm also started selling it directly and changed their focus to enterprise markets in 2003, Tectia treated customer relationship to be an extremely important part of the process. Being intimate with a very few, but large customers, enabled them to get feedback from customers to improve their products.

Government Support

Tectia has received funding from TEKES, mostly during the early years, but also in the later years. This was helpful for the firm, although even if they had not gotten the funding, they would have managed without it as well. "*It was important in the very early phases….But not something that determines the fate of the company...", -Ylönen.* Tectia has also used Finpro as consultants during the earlier phases for understanding foreign markets. For example, they used Finpro's service for getting deeper access to the Japanese market.

Entrepreneurial Orientation and Lateral Rigidity

Tectia's entrepreneurial orientation and lateral rigidity has been fluctuating throughout its history. The term "entrepreneurial" was illustrative of the organizational culture at Tectia, especially during the earlier years between 1995 to 2003, when the firm took many kinds of risks with new R&D projects. *"So that risk-taking was from all angles, enormous...", -Vainio.* New ideas and proactiveness were encouraged. Ylönen became an iconic figure and his presence was also important during those days. The low-conflict, flat, informal organizational structure made Tectia not just a working place, but also "a way of life", where colleagues became friends and enjoyed their time together even outside of working hours. *"A lot of the people were young and they weren't just working there. It was a way of life.", -Ylönen.* Tectia created new markets for their niche products. Since there were not too many formal procedures in place, they were always able to react quickly to customer requirements and develop new products. This entrepreneurial culture helped Tectia to grow during the early years.

Between 2003 and 2008, Tectia did not experiment so much with new initiatives. One reason was because of the scar that was left on some of the management team members from the earlier failures of VPN hardware business, who wanted to focus and concentrate on what was on the table instead of experimenting and taking risks. Another reason was because the firm was committed to a complete renovation of the Secure Shell code base in 2003-2007 and at the same time, also had to implement a lot of new features demanded by large customers. All of their resources were totally locked down, limiting them from taking new initiatives. *"We had to focus on some things…. I actually actively discouraged anything that would dilute that focus.", -Ylönen.* Tectia focused on

analyzing the current market opportunities and seeing how their products could be positioned within the existing market. In addition, in 2002 when various processes were introduced to the firm by outside consultants, the atmosphere became a little bit more bureaucratic and formalized. They also started becoming rigid, not being able to adapt to changing conditions, partly because their large enterprise customers were rigid, needing structured commitments and huge resources to continue satisfying them. Also, their unwillingness to take risks naturally made them more rigid at that time. Overall, during 2003-2008, Tectia stepped backwards in terms of entrepreneurial culture, and became less innovative, proactive, or risk-taking, limiting their growth. On the other hand, the non-existence of entrepreneurial culture during this time helped them to survive the turbulent times of IT depression and other difficulties.

Since 2009, Tectia is again trying to revive its entrepreneurial culture. *"The risk-taking is part of the growth… if you don't want to take risks, so definitely you don't grow.", - Mielonen.* They are also trying to take part of the rigidity away by re-organizing the organizational structure and processes, product strategy, and changing the culture of the firm. It remains to be seen if their entrepreneurial culture will yield rapid growth or survival crisis.

Software Business Specific Factors

Compatibility with Major Players

Being compatible with major players in the market is critical to Tectia for both growth and survival. *"It's just condition to be in the business. It's mandatory.", - Vainio.* One of the firm's strength and core competence has been the capability to deliver their solution to almost any kind of operating systems such as Windows, Unix, and mainframes, which are used in enterprise networks. For example, being one of the rare firms to be able to support IBM z/OS platform, it has opened doors to many new large customers who in the end install also the same products to many other platforms, as the customers usually want to get all the same products for various platforms from one single vendor. However, supporting the vast amount of operating systems used in enterprise networks can be extremely resource consuming and expensive as it requires the best resources to

test and fix the bugs for the same products on various platforms. As such, this expensive procedure has also, in a way, hindered the growth and profitability of Tectia, as it took so much of their R&D resources. In order to avoid the negative effect of supporting too many platforms, Tectia has needed to make strategic choices of which platforms to support and which not, based on how widely those platforms are adopted. For example, Apple's Macintosh and IBM AS 400 have specifically not been supported, even if there have been requests from customers for support, due to needing to prioritize their resources. Still, Tectia has made some wrong decisions in choosing which platforms to support in the past, which has ended up being expensive for the firm, possibly hindering growth. For example, SSH Tectia for Linux running on IBM POWER and z series did not sell and was eventually pulled out of the market.

Lock-in Effect

Lock-in effect is critical to Tectia for both growth and survival, especially during the introductory and commercial breakthrough phases, just when you are still the early players in the market with niche products. Once the customer has chosen Tectia's product, it is difficult for enterprise customers to change the key infrastructure and security vendor frequently. *"It's something that, for a startup that's early in the market it can be very important, that you get to the customer first, you get the customer to use your products. It's much more difficult for someone else to go there after that, to replace you.", -Ylönen.*

Software Development Process

Mastering the software development process is critical for growth of Tectia but depends on different phases of the firm growth. Not mastering the software development process does not necessarily ignite survival crisis. Tectia's software development process in the introductory phase was very informal and highly agile, using mostly implicit specifications. They considered this agile process to be critical in order for a small firm to quickly create a unique and credible product. However, as the firm continued to grow and expand their business to enterprise customers, they realized the importance of having a stable development process with predictable, systematic procedures, which

was then introduced in 2003. Despite this new process, for a couple of years, the firm had a challenge of being reliable with their release schedules, maintaining high quality, and executing the promised roadmaps. Especially with the release of Tectia version 5.0 which included a total re-write of the back-end code, there were many bugs after it was released, requiring the R&D to fix the bugs, test the software, and do maintenance releases many times. This took a lot of valuable resources from the R&D team, which was not able to then focus on investing in any new products. Tectia had a lot to learn in terms of how to develop products and maintain them for demanding large enterprise customers. This hindered growth for Tectia for some years between 2005 and 2007. *"I think it was not really a survival risk but it really hindered the growth.", -Vainio.*

Open Source Software

The existence of open source software, especially OpenSSH, has negatively affected on Tectia's growth related to the Secure Shell-based products, especially during the mid years (2000-2008). Tectia encountered situations where prospects preferred to install the free version (OpenSSH) instead of their products, which cost money. OpenSSH took away an enormous part of their accessible market and Tectia was forced to re-focus their target segment and introduce new products and services that catered to the larger enterprises. The firm also changed their firm name from SSH Communications Security to Tectia in April 2000, to be in line with the new positioning strategy. *"We needed to decide how to change our positioning, how to change our target group, how to change the product so that we can still remain in business if somebody is giving the same thing for free.", -Ylönen.*

In general, Tectia considers existence of open source software to be a global phenomenon that no one can hinder, and as such, businesses should taken advantage and seek opportunities in utilizing open source software. In retrospect then, Tectia should have probably handled the rise of OpenSSH differently in the earlier phases. OpenSSH was built based on the original freeware release of Secure Shell by Ylönen in 1995. Controlling that community and building Tectia's business solution on top of that may have yielded different growth opportunities for the firm.

Now, Tectia does not consider OpenSSH as their competitor but as part of their ecosystem. Tectia has now accepted the fact that OpenSSH's penetration and installation base is extremely high on a global basis, and that there is no point in treating them as enemies but to take advantage of their installed base and even build on top of that. *"OpenSSH is actually our best colleague in future...", -Mielonen.*

Software Business Model and Growth Strategies

In the software product business, cost of goods sold is very low, allowing firms to achieve higher margins and speed up growth. It also allows firms to go global on the spot, or sometimes it is even needed if you are a software start-up in Finland, due to the small home market size. *"... software business can be global on spot so it doesn't need physical channels, such much or it can be also distributed in very fast way...", -Mielonen.* By selling software products, Tectia usually received a one-time license fee, and with larger enterprise customers, also annual maintenance fees for providing support services. These incurring maintenance revenues enabled the firm to have some predictability of future income flow. However, quite often, the firm was dependent on trying to close a bigger deal at the end of each quarter to receive those big one-time license revenues. In order to have more growth opportunities, Tectia will charge for consulting fee as a third element in their revenue stream, which is often required from large enterprises. In this way, Tectia is not only selling software products but also software know-how.

Although their software products have been developed to be a standardized product, there has been too much customization done for big key accounts that requested additional features. The R&D team has often been locked into trying to serve these bigger accounts that other new product development work was neglected. There was just not enough resource for that. In the future, Tectia is trying to limit customization as much as possible. Their opinion is that software products cannot be multiplied for economy of scale if you keep on customizing. The core product should not be touched. However, since they cannot avoid getting special requests from big key accounts, they

are trying to make some of the products as simple as possible, with parameters, so that customization level would be decreased.

4.2 Remedy Entertainment

4.2.1 Firm Background and Characteristics

Remedy Entertainment Oy (Remedy) was established in 1995 and is a privately held developer of state-of-the-art action games, game franchises and cutting edge 3D game technology. Remedy's mission is to be among the very best action game and game technology development firms in the world by developing and producing world-leading game-based intellectual properties. The firm has focused on this mission utilizing innovative ideas, quality content, state-of-the-art technology and – most importantly – the right team of people to put it all together. Their headquarters is located in Espoo, Finland.

Their highly acclaimed games include "Death Rally" (PC, 1996), "Max Payne" (PC/Xbox/PS2, 2001), "Max Payne 2: The Fall of Max Payne" (PC/Xbox/PS2, 2003), and "Alan Wake" (Xbox360, 2010). Despite having released only four games in 15 years, the firm does fine as all of their titles have been received very well. Remedy is also responsible for the popular benchmark application 3DMark. Initially created as "Final Reality" in 1997, Remedy soon established another firm Futuremark to handle it.

Remedy's direct customers are publishers who fund the development of games and handle the marketing, PR, manufacturing of the actual physical product, packaging, and distribution channels of the games. However, their final end customers are the actual players of their games.

There has been quite a fluctuation in the development of sales revenue due to the hit-based nature of the gaming industry. The peak for sales was in 2003 with 6.57 million euro and 24 employees, thanks to the "Max Payne 2: The Fall of Max Payne" release. 2004 revenue was from royalties from "Max Payne 2: The Fall of Max Payne" game sales. The revenue from 2005 onwards has been mostly from Microsoft Games Studio in the US. They have been funding the development of "Alan Wake" game. The reason

that there is no revenue in 2008 is because Remedy failed to reach certain milestones during that year that were set in the publishing contract. With regards to the number of employees, Remedy has pursued a slow growth path of increasing their headcount. At the end of 2009, there were 46 employees working full-time for the firm (see figure 13 and 14).

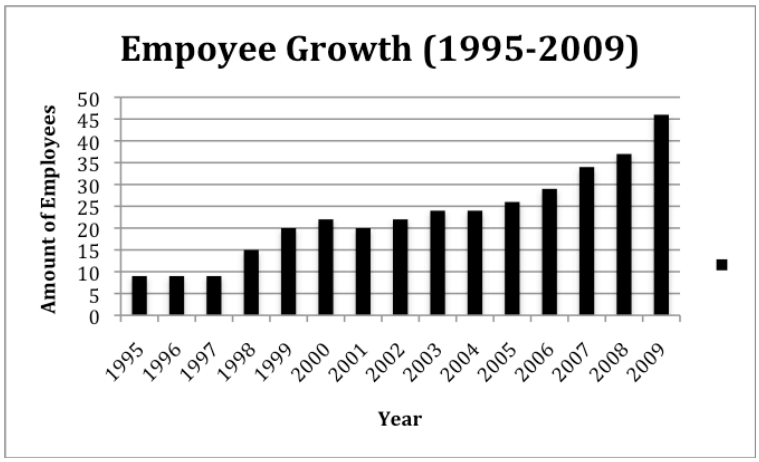


Figure 13. Remedy's employee growth

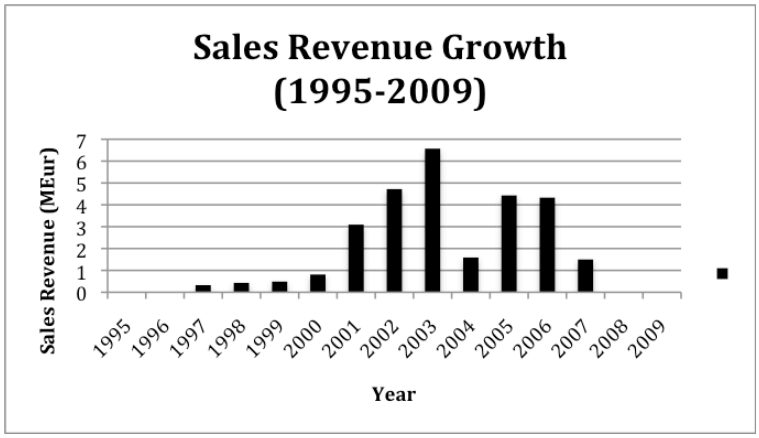


Figure 14. Remedy's sales revenue growth

It was obvious to Remedy even before founding the firm that they are seeking to globalize. In order to succeed in the gaming industry, one must have big hits for their games and US has traditionally been the biggest market for games, especially back in 1995 when the firm was founded. As such, it was natural for them to target the US

market. Also, the fact that they are based in Finland with such a small market has pushed them to think global from the start.

Concerning the share of foreign sales, due to the fact that Remedy sells their games to publishers in the US, both their internationalization degree and globalization degree has been roughly 99% since the establishment of the firm (see figure 15). They do have some small income generated within Finland by providing IT services to, for example, Futuremark. Thus, Remedy adheres to the Born Global criteria.

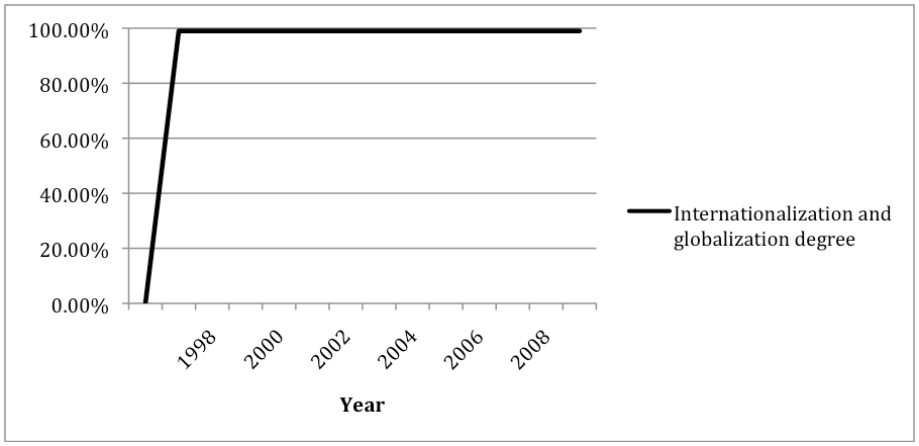


Figure 15. Remedy's internationalization and globalization degree

4.2.2 The Development of Remedy in Phases

Due to the fact that Remedy has focused on producing game products and also due to the nature of the gaming industry, the firm does not follow the 4-step phases under investigation in this research. There is 1) introductory phase, but 2) commercial breakthrough and foreign growth and 3) global breakthrough and expansion phases seemed to be combined. Figure 16 provides an illustration of organizational development in terms of growth and foreign expansion.

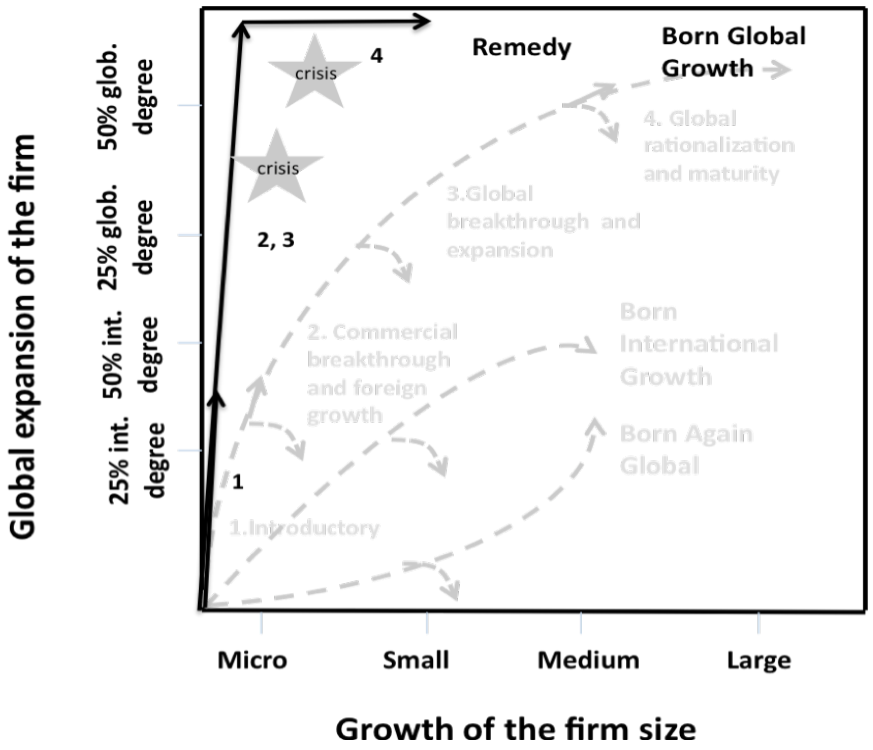


Figure 16. Main path and phases of the growth of Remedy

The Introductory Phase: 1995-1996

Markus Mäki, Sami Vanhatalo, and some others were friends from the demo scene group Future Crew during their studying times. They were all computer enthusiasts who were looking for something fun to do after their studies. The business idea for the firm was born six months before the establishment, during the summer 1995, when they did concepts and prototypes from a few games. Remedy was registered as a firm on August 31, 1995.

In the gaming industry, there are no pilot sales done, as such. Remedy showed the demo version of "Death Rally" to an US firm called 3D Realms, who liked it and decided to become their publisher for the game. 3D Realms then worked with GT Interactive to get the games distributed to end customers all over the world. "Death Rally" was ready for sales and released in October 1996.

Commercial Breakthrough and Foreign Growth & Global Breakthrough and Expansion Phases: 1996-

"Death Rally" sold roughly 100,000 copies in 1996 and was considered a large volume back then. Since the publisher, 3D Realms, did the actual sales and distribution, Remedy has no recollection of which countries the game was actually sold in. It is assumed that the game was sold at least in the US and Europe.

During the commercial breakthrough and global breakthrough phases that continues to date, there were three critical decision-making points that changed the direction of the firm. First of all, Remedy developed a benchmark product "Final Reality" in 1997 and spun-off a new firm Futuremark to handle the business. While Final Reality was an unbelievable success, it did not fit into Remedy's focus of creating action-packed games. *"That was all part of the focus mantra…. you don't want to do tires and mobile in the same company. So it's just basic rule of business, focus, and Remedy is focused on making games.", -Mäki.*

Second, the sale of "Max Payne" IP ownership to Take-Two Interactive Software (US firm) in May 2002 was very critical to the firm. Remedy and 3D Realms shared the ownership 50:50 of the "Max Payne" IP but the sale to Take-Two Interactive Software for US$10 million and 969,932 shares of stock allowed Remedy to take the whole year of 2004 into brainstorming and coming up with new ideas and new technology that eventually led to the development of "Alan Wake" game launched in 2010. *"Money wise, that's easily the biggest decision that we've ever made.", -Reini.*

Third, signing of an exclusive agreement with Microsoft for the development of "Alan Wake" in 2005 steered the firm into one definitive direction. More details can be found in section 4.2.3 under "Compatibility with Major Players".

Last but not least, various big decisions related to the development of "Alan Wake" game during 2007-2008 were critical to the success of the firm. After Remedy started developing the "Alan Wake" game in 2005, they made some important changes in their vision during 2007 and 2008 so that they started to pursue a different direction for the

game than what they had initially planned. This was a turning point for the production of the game so that it would proceed towards getting it completed.

During these phases, Remedy experienced crises, as funding was short from publishers in 2001 and 2008, requiring them to look for external financing to survive.

Global rationalization and maturity

"Global rationalization and maturity" phase under investigation in this research does not seem to be applicable to Remedy due to the fact that they do not operate in any other parts of the world and their growth and development fluctuates according to the product development cycles.

Rationalization Phase : 2008-

However, they realize the need to rationalize their operations constantly as requirements for high-end games and technology change rapidly and they need to keep their costs and expenses of development in check. Especially when they are producing one game at a time, it makes more sense to outsource or freelance some parts of the work instead of having internal full-time headcounts. Although their full-time employee amount has been increasing slowly over the years, they used a network of freelancers even more for the recent "Alan Wake" development.

Survival Crises and Other Challenges

Remedy has been at a risk of going out of business a couple of times in the past when funding was stopped from the publisher's side. About one year before "Max Payne" game was released, Take-Two Interactive Software stopped the funding of the project, which put Remedy at a difficult situation. *"I do remember times just before Max Payne 1 game came out, we were always counting how much money we have left for like, whether it's 4 weeks or 2 weeks money left, and we were always on the brink of disaster.", -Reini.* However, they were lucky to have their producer 3D Realms who believed in the project and decided to fund the project so that Remedy could finish developing the game.

Since Remedy closed the publishing deal with Microsoft Games Studio in 2005, they have been mostly funding Remedy to develop the "Alan Wake" game. Although Remedy had enough cash from the "Max Payne" IP sales, towards the end of 2008, they realized that the development was going to take much longer than planned and Microsoft stopped funding because Remedy could not reach their milestones. Remedy had to apply for external funding sources in order to survive.

Table 5 summarizes Remedy's development to date.

Table 5. Summary table of growth phases of Remedy.

Phase	**1. Introductory (1995-1996)**	**2. Commercial breakthrough and foreign growth** **3. Global breakthrough and expansion (1996-)**	**4. Rationalization (2008-)**
Key strategy	Development of commercially acceptable products, securing adequate finance.	Selling products in large volumes to reach economies of scale. Inventing new IPs such as "Max Payne" and "Alan Wake".	Developing "Alan Wake". Rationalizing operations to avoid further delays in release schedules, managing costs.
Growth of the size of the firm (sales, employees)	Sales: almost none, dependent on funding from publisher. Employees: grew from 4 to 9. Still categorized as micro-sized firm.	Sales: major fluctuations due to the hit-based nature of the gaming industry. The peak in 2003 with 6.57 million euro thanks to the "Max Payne 2: The Fall of Max Payne". The revenue from 2005 mostly from Microsoft Games Studio. Employees: growth to 37 in 2008 and from micro to small-sized firm.	Sales: close to none for 2008 due to development delays. 2010 revenue expected to jump up from the release of "Alan Wake". Employees: growth to 46 in 2009. Still categorized as small-sized firm.
Global expansion (markets, share)	This phase was only about developing the product, no global expansion yet.	Internationalization and globalization degree at 99% due to the fact that all their income came from game publishers in the US. Games sold in at least 3 continents.	Same as the earlier phase.
Operation mode and networks	Building networks with publishers.	Export (NIMOS) to publishers in the US. Creating a huge network of freelancers.	Same as the earlier phase.
Products	Focused on "Death Rally" product.	Focused product offering. Expansion of the product offering by introducing new products to current and new customers. "Death Rally" in 1996, "Final Reality" in 1997. "Max Payne" in 2001, "Max Payne 2" in 2003, and "Alan Wake" in 2010 including localization for major markets.	Focused on "Alan Wake" product. Search for new growth opportunities by becoming a producer of game-based intellectual properties and licensing/franchising the IPs.
Organizational Structure	Systems, structures, and formality are	Slowly adopting more functional, formal structures. Decentralized	Bureaucratic principles, formal structure with

	almost non-existent with informal communication.	structure, more responsibility given to the managers in each field, with greater authority and incentive. Formal communication and business processes supported by IT systems.	standardized rules and procedures. Centralization and decentralization balanced. Emphasis on improving software development processes.
Survival crisis in end of phase	None.	Funding issues from publishers in 2001.	Funding issues from publishers in 2008, need for external financing to survive.

4.2.3 Factors Influencing the Growth and Survival of Remedy

Industry Development Since Establishment

The gaming industry has been enjoying a very high growth rate over the years, which has been a positive influence on Remedy's growth and survival. According to PricewaterhouseCoopers' Global Entertainment and Media Outlook report for 2008, the projected compound annual growth rate for the gaming industry is 10.3%, which easily tops the growth in the majority of other entertainment sectors. Console games have the highest sales with an expected growth of 6.9% from $24.9 billion in 2007 to $34.7 billion in 2012 (Ars Technica, 2010).

Also, the rise of console market has contributed to their growth and survival. Max Payne was initially developed only for the PC but while it was being developed, the console market grew and grew, convincing publishers to also have the game for the consoles. Max Payne series' unexpected huge success can be attributed to the sudden and quick rise of the console market.

However, during the last few years, the situation has not been so good for the independent game developers. Because most of the large publishers are publicly listed firms, they are under pressure to make their goals and manage their risks. This leads to the fact that large publishers are avoiding taking risks in funding new IP titles or an external firm and rather funding their internal development teams since they would have more control over what happens within the internal environment. Even if they would decide to fund an external developer for new IP titles, they have such a huge bargaining power over the smaller developers that they may require the independent developers to develop the game but claim for the IP ownership or fund less with strict schedules. The

powerful publishers can also terminate the publishing deal at any time and once that is terminated, independent game developers usually have difficulty in retaining any employees anymore, leading to lay-offs or bankruptcy. This situation has not had such a big impact on Remedy due to the fact that they already have a publishing deal for "Alan Wake" development thanks to their past record of releasing successful games.

There seems to be some cultural differences in how a game is preferred by different nationalities/markets. For example, US is likely to prefer more fighting games, whereas Europeans like racing games and Japanese likes role-paying games (Reuters, 2004). There are also cultural sensitivities that game developers should take into account. Remedy has been trying to create their games in a Hollywood-entertainment style aiming for the wider audience group, but primarily the US and European markets. Thus, their 46 employees consist of nine different nationalities in order to understand the wide audiences' preferences and cultural differences.

Competition in the gaming industry can be divided into three levels. First, Remedy competes with other independent game developers to get publishing deals. Major competitors include Bungie, Epic Games, and Valve Software, all based in the US. Then, once the game products are out in the market, they compete with other game products that are available in the store at the same time. Finally, the game industry as a whole competes with other forms of entertainment, such as movies and short weekend holiday trips to win the free time that consumer has. The intensity of competition does influence their growth and survival to some extent.

Remedy has not experienced any trade barriers and even if there were such barriers, those usually exist in unimportant market area or then are handled by the publishers.

Development of Most Critical Resources and Capabilities Since Establishment

Resource Amount

One of the most important intangible resources that have been critical to the firm has been the people they employ. As a creative business, the value is in the people who are creative and productive. Then these people together create a brand, which gives birth to

a value of its own. The brand and IP can then be utilized in further business without the people who originally created the brand. So the people, the firm brand "Remedy" and IP/brand such as "Max Payne" and "Alan Wake" have been extremely important resources for the firm. The knowledge of the gaming industry, which the firm has acquired and accumulated over the years, also make them more unique and successful.

External financial resources have also been extremely critical for Remedy, as the publishers usually fund their game developments. If funding from the publishers is stopped due to not reaching milestones, it can affect both their growth and survival. Remedy has been in such position where they had to also apply for other external financing such as from banks and insurance companies. Their internal savings from the past IP sales of "Max Payne" has also helped them survive during the past couple of years while developing "Alan Wake".

Managerial and International Experience

Markus Mäki (founder/top management team member) established Remedy and also was part of establishing Futuremark, their spin-off firm, but did not have prior international business experience. With regards to the other three management team members, only Lasse Seppänen had some experience with another start-up firm, but Mika Reini and Matias Myllyrinne did not. Thus, as entrepreneurs, as of 2010, Mäki has about 15 years and Seppänen about three years, totaling 18 years.

With regards to international business experience, the top management team members did not have a lot of experience prior to joining Remedy except for Matias Myllyrinne from working in the hotel industry earlier in the UK. Experience in gaming industry totaled to 44 years (Mäki 15, Myllyrinne 11, Reini 10, and Seppänen eight years), compensating for the lack of international experience.

Capabilities (Substantive, dynamic, and networking)

Substantive Capabilities

Remedy considers that technological competence needs to be competitive in their games but focuses in trying to be the best in certain technical features and be just "good" in

some other technical areas, so not to end up taking forever to develop a product. On the other hand, Remedy considers marketing competence to be extremely important especially when it comes to understanding brands and differentiating the products. One of the most important capabilities for Remedy related to marketing is the capability to create sustainable IP and brand (Myllyrinne, 2009). The artistic competence required in defining the graphic look to games done by Art Directors and other artists within the firm is also important. Preparing for presentation and demos of the game before it is released, what they say, how they say it, and how they show it, are something Remedy puts a lot of efforts into. *"There are many levels of marketing as such that needs to be really understood.", -Reini.*

Management capability is something Remedy has been developing and improving over the past few years and considers it also very critical. They have been hiring experienced managers who know already how to manage people and tasks to lead positions. *"It's great having a team of extrovert artists with great ideas but you also need to be able to manage them, Management is a key role – 10-15% head count." (Myllyrinne, 2009)*

Dynamic Capabilities

Remedy has been able to adapt to the rapid changes in the environment and can be said that they possess dynamic capabilities. For example, they used to be developing games solely for the PC market, but as they saw the rise of console markets, they switched their technology and invested in new resources to start creating games for consoles during 2004-2005. They have also changed the management structure during the last few years so that the Board of Directors can focus on strategic issues while Top Management Team handles the operational decisions.

Networking Capabilities

Remedy has been putting efforts on building networks and connections as they consider them critical for their growth. As individuals are the ones who build the connections, they have traditionally sent their employees to different tradeshows and events related

to gaming industry every year so that they get new influences, meet new people, and thereby build connections to the outside world.

Different phases of game development often require specialized expert talents that may not be relevant throughout a game's entire development cycle. If they would have every specialist in-house, they would need to grow faster and develop products much faster in order to support the massive overheads. Thus, over the years, Remedy has employed freelance artists, animators, motion capture actors, casting agents, movie producers/directors, audio designers, and so on. They have a dedicated person handling outsourcing issues and retain network of freelancers who they have worked with in the past. Through the network of various partners that they trust, a small firm such as Remedy can develop a game like the recent "Alan Wake". *"Freelancing and outsourcing is definitely a trend that's growing and becoming more and more important for us and for the whole industry.", -Reini*.

Government Support

Remedy received a start-up loan from Kera, nowadays called Finnvera[1], during the introductory phase. Remedy has also received funding from TEKES in every major project that they have done. For example during 1997-1998, Remedy joined TEKES-funded project such as "Computer games' development environment" and "Applicability report for new processor technology to game development environment" (Remedy Entertainment, 1999). They have even received funding from TEKES recently in 2009. Altogether, Remedy has received in total of about 2.1 million euro of support from TEKES (Ahlroth, 2010).

Entrepreneurial Orientation and Lateral Rigidity

Remedy's entrepreneurial orientation and lateral rigidity has changed during its history. The firm took more risks in the earlier phases when there were almost no structures and

[1] Owned entirely by the Finnish State, Finnvera was formed by merging the activities of Kera Corporation and the Finnish Guarantee Board (FGB) on January 1, 1999. Finnvera's domestic

processes in place. Everything was very flexible and agile with almost no bureaucracy and hierarchy. It was more like friends working together, having fun as if it was their hobby. *" ...the company didn't start even paying regular salary until 97.", -Reini.*

Since 2000, they have been embracing "focus" as the key strategy, thus limiting experimentation on new initiatives. However, in general, the gaming business is a risky business. Especially during the past five years, Remedy has bet everything on just one product, the "Alan Wake" game. As such, they are not afraid of taking risks. However, they still try to avoid taking risks where they can, so that they do not try everything new at the same time. If they do take smaller risks here and there and they fail in those, they are a "forgiving" firm in a sense that they do not personify the failures and consider it as a collective learning experience for the firm. Failures are *"the only hope as an organization to keep learning.", -Reini.* They have also tried to analyze the risks so that it would be a minimal risk and that there would be a very good chance that they have made the right choice. *"We are and have been embracing focus a long time, for the last 10 years or so, it does limit the wacky ideas that people get. So people might voice out their ideas but the focus then sort of kills those ideas at the same time.", -Reini.*

Remedy is aware of the emerging opportunities in the market but has consciously made decisions not to pursue new initiatives. For example, there has been emerging opportunities in the Internet, social, and mobile gaming but they have analyzed that the key success factors that have supported them in the past are not in those new areas and that they should rather focus on what they are good at, instead of taking the risks in pursuing those new opportunities. In one sense, they have been conservative, in another sense; they have been focused in becoming the best at what they do.

Since 1999 onwards after the current CEO Matias Myllyrinne and CFO Mika Reini came on board with their business backgrounds, structures and some processes were put into place little by little so that business would be conducted in a bit more organized way. Also, as their firm grew in size of employees, they have put efforts in making sure that information flows in both formal and informal ways so that every employee have

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development and financing solutions are particularly geared towards small and medium- sized companies, and thus Finnvera also helps to promote the government's regional- policy objectives.

enough information to be productive at their work. *"I'd say we are a more rigid company than we were.", -Reini.* However, as a creative firm, they realize the need to also have some chaos that empowers employees to do things in a creative manner. Thus they are trying to have a balance between a flexible, chaotic atmosphere and an organized, structured processes.

Software Business Specific Factors

Compatibility with Major Players

Being compatible with major players in the market and making the decisions which platform to support is critical to Remedy for both growth and survival. Game products can be developed for, for example, PC, various consoles, mobile phones, and the Internet for social interaction games. Remedy has traditionally focused on developing their products for the PC and their publishers have done the porting to other consoles. "Max Payne" was released in 2001 for Microsoft Windows, in 2002 for Xbox, PlayStation 2, and Apple Macintosh, and in 2003 for Game Boy Advance. The more compatible their game is to different platforms, the more revenue and growth for Remedy. *"... how compatible, what platforms you run on defines your potential market for buyers instantly. So if you only have Xbox 360, you have about 30 million. If you also add PS3, you would add 25 more million...", -Mäki.*

However, for the very recent "Alan Wake" game, they have made a conscious decision to support only the XBox 360 console with an exclusive publishing deal with Microsoft Games Studio. This does limit the opportunity to sell more in terms of units, as the game cannot be played on other platforms such as Play Station 3. However, their "focus" strategy came into play again back in 2005 when they made the decision, so that they would focus on developing the product well for one console, instead of trying to do it for various platforms. Since they had been developing games earlier for only the PC version, they had to put resources into learning how to develop games for consoles, and focusing on only one platform decreased their risks in technology investments. The

exclusive deal with Microsoft also brought them other benefits, such as better funding and marketing power for the product.

At the time of making the decision to develop only for the XBox 360 platform, they, in a way, gambled and took risks in choosing the platform, as at that time, they did not know yet whether the new console XBox 360 would have enough installed base when the game would be released to the market.

Lock-in Effect

Lock-in effect does not usually exist for game software.

Software Development Process

In the earlier phases of Remedy's history, a structured software development process did not exist and the process was more in the minds of the employees. That made the firm very agile. After 1999, some processes were introduced. However, it took more than five years to develop the recent "Alan Wake" game. Some of the reasons why it took so long is because they have had to switch their technical expertise from supporting PC platforms to consoles, and also had to come up with new ideas/IP of the game. But another reason is because of some wrong decisions that were made during the R&D phase and difficulties in keeping schedules with all the milestones. Developing a game is not just about hard-core engineering work but contains a lot of elements of creativity, and creativity is not something that can be produced with a strict schedule. *"If it's a new game with untested ideas, it's very difficult to make a schedule that we can stick to at every point in time.", -Reini.*

The lack of proper software development process during the initial phase of Alan Wake development has hindered the growth and may have influenced negatively on the survival of the firm. If they had been able to develop this game quicker, they could have already been developing the sequel now, contributing to more growth. The lengthening of the development process could have also damaged Remedy's reputation as a firm, influencing negatively to the survival rate of the firm, because if publishers perceive

Remedy as not being a reliable firm, they may not wish to do deals with Remedy again even if they would produce successful games.

As such, Remedy views having a *"correct"* software development process in place are critical for both growth and survival and they have introduced new processes, or what they call *"organized way of doing things",* during the last five years. However, during the earlier phases of a new project, the process should not be so rigid and too structured. There should be room for freedom, flexibility, and creativity, allowing exploration time. As the project progresses, the process should become more and more rigid, allowing more predictability in meeting milestones and release schedules.

Open Source Software

Remedy so far does not consider the existence of open source software as a threat to their business. This is because open source teams are not able to produce games that are similar to Remedy's games, due to the limitation in budgets. They are basically competing in different types of game market.

Software Business Model and Growth Strategies

There is a limit to growth for Remedy as a firm selling only software products and also operating in a hit-based industry. Also, if they fail with one game that they have been developing for several years, it affects their survival rate negatively. What's even worse is that in the current gaming business model, retail chains take "used games" in and sell them onwards, but the original independent game developers do not get royalties for those sales. The unique nature of software being "electronic and digital" and being easy to distribute does not yet apply to gaming industry, since selling a game product in physical box is still the norm. If distribution of games digitally would be adopted some day, this can contribute to the growth of Remedy, since one cannot sell an electronic version back to the store. Also, many new business models can be explored, such as selling only parts of the game at a time.

Since Remedy is aware that there are limits to growth as a product firm, they are now in the middle of coming up with a new strategy for further growth. One of them is that

they will become “creators of a game-based intellectual properties”. The IPs that they create can then be used outside of the games arena by franchising and licensing the right to use their IPs, such as for movies, books, and other entertainment goods. Being owners of such IPs and licensing the rights to use it in other areas connect directly to further growth for Remedy. Another idea is to start the pre-production of another new project while still working on the current one. In that way, there would not be idle time for different parts of the production team. Also, they could start creating games based on somebody else’s IPs, such as a game based on some hit movie, by licensing that IP.

They are not entering the software service model as such, which is common in many other software product firms but whatever of these growth strategies they pursue, they are aware of their growth limits if they stay only in the software product business.

4.3 Smartner Information Systems Oy

4.3.1 Firm Background and Characteristics

Smartner Information Systems Oy (Smartner) was established in September 1999 and was a privately held leading developer of mobile software solutions, especially mobile push email software for consumers, enterprises, device manufacturers, and telecom operators. Their headquarters was located in Helsinki, Finland.

In April 2005, Smartner was acquired by SEVEN Networks (SEVEN), a US-based provider of software solutions that enabled mobile operators to offer their subscribers secure, low-cost, real-time access to critical information including business and personal email and applications. SEVEN’s presence in the US and Japan, and Smartner’s presence in Europe and Asia Pacific made them a perfect fit to become the truly global leading firm in the industry. SEVEN is now the world’s leading provider of integrated mobile platform for wireless operators and device manufacturers that allows them to simplify the delivery of mobile data, applications, and services to a broad portfolio of devices. The original Smartner and SEVEN’s integrated, unique push technology makes it easy for consumers and enterprises to gain real-time access to information such as business and personal email, calendar, corporate directories,

personal contacts, and documents. To date, more than 130 operators worldwide have adopted their solution.

There has been quite a fluctuation in sales revenue, between 0-2 MEur until 2005, when the sales jumped up to 6.5 MEur, the same year as the acquisition by SEVEN. With regards to the number of employees, Smartner started off with four employees during the establishment year and grew to 53 in 2001. After some downsizing, there were 41 at the end of 2005 when they were acquired. At the end of 2008, there were 86 employees working full-time for SEVEN in Finland with 8.74 MEur in sales (see figure 17 and 18).

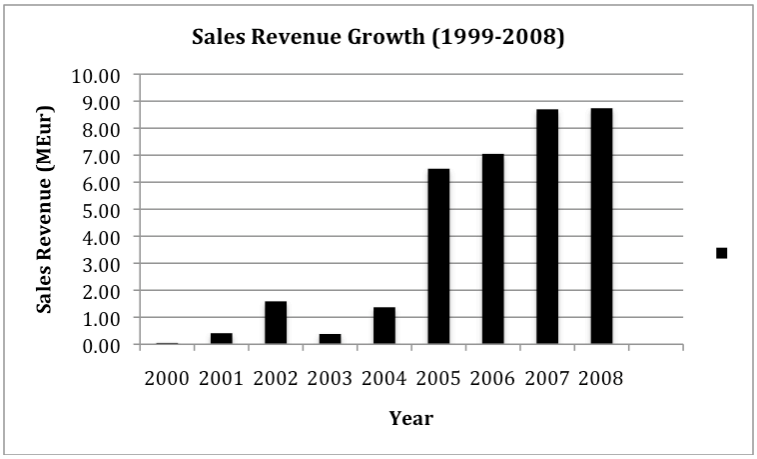

Figure 17. Smartner/SEVEN's sales revenue growth

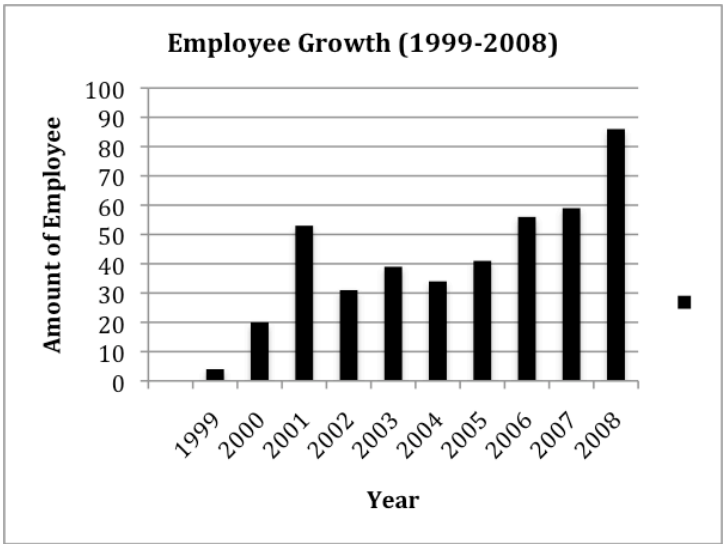

Figure 18. Smartner/SEVEN's employee growth

It was obvious to Smartner even before founding the firm that they are seeking to globalize. They wanted to establish a software product firm to be able to scale, and in order to really scale, they knew that they would have to go global immediately.

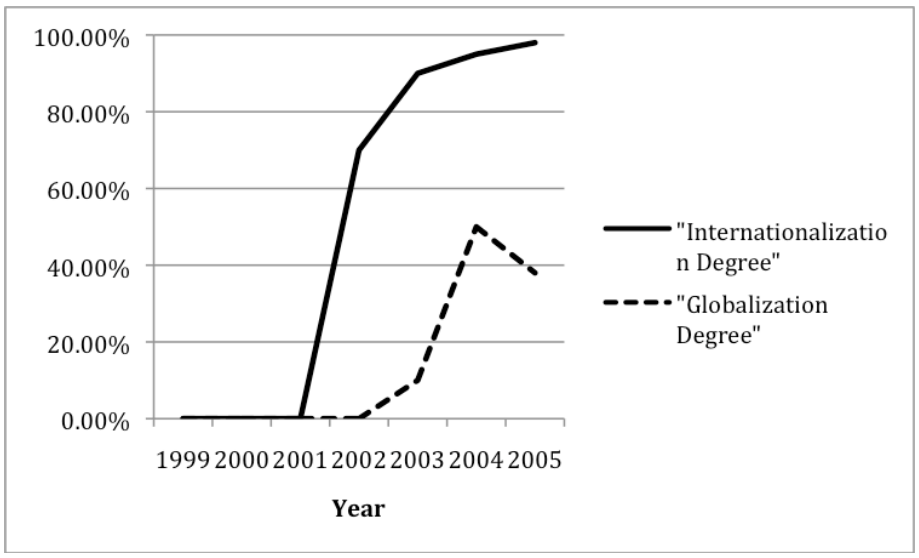

Figure 19. Smartner's internationalization and globalization degree

Concerning the share of foreign sales, at the end of 2002, three years after establishment, the internationalization degree was 90% (of net sales, 10% was from Finland and 90% from other European countries). The globalization degree was 0%. At the end of 2005, six years after establishment, the internationalization degree was 98% (of net sales, 2% was from Finland, 60% from other European countries, 38% from outside of Europe) and the globalization degree was 38% (see figure 19). Thus, Smartner adheres to the Born Global criteria.

4.3.2 The Development of Smartner in Phases

Smartner has gone through the first three phases 1) introductory, 2) commercial breakthrough & foreign growth, and 3) global breakthrough and expansion as an independent firm, and entered 4) global rationalization and maturity phase when it was acquired by SEVEN. Figure 20 provides an illustration of organizational development in terms of growth and foreign expansion.

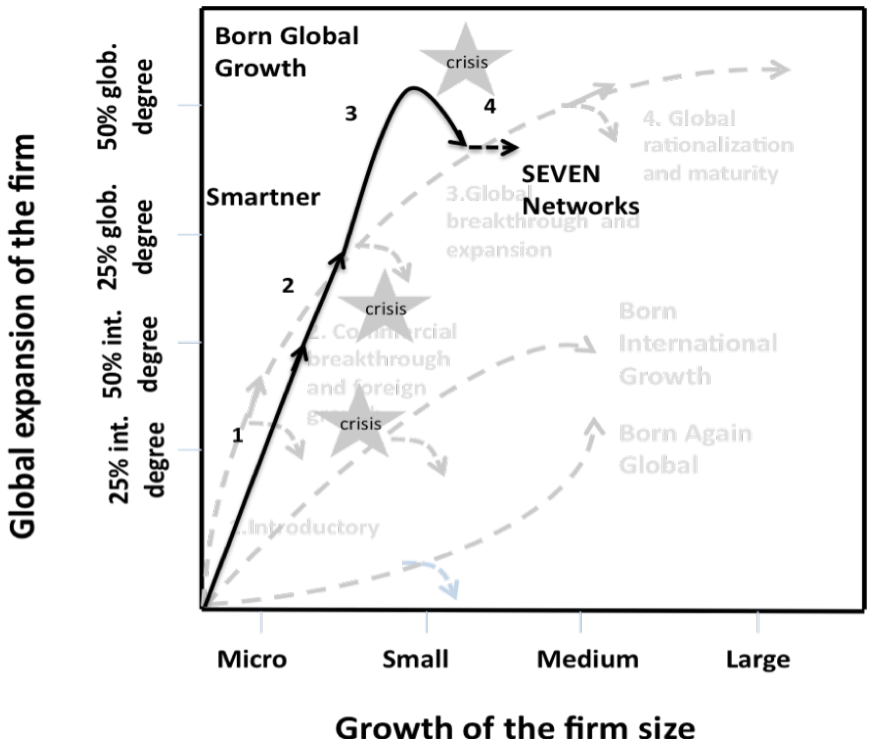

Figure 20. Main path and phases of the growth of Smartner/SEVEN

The Introductory Phase: 1999-2001

Jussi Räisänen, then a third year student at the Helsinki University of Technology (now Aalto University School of Science and Technology) and Mika Uusitalo, a fresh graduate from the same university, were friends from the same student club as well as from working together at Digia. In July 1999, Uusitalo started to think of starting his own business and asked Räisänen if he would be interested in joining. Together during the summer, they brainstormed what the business could be, and eventually in August, settled with the idea of creating a mobile platform that interfaced with the Internet. The firm was registered on September 14, 1999. Uusitalo took the role of looking at the technical side while Räisänen, the sales, marketing, and business development side.

Soon after, Räisänen and Uusitalo both acknowledged the fact that they were both junior and were inexperienced in running a firm on their own. They wanted to have experienced experts in managing the business and financial aspects as soon as possible. A friend of both Räisänen and Uusitalo, Ari Backholm joined as CFO, bringing in his financial management experience from Sedecon and McKinsey&Company, right after

the firm was registered. By late 1999, Robert Rasmus, an experienced manager from Sonera joined as CEO, completing what they called the four "entrepreneurs".

The first half a year was spent on fine-tuning their business plan. After getting the first round of funding, the firm realized that the original business plan was not something they wanted to pursue. In the summer of 2000, Smartner made a critical decision in changing their product and channel strategy. Instead of continuing to try to sell a platform for mobile enterprise services that ran various applications, they would concentrate only on mobile office that brought email and calendar functionalities to the mobile phone, and use only operators as the channel. Their first commercial product Always-On-Mail ("MoMail", or "Smartner Email Extender" and "Smartner Calendar Extender" at the time) was ready for sales by early fall of 2000. Very soon, the firm started closing deals in Finland; DNA in December 2000 and Radiolinja (currently known as Elisa) in spring 2001. Despite the success in closing deals with these Finnish operators, the firm started to feel the effect of the burst of the IT bubble. It was getting difficult to get the needed funding for further growth. Also, *"all the way until 2002, people just weren't really ready for these kinds of solutions.", -Räisänen*.

Finally, Smartner was able to get the second round of funding but the amount was smaller than expected, and the firm faced a challenge of needing to grow further with limited resources. Smartner had to change their business plan. Instead of setting up offices abroad, they downsized the firm and restructured the organization. Closing the first international customer became the number one priority. The firm also saw the need to focus on "customer adoption". Even if these Finnish operators bought the mobile email product from Smartner, unless the mobile operators' end customers would adopt or start using mobile email functionality, they would eventually drop the product. In order to have a commercial breakthrough with their product, Smartner had to figure out a way in which the end users would actually really start using their product.

Commercial Breakthrough and Foreign Growth Phase: 2001-2004

With clear priority on closing international deals, four Smartner sales personnel divided the European continent into regions, and started to aggressively contact all the mobile

operators. They focused on Europe first, due to limited resources. A small pilot project was delivered to Wind in Italy in July 2001. Then the first major foreign deal was closed at the end of 2001 with the Italian operator Blu. Smartner's foreign expansion continued by utilizing contacts received from partnerships with IBM and Nokia. They closed deals in Switzerland with Swisscom in the spring of 2002 and in Ireland with Eircell (currently known as Vodafone Ireland) in the summer of the same year.

During 2002, a Canadian firm Research in Motion (RIM) entered Europe with their BlackBerry mobile email solution, which triggered Smartner to update their product strategy. In order to provide a truly real-time email delivery to the handsets with better user experience, they made a critical decision in early 2003 to acquire Commtag, a UK firm who possessed synchronization or "push" technology for mobile emails. At the same time, Smartner secured EUR 5,000,000 funding commitment from leading European venture capital firms Amadeus Capital Partners, Eqvitec Partners, IT Provider, and Sitra. The funding round was led by Amadeus Capital Partners, the previous investor in Commtag. (Smartner, May 22, 2003). This additional funding was critical for Smartner to accelerate their product development in push mobile email.

The new "push" mobile email product Smartner Duality was launched in October 2003. At the same time, another critical decision was made to hire a new CEO Paul Hedman, moving the entire firm into a very aggressive sales mode to address the increasing demand in the operator market. Soon, the new improved product found additional customers, O2 in UK in the end of 2003, Telefonica Mobile in Spain and Vodafone in Italy in 2004. *"I joined at the same time Smartner had changed their CEO and that was a significant change from what it was in the past and the new CEO was very sales-driven, very hunter-category salesperson instead of trying to be a farmer.", -Salorinne.*

While achieving foreign growth, the firm also realized the need to have a commercial breakthrough, which meant that there should be growing numbers of end users adopting to use their product. The more users there would be, the more recurring revenue it would bring to the firm, in addition to the initial license revenue from the operators. Thus, Smartner was in close relationships with their operator customers to get the product adopted by end users. Commercial breakthrough happened in Finland already in

the earlier years in 2001-2002, and after the push mobile email was launched in 2003 to the market, more and more end users started to adopt the product throughout Europe.

Even though initially, the firm had plans to enter the US and Asian markets as fast as possible, the firm just did not have the bandwidth to penetrate other continents outside of Europe during this phase. They needed to focus on Europe, but once they got their breakthrough in the European continent, their new challenge was to take on the US and Asian markets.

Global Breakthrough and Expansion Phase: 2004-2005

Global breakthrough happened in 2004 when Smartner met Starhub, an operator in Singapore, at an event organized by Nokia. Closing a deal with Starhub in Singapore activated Smartner to start pursuing and penetrating other countries in Asia. Smartner hired a local representative in Singapore, who then was able to close many deals quickly in various countries including Thailand, Indonesia, India, and Bangladesh, during the following years. They also penetrated the Middle East. Both of these regions were practically untapped by mobile email providers prior to Smartner's entry. Smartner was the pioneer there.

Despite their global expansion in the Asia Pacific region, they did not enter the US market. The firm had the view that it would be very expensive and the US market was different from others in a sense that there were only a few operators there who wanted different types of solutions than other markets. In addition, most of Smartner's competitors originated from the US, giving them an advantage in their own home market.

By mid 2004, Smartner had about 20 mobile operator customers in Europe, Asia Pacific, and the Middle East. They also had permanent employees based in eight different countries, Finland, UK, Sweden, France, Germany, Spain, Italy, and Singapore.

At this point, Smartner realized that they need to grow as fast as they can, in terms of resources, in order to support these 20 mobile operators. Revenue from the operators

usually came in in delays, but they still needed resources to work on the customer adoption. The growth rate was so high in the industry that they needed to think of ways how to support their growth. One option was to get additional funding from the venture capitalists but there was clearly no money available in the market at that time. The other option was to merge with another firm and gain access to more resources for accelerating the growth. At the same time, the firm was also pondering ways how to enter the US market. *"We knew from the start that there is the option that the company is sold at some point. It wasn't our plan to sort of knowingly target selling it at any given point….it started to become an option…within 2004 or so… What we wanted to do was to grow something really big, and it could take many paths." , -Räisänen.*

Global Rationalization and Maturity: Acquisition by SEVEN Networks, 2005-

By the end of 2004, both Smartner and SEVEN had reached a similar level of maturity, and market conditions were very favorable (Smartner, April 11, 2005). Smartner and SEVEN were, in a way, competitors with similar products, but being dominant in different markets. SEVEN's presence in the US and Japan, and Smartner's presence in Europe and Asia Pacific made them a perfect fit to become the truly global firm in the industry. Their strengths in their products were also in different areas, providing them possibilities to then develop the best, leading products in the world. According to Salorinne, *"SEVEN was a much larger firm compared to Smartner. They had the needed funds as well as human resources…The funding that they had was several 10s of times bigger…."*, thus providing Smartner with possibilities for rapid growth.

In April 2005, Smartner was acquired by SEVEN. As a result of the acquisition, the firm was not downsized nor Smartner employees laid off. At this point, the new SEVEN employed 160 employees globally. Immediately after the acquisition, the new firm started integrating the original Smartner and SEVEN products and developing a new generation platform "System 7 Version 7" based on the original Smartner product. The new platform was ready for sales in late 2007. The headquarter was moved to California, US, and those offices such as Sweden and France, which had only single sales person with no significant revenue coming in, were closed down.

In 2008, as SEVEN continued to globally align their operations after the acquisition, they closed the UK office. SEVEN originally had its own Japan office and offices in China in 2007 and Russia in 2008 were opened. To summarize, SEVEN has its headquarter now in California, US, with regional offices in Japan, China, Finland, Italy, Spain, UK, and Russia.

SEVEN Finland is now responsible for sales only in the EMEA region as well as part of the R&D, which is split between US, Finland, and China. Although initially, it felt like a loss for the Smartner employees, who could have taken the world independently, as of 2010, the original Smartner and SEVEN has been fully integrated, and there is no split between the two original firms. Integrating the firm culture is often raised as a critical issue in mergers and acquisitions, but in the SEVEN and Smartner case, it seemed to have went well. *"There is no Smartner anymore so, in the last five years, it is fully integrated. There is just SEVEN.", -Salorinne.*

Survival Crises and Other Challenges

Smartner has never been really that close to going out of business, but there has been some times when the firm had to change their plans to avoid any crisis situation due to limited funding and resources.

For example, in 2001, when there was some difficulty in getting additional funding and the IT bubble burst, affecting the whole mobile operator market as well, the firm downsized the operation temporarily, changed their plans of opening offices abroad, and focused all their efforts on closing international deals. *"If you just looked at the cash in bank and what's happening, you might have felt concerned because sometimes you don't see like … a year ahead, you don't know what the situation is going to be. But that's just the way that these companies are…", -Räisänen.*

Like with any start-up firms, if something would have gone wrong, like not getting additional funding, not being able to close deals, losing key personnel, etc, the firm may have faced the threat of going out of business. However, the firm was able to find a solution for every challenge they faced, the last one being, acquisition by SEVEN.

Table 6 summarizes Smartner/SEVEN's development to date.

Table 6. Summary table of growth phases of Smartner/SEVEN

Phase	**1. Introductory (1999-2001)**	**2. Commercial breakthrough and foreign growth (2001-2004)**	**3. Global breakthrough and expansion (2004-2005)**	**4. Global rationalization and maturity (acquisition by SEVEN Networks, 2005-)**
Key strategy	Development of commercially acceptable products, securing adequate finance, developing market, and receiving first sales revenues.	Selling products in large volumes to reach economies of scale, focusing on "customer adoption". Closing international deals in Europe. Acquiring new technology to improve products.	Expanding to Asia and Middle East. Trying to secure resources for accelerated growth.	To be the world's leading provider of integrated mobile platform for wireless operators and device manufacturers. Integrating Smartner and SEVEN.
Growth of the size of the firm (sales, employees)	Sales: 0.41 MEur. Sales-wise, categorized as micro firm. Employees: grew from 4 to 53. Employee-wise, categorized as medium firm.	Sales: Peak in 2002 with 1.59 MEur and in 2004, 1.37 MEur. Sales-wise, micro firm. Employees: Decreased from 53 to 34. Employee-wise, small firm.	Sales: 1.37 MEur in 2004, 6.5 MEur in 2005, moved from micro to small firm. Employees: 41, categorized as small firm.	Part of SEVEN. The Finnish office employed 86 employees and sales revenue was 8.74 MEur in 2008. Sales-wise, categorized as small firm, employee-wise, categorized as medium firm.
Global expansion (markets, share)	Concentrated on Finland for first 2 years and internationalizatio n degree 70% in 2001.	Internationalization degree: 45-90%. Closing deals in Italy, Switzerland, Ireland, UK, and Spain. Globalization degree: 0%.	Internationalizatio n degree: 98%. Globalization degree: 38%.	As part of SEVEN, the Finnish office is responsible now only for EMEA.
Operation mode and networks	Agent hired in Spain, later a larger sales subsidiary, mainly operating in NIMOS mode. Some partnerships s with system integrators and software/hardware vendors starts.	UK office, sales subsidiary in France, temp reps in Germany, Sweden, and Taiwan. Strategic partnerships and distribution cooperation with various partners including Nokia, IBM, HP, and Ericsson.	Additional office opened in Singapore in 2005. Other offices and cooperation continue from the previous phase.	The Finnish office is a subsidiary of SEVEN, headquartered in California, US. Offices in France, Sweden, Taiwan, and UK closed. SEVEN now has regional offices in Japan, China, Finland, Italy, Spain, UK, and Russia.
Products	Changed product concept several times until eventually	Acquisition of "push" technology and focusing on push mobile email,	Focus on push mobile email and providing know-how to operators	Focusing on integrating Smartner and SEVEN products. Sells systems,

	focusing on mobile email product.	Smartner Duality.	for customer adoption.	products, know-how, and services.
Organizational Structure	Systems, structures, and formality are almost non-existent with informal communication.	Slowly adopting more functional, formal structures. Formal communication and business processes supported by IT systems.	Formal structure and processes in place with good software development processes.	Bureaucratic principles, formal structure with standardized rules and procedures according to SEVEN's guidelines.
Survival crisis in end of phase	The 2nd financing round smaller and industry growth slower than expected, thus needed to downsize the organization and re-focus their priorities.	There was no crisis as such but just saw the need to expand to other continents.	In need of more resources to maintain the growth.	None (Out of the scope of this study).

4.3.3 Factors Influencing the Growth and Survival of Smartner

Industry Development Since Establishment

At the time of Smartner's establishment in the late 1990's, the mobile industry was starting to emerge with the support for WAP[2] for the first mobile phones in 1999. At that time, Finland already had a 63% penetration rate of mobile phones (Statistics Finland, 2008) but the value-added services offered by operators were still extremely immature, providing abundant opportunities for new technology firms to develop various applications for enterprise mobile users. Smartner was entering a niche market, where there was very little competition. *"We were early in the market.", -Räisänen.*

It is difficult to say exactly what has been the industry growth rate over the years due to the way the market reports are compiled but it was slower than expected in the earlier years, which played in advantage to Smartner, as they then had the time to develop new products and move on from being just a "push mobile email provider". During the past few years, the industry has been growing almost 100% per year, making the push email commoditized as a basic feature in almost any type of handsets.

2 Wireless Application Protocol

The bursting of the IT bubble had a major effect on the growth and survival of the firm. After 2001, venture capitalists were not investing anymore into risky new mobile businesses and the whole mobile business went down. In a way though, this quiet time also had a positive effect for the firm. While operators were not buying, they concentrated on improving their product by acquiring Commtag who had the "push" mobile email technology, and prepared for the time when operators would start buying again. This time period also helped Smartner by shaking out some weaker competitors from the market, who were not able to survive the cold economical climate.

Consumer needs across countries have been relatively similar throughout the years,. Within the developed countries in North America, Europe, and Asia, consumers have wanted to communicate more and more with their mobile handsets, and as long as the consumers were educated and had the money for such services, the needs and wants of those consumers were the same – being able to communicate easily through email with handsets. When looking at Smartner's direct customers who were usually the operators, the US market was different, especially from Europe.

In the earlier years, there were a couple of competitors including LPG Innovation in Finland, which closed their business in 2002. Microsoft and IBM, who were also developing their own mobile email products were also considered as competitors at that time. During the commercial breakthrough and foreign expansion phase, the Canadian firm Research in Motion (RIM) had a huge influence on Smartner. After 2003, with the "push" mobile email product, Smartner started seeing active competition. The biggest competitors were SEVEN (although the markets were not overlapping) and Visto (US, nowadays called Good Technology). There were also many other smaller competitors but the industry had started seeing active consolidation since 2003 at the same time as when Smartner acquired Commtag. As such, there are only a handful of firms that Smartner/SEVEN considers as serious competitors now.

Smartner/SEVEN did not experience any trade barriers.

Development of Most Critical Resources and Capabilities Since Establishment

Resource Amount

The most important resource for Smartner has been its people, and having the "right", and "skilled" people. During the introductory and commercial breakthrough phases, it was extremely important to have skilled engineers developing their products. The engineering team was able to develop a new, unique product at the beginning, which attracted initial operator customers, but then when they acquired Commtag, the same engineers were able to quickly integrate the acquired technology into their existing products. Skilled and "smart" people were also important when it came to selling the product. *"What we really need is skillful people….. expertise, getting the right persons……Skilled people in technology and skilled people in farming the operators. That's basically it…", -Salorinne.*

The accumulated knowledge and experience of the people at Smartner/SEVEN has also been extremely important. Many of the employees still working for SEVEN has seen the mobile phones since 1999 and understand how all the mobile phones work and how their products work against that. This accumulated knowledge and experience is something that is irreplaceable.

Financial resources have also been extremely important for Smartner. One of the problems was that revenue always came in delays, and the firm still had to continue with product development and somehow cover all the costs. Thus, getting external funding has obviously helped Smartner to grow and survive but quite often, it has been limited, which has caused the growth to slow down at times, also affecting survival. The effect of the limitation in financial resources is most evident in 2005 when Smartner made a decision to sell their firm to SEVEN. Smartner needed additional funding to grow and survive, but venture capitalists and governmental organizations such as TEKES were not helping. Their option then was to grow by working together with another firm that had the vast financial resources and access to the US market where they had not entered yet. *"We were starting to be really tight on resources…because we were growing all the time in 2004 and 2005 so I mean, we wouldn't have been able to support that operation very well with those resources.", -Räisänen.*

In 2005, SEVEN Finland's (original Smartner) revenue jumps up. In hindsight, they could have grown without being acquired by SEVEN if only they had gotten external

funding, as the sales figure does not come from additional sales in US but mainly from Europe and Asia Pacific, which has been the focus of Smartner.

Managerial and International Experience

The two main founders, Räisänen and Uusitalo, had worked abroad as a trainee for a couple of months for other firms while they were still studying, but did not have any earlier experience as an entrepreneur or in international business. The two additional members they immediately hired during the establishment year, Ari Backholm (CFO) and Robert Rasmus (CEO), did not have so much international experience either, although they were experienced professional in their field of specialties.

Capabilities (Substantive, dynamic, and networking)

Substantive Capabilities

Amongst the substantive capabilities, technological capabilities have been the most important for Smartner. From the beginning, they were representing a new, leading edge technology in the market, and their technical excellence has been a differentiating factor from their competing solutions. Also, it allowed them to merge Smartner's and Commtag's products into one new product within just a couple of months after Smartner acquired Commtag in 2003 (Räisänen, 2009).

Although the importance of marketing varied from time to time, Smartner's capability in PR and marketing was also important, especially during the earlier phases of the firm growth. Even though they had such limited resources, they were successful in increasing awareness of their products and getting on the radar of important players in the market, such as industry analysts and the media. Smartner/SEVEN did not need a big team of marketing professionals, as they were in the B-to-B business, but it was important to be able to reach specific people in the operators to make them understand the value of their offering.

Smartner's capability in management was close to non-existent in the earlier years but after they hired experienced managers into the firm, they believe they excelled in it. The core management team was able to often assess the changes in the market environment

and swiftly make critical decisions. *"I think the founding team plus especially the Head of Engineering, I think that core management team, the way that we made the decisions in the early years, that was probably the most important thing.", -Räisänen.*

Dynamic Capabilities

Smartner has been able to adapt to the rapid changes in the environment and as such, possessed dynamic capabilities. For example, when the IT bubble burst and the firm had a difficulty closing financing rounds, they were able to quickly make a decision to change their plans of opening new offices abroad. They were able to react quickly enough to the situation where there were lower-than-expected customer demand and limited financing. *"One capability is the ability to change the organization and change resource combinations according to the situation so that's clearly something we did pretty well.", -Räisänen*.

Networking Capabilities

Smartner considered networking capabilities to be extremely important for both growth and survival. From the beginning, they relied on their personal connection and network. Since the two original founders were inexperienced when it came to business experience, they asked advice from various contacts on how to start a firm and other general issues regarding the software industry. Since the firm also acknowledged the importance of skilled human resources, they leveraged their broad personal network of engineering students at the Aalto University School of Science and Technology to hire those newly graduates who already had gained some work experience (Räisänen, 2009).

Smartner also actively partnered with other firms in various forms. For example, partnering with firms such as HP, Nokia, and IBM not only gave cheaper marketing opportunities for Smartner, but it also gave them access to their operator contacts in local markets. Partnership with IBM was especially important during the introductory and commercial breakthrough phase when they provided Smartner their local workforce and it was also easier to close deals with new customers thanks to IBM's respected brand. Partnerships with resellers such as Fujitsu and Ericsson were also extremely

important as they brought in significant amount of new customers. Partnerships with handset manufacturers were critical after 2003 when they were selling the "push" mobile email product because they needed to install a client software onto the handsets. For example, strategic partnership with Nokia allowed Smartner to have access to their handsets in order to have in-depth understanding of how mobile phones work. These types of partnerships allowed Smartner to develop their product in sync with the release schedules of new handsets, so that operators would have working "push" email client available immediately when the handsets were launched in the operator's market.

Maintaining a close relationship with key operator customers was critical for Smartner's growth, since the recurring revenue would come from operators being successful in selling Smartner products to the actual end users, and not just from selling the platform/product license to the operators. *"One of our challenges was … how to have enough resources to handle the relationships with customers.", -Räisänen.*

Government Support

Smartner received funding from TEKES for their product development in 2000, 1 million FIM (approx. 168.000 EUR) as a grant and 1 million FIM as a capital loan (Smartner, November 13, 2000). Smartner has also received funding from Sitra[3], the Finnish National Fund for Research and Development, in 2000 (Smartner, April 26, 2000), 2001 (Smartner, September 5, 2001), and 2003 (Smartner, May 22, 2003).

Entrepreneurial Orientation and Lateral Rigidity

Smartner's entrepreneurial orientation and lateral rigidity has been rather consistent during its existence, experimenting with new initiatives and taking quite a lot of risks throughout. That was the only thing that could do, to be spontaneous and try everything out, as they were so inexperienced in most of the business issues, even after getting

[3] Finnish National Fund for Research and Development, is a leading governmental fund dedicated to promising early stage technology investments. Sitra is a shareholder in about one hundred different technology enterprises. Sitra invests primarily in the Finnish start-ups but also to international venture-capital funds concentrating on the high-tech field.

professional managers on board. Instead of merely trying to meet customer requests and expectations, the key staff often questions whether their requests are smart, and whether there could be other ways of implementing things and improving the products. *"Questioning… is the beginning of the innovation process.", -Salorinne.* They have also had an attitude of tolerating failures really well and wanted to learn from their mistakes, if there would have been any.

Smartner has at times been alert to emerging opportunities and aggressively pursued those new initiatives. However, they often did not have enough financial and human resources to pursue them. They had to prioritize which opportunities are worth taking and focus on those activities.

In the earlier years, Smartner actually created a new market for mobile email products. They had in-depth discussions with operators, system integrators, and other important players in the mobile market, and analyzed what would be an attractive new product for them and started educating the market what their products could bring to their handsets. In the later years since 2003, Smartner/SEVEN constantly analyzed the current market opportunities and tried to predict the future development.

After the acquisition by SEVEN in 2005, the original Smartner office in Finland has become more conservative due to less leeway in trying new initiatives spontaneously. This is quite natural, given that the headquarter is now in the US and the chain of command to get acceptance to try new things is bigger than before. However, the current SEVEN believes that unless the firm takes risks and do new things, their growth would be limited and lose to competitors. So as SEVEN as a whole, they are still constantly trying new things and taking risks. *"It's a mandatory thing…you need to be aggressive and constantly take risk. Otherwise, you're too slow and you get either too far behind...", -Salorinne*.

Regarding the firm culture, as a start-up firm during the earlier years, there were no standard operating procedures for selling internationally, and hierarchy was very flat, allowing informal communication and entrepreneurial atmosphere. Everyone knew each other well because it was a small team. After the acquisition, the decision-making

function has moved to the US headquarter and since the firm is much bigger than earlier, there are more hierarchy and bureaucracy that comes with being a large firm. However, within the Finnish office, which used to be "Smartner", it is still a flat organization and as little bureaucracy as possible. One challenge that the firm has faced after the acquisition is for the firm to culturally merge, in terms of how the business is done in different markets. It has sometimes been difficult for the Finnish office to make the headquarter US office to understand how business is done in Europe and Russia.

Software Business Specific Factors

Compatibility with Major Players

Being compatible with major players in the market and making the decisions which platform to support is critical to Smartner/SEVEN for both growth and survival, but at times could negatively impact their growth. Compatibility became especially important after 2003 when they started to do "push" mobile email product, which came with a client software that needed to be installed on the end users' mobile handsets. The client software has to be compatible with the many different kinds of handsets that are available in the market; otherwise, operators would not be interested in supporting this kind of service.

Smartner/SEVEN has sometimes needed to make conscious decisions on which handsets and mobile OS to support, as there are hundreds of different variants in the market. But in general, the firm has tried to support most of what is available. *"One of our key strengths towards the operators is that we are not locked into specific vendor so that we would only work on Nokia handsets or only work on Samsung handsets...", - Salorinne*. However, trying to support so many handsets becomes extremely expensive for the firm, needing to test and adjust the product to make it work. Most of their cost comes from developing different client software that supports different versions of the mobile OSes such as Symbian, Windows Mobile, Android, Maemo, and so on. As such, being compatible with major players is a condition for their business, but it may hinder

growth, as they have to spend a lot of time and resources into making sure that their product is compatible.

Lock-in Effect

Lock-in effect is critical for Smarter/SEVEN for both growth and survival, especially during the introductory and commercial breakthrough phases, just when you are still the early players in the market with niche products. Once an operator customer has chosen their system and have integrated it into their sales and have gotten enough end-user customers, they would rather buy add-ons from the same vendor than switch to another vendor.

However, lock-in effect does not necessarily happen just by getting the products sold to the operator customers. Unique value offering compared to competitors and extensive after-sales service are what guarantees whether there would be any lock-in effect. The firm must cultivate their relationship with the operators over time, and train and work with them so that the product will actually get adopted and used by the end user customers. The firm also stressed that the customers should not feel that they are being tied down too much and lock-in should be subtle, seemingly leaving options for the customers to change vendors in order to create trust. *"I think the lock-in effects becomes automatically if you are successful since then switching your end customers from one system to another becomes quite painful.", -Salorinne.*

Software Development Process

Smartner had considered software development process to be an important element from the beginning and as such, put efforts into having a proper software processes from the introductory phase. *"The processes is important maybe first and foremost because it enables you to do new stuff so that you actually don't get stuck into maintaining stuff that is done in a stupid way and end up using your resources with that. So that's maybe one of the most important things of having a proper software process.", -Salorinne.*

The software development process during the introductory phase was rather agile and flexible, allowing various changes to be done to their product strategy. Sometime after 2003 during their commercial breakthrough phase, it became even more important that they have a process, which was strict and timely to support hundreds of phones that were in the market. The marketing of new handsets happens at the beginning when the new handset is launched, thus for Smartner, it was extremely important that they meet the schedules of how the handsets were being marketed.

After the acquisition by SEVEN, the firm put extra efforts into integrating and creating one single R&D unit by, for example, sending a couple of Finnish engineering directors to the US office. However, it still took very long time for the newly integrated firm to develop the integrated product that consisted of the original Smartner and SEVEN's products. During that time, the firm had to put resources to three different product lines, one for Smartner products, one for SEVEN products, and another one for the integrated new product, that it has eaten up many years of the firm's resources, hindering growth. This may be because their software development process had to be integrated at the same time as actually trying to develop new products, causing delays and possible chaos. Now, SEVEN has a fully functional software development process in place where they are supporting approximately 100 operators. Their software development process is not a limiting factor for growth anymore.

Open Source Software

Smartner/SEVEN has used open source software in their own products to speed up the development. The existence of open source software has helped the firm, in a way, to grow faster.

There is one open source software that could be considered as a competitor for SEVEN, providing price pressure. However, the firm does not consider them to be a threat to their business because the open source only provides the vertical solution of "push email" and nothing else. SEVEN's value as a business comes from being able to provide to operators a whole platform, on which various types of "push" application can be integrated, as well as services.

Software Business Model and Growth Strategies

At the beginning, Smartner consciously made a decision to build a software product firm because they wanted to scale and grow fast in the global market. Over the years, Smartner/SEVEN has had three different growth strategies. One was to enter new countries and continents. They expanded gradually from Finland to Europe to Asia. By merging with SEVEN, they were then able to expand to the US as well. There are still growth opportunities with the same products in other unconquered markets such as China and Africa. The second has been to add and sell new *products* that would run on the same platform to the existing customers. On top of the platform "System 7 Version 7" (*systems*), operators can now choose to install different products, such as Mobile Email, Mobile IM (instant messaging), and Ping Services. In addition, SEVEN offers services of hosting the platform for some of their operators. The third growth strategy was to provide *know-how* to operators in getting customer adoption of the products. It was critical for Smartner/SEVEN to train the operators in getting the products pushed out to the actual end users as the recurring revenue that came from the end-users who subscribed to the services such as push email enabled further growth for them.

To summarize, the firm's revenue and growth came from selling one-time license fees to the operators, from providing services and maintenance, and recurring revenue from all the end-users who would actively use the services. The "recurring revenue model" typically used in Software as a Service business is something that all software firms crave for, and as such, even though Smartner started by providing only "software products", they have entered the service arena, making them more of a hybrid firm.

4.4 Add2Phone

4.4.1 Firm Background and Characteristics

Add2Phone Oy was established in 2000 and was Europe's leading technology firm in the mobile marketing, mCRM applications, and advertising market. They specialized in interactive mobile marketing, mobile customer relationship management, and mobile advertising solutions. They provided advanced and revenue-generating mobile marketing and advertising technology for mobile operators and media firms. In addition,

they provided turnkey mobile campaign design and implementation services for advertisers and brands. Their headquarter was located in Helsinki, Finland.

In August 2008, Add2Phone was acquired by More Mobile Relations (More), Scandinavia's fastest-growing mobile marketing firm owned by Telenor, the world's 7th largest mobile operator with operations in 12 countries. More acquired three firms earlier that year, Active Loop Marketing in Norway, N'volve in Denmark and 12snap-Lokomobil in Sweden. The takeover of Add2Phone in Finland completed More's Nordic constellation, allowing the firm to offer a wide range of mobile solutions for various customer segments throughout Scandinavia.

Add2Phone's sales revenue peaked in 2002 with 1.19 million euro but after that, it has been, on average, about 0.7 million euro per year. With regards to the number of employees, already during the establishment year in 2000, employee count rose from the initial 10 founding members to 49 at the end of the year. These 49 employees were divided into 27 in Helsinki, 10 in Lappeenranta, 4 in USA, 7 in Canada, and 1 in Germany (Add2Phone, 2001). However, during 2001 and 2002, they had to close down some offices including layoffs and at the end of 2002, they had 21 employees in Finland and 1 in Germany left. Since 2003, the employee count has been on average about 10 (see figure 21 and 22).

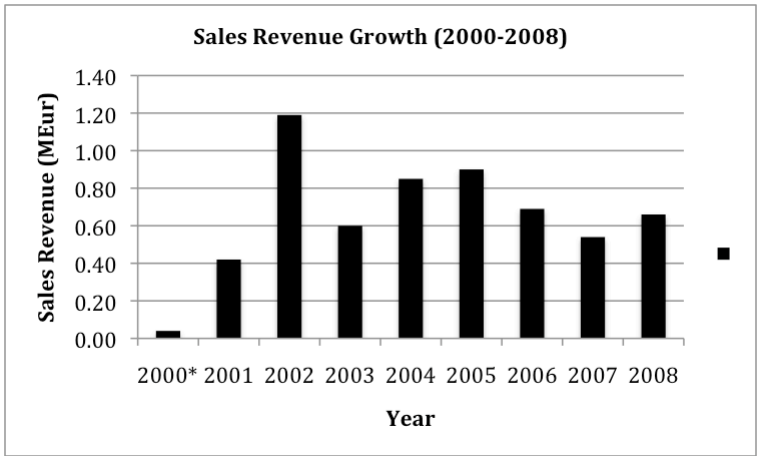

Figure 21. Add2Phone's sales revenue growth

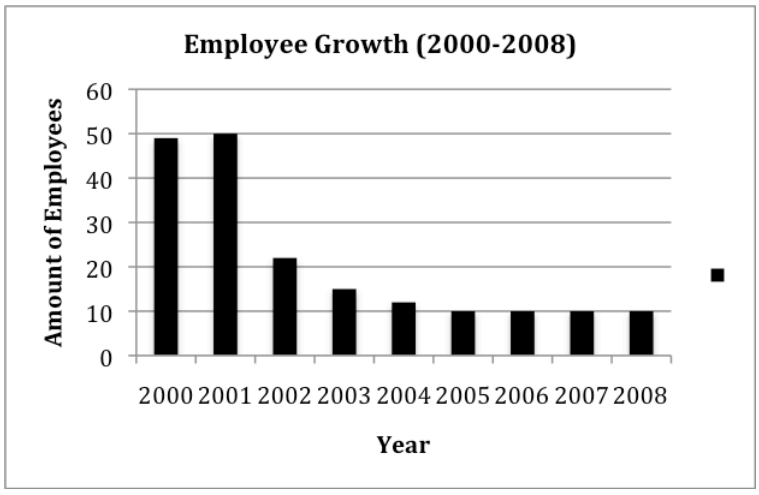

Figure 22. Add2Phone's employee growth

It was obvious to Add2Phone even before founding the firm that they were seeking to globalize. The reason was because most of the key founding members had been in international business earlier and it was their personal ambitions to make something big and global.

Concerning the share of foreign sales, since Add2Phone's first and only customer in 2000 was Europolitan in Sweden, the internationalization degree was already 100% that year but has, on average, been at 60%. At the end of 2002, three years after establishment, the internationalization degree was 65% (of net sales, 35% was from Finland and 65% from other European countries). The globalization degree was 0%. At the end of 2005, six years after establishment, the internationalization degree was 60% (of net sales, 40% was from Finland, 50% from other European countries, 10% from outside of Europe) and the globalization degree was 10% (see figure 23).

Although the firm had a strong global vision and strategy from inception, they did not fulfill the criteria of more than 25% globalization degree six years after establishment. Thus, Add2Phone is considered as a "Born International" firm in this study.

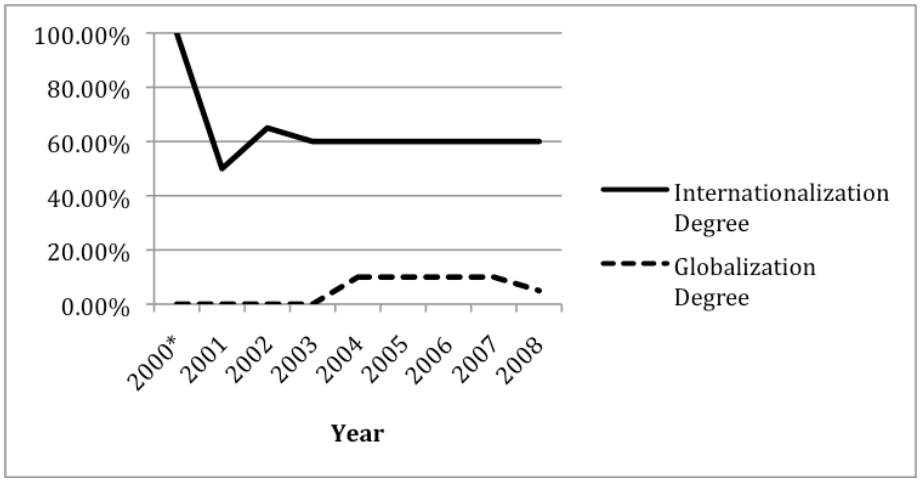

Figure 23. Add2Phone's internationalization and globalization degree

4.4.2 The Development of Add2Phone in Phases

Add2Phone has gone through the first two phases 1) introductory and 2) commercial breakthrough & foreign growth, after which they entered a hibernation phase until More finally acquired them. Figure 24 provides an illustration of organizational development in terms of growth and foreign expansion.

The Introductory Phase: 2000

Jari Anttonen, who worked in Germany, and Risto Laaksonen, who worked in US were friends. Vesa-Matti Paananen, who worked in Finland, and Laaksonen were friends. These three people then came up with the idea to start some business in mobile advertising in September 1999.

Soon, they involved seven more people who possessed various expertise and experience in all important fields such as technology, management, and international experience. Their strategy was to start operating globally from day one. *"... that was the critical, that we had from day one, international operations and people in various market.", - Anttonen.* The founding team with 10 people consisted of a person located in the US, Germany, Canada, and Finland, looking after sales, and others specialized in managing firms, running R&D, advertisement, and financing. The firm's official activities started on February 8, 2000.

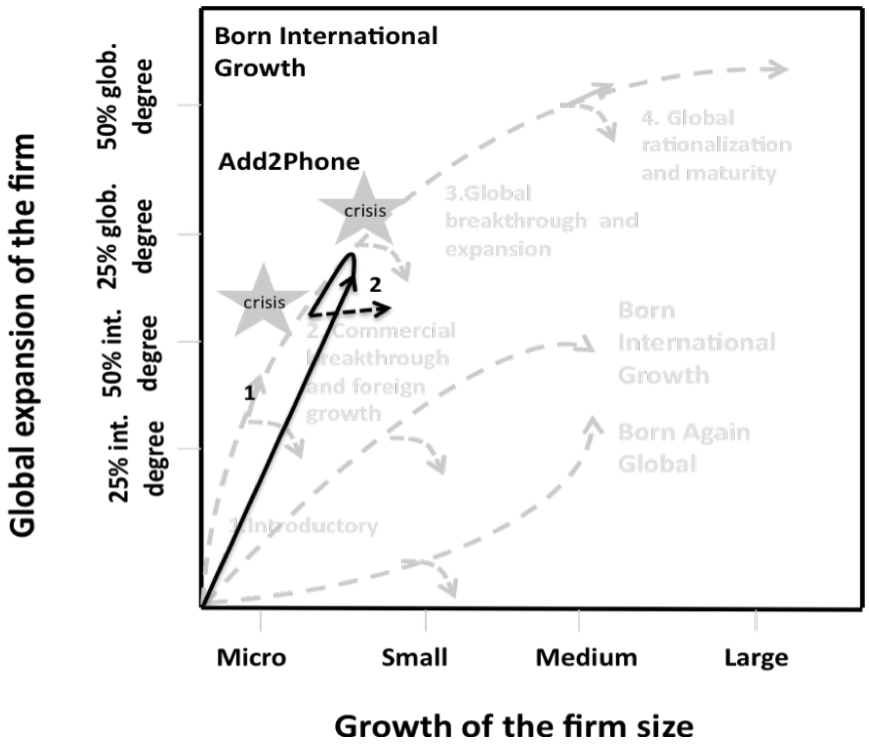

Figure 24. Main path and phases of the growth of Add2Phone

The pilot sales of the firm's first product, Smart Mobile Advertisement Server (SMASH), already started during 2000. The first customer was Europolitan in Sweden, which they got from personal contacts that the founding team had from their previous experiences in selling software to operators.

During this introductory phase in 2000, the employee count rose from 10 to 49 at the end of the year. There was no clear crisis point while transitioning from the introductory phase to the next commercial breakthrough and foreign growth phase.

Commercial Breakthrough and Foreign Growth Phase: 2001-2005

The commercial breakthrough and foreign growth for Add2Phone started in 2001-2002 when they sold their product in large volumes to different European countries such as Poland and Latvia. The first major foreign deal was done with Latvian Telecom in 2002. They also got customers, in varying sizes, from UK, Germany, Italy, Spain, Lithuania, Switzerland, and Austria (Laanti, 2004). The firm also had Asian customers,

but they were deals made by the firm's domestic customer Zed Oy, which had operations in Singapore, Malaysia, and the Philippines. In 2004, Add2Phone closed a deal with Turkcell, a mobile operator in Turkey. In 2005, they also got customers from United Arab Emirates and Saudi Arabia.

Despite their growth in the European continent, their sales in the US did not take off as expected. They had minor deals in the US in 2001, but not anymore in 2002. They were not able to be a "global" firm as they sought out at the beginning. Eventually, towards the end of 2002, Add2Phone had to make a critical decision of shutting down their US and Canadian operations and changing their business plan completely from what it was originally. *"In 2000, July, August, September, we kind of started to fly, and then we realized that it's not going to fly. And very quickly, we were able to do a decision to shut down North America. And still …. the costs were millions.", -Paananen*.

As such, Add2Phone did not reach the "global breakthrough and expansion" and "global rationalization and maturity" phases suggested in Gabrielsson & Gabrielsson (2009)'s theoretical framework. Instead, they entered a hibernation phase around 2003.

Hibernation Phase: 2003-2008

When Add2Phone realized that they were too early in the market, they started to hibernate in 2003. Instead of proactively looking for new customers, they became reactive, mainly concentrating on taking good care of the existing customers. This was needed to survive through the times when the mobile marketing industry was still immature and not developing as fast as expected.

Acquisition by More Mobile Relations: 2008-

In 2007, Telenor, the world's 7th largest mobile operator decided to start a mobile marketing business firm "More Mobile Relations" and acquired three firms in Norway, Denmark, and Sweden. The firm they acquired in Sweden was 12snap-Lokomobil who happened to be a customer of Add2Phone. 12snap-Lokomobil gave tips to Telenor about Add2Phone as they were looking for a good technology firm. Telenor contacted

Add2Phone to start a discussion during autumn 2007 which led to the acquisition in August 2008.

The contact for possible acquisition from Telenor couldn't have come at a better timing. Add2Phone was looking to start fresh again, in proactive and aggressive mode. And for that, they needed funding. However, venture capitalists were not eager to invest into Add2Phone, as they had made losses from earlier investments. The firm also preferred to look for another type of new owner, who not only brings in the money, but also expertise and knowledge related to the mobile marketing industry. In that sense, Telenor was a perfect fit for Add2Phone's future.

For a couple of years after the acquisition, Add2Phone's brand was kept alive, as it still generated some traffic and contacts. All of Add2Phone's products still exist today under the "MORE" umbrella brand, so the "MORE Platform" consists of Add2Phone's SMASH, mCMS, and MAMA modules.

More is now the fastest-growing mobile marketing firm and targets to be the market leader in Scandinavia. Although Add2Phone's original vision was to be a global leader, they are now starting fresh again as part of More, trying to build a strong foothold within the Scandinavian market.

Survival Crises and Other Challenges

Add2Phone has been at a risk of going out of business back in 2001. The market was not growing as fast as it was expected and venture capitalists were not investing anymore, but the firm still had a lot of overhead in foreign countries that needed to be covered. The burn rate was clearly too high and the revenue it was generating was too low to cover it. *"The burn rate was so huge….. if you have people cost, and your revenue not coming in, you don't have to be a mathematician to understand this equation. So, burn rate, that was the biggest burden.", -Paananen*.

In the face of survival crisis, Add2Phone management made a fast decision to close down all operations in foreign countries. By reducing the burn rate quickly, the firm

was able to continue its core business from Helsinki with the income that they were still getting from existing customers.

Table 7 summarizes Add2Phone's development to date.

Table 7. Summary table of growth phases of Add2Phone.

Phase	**1. Introductory (2000)**	**2. Commercial breakthrough and foreign growth (2001-2005)**	**3. Hibernation Phase (2003-2008)**	**4. Acquisition by More Mobile Relations (2008-)**
Key strategy	Development of commercially acceptable products, securing adequate finance, developing market, and receiving first sales revenues.	Selling products in large volumes to reach economies of scale. Eventually, re-strategizing and closing down offices to survive the turbulent times in the market.	Maintaining existing relationships with current customers but being reactive and conservative to survive. Still, trying to innovate with new offerings.	To be the leader in providing mobile marketing services within the Nordic region as part of More Mobile Relations.
Growth of the size of the firm (sales, employees)	Sales: 0.04 MEur. Sales-wise, categorized as micro firm. Employees: grew from 10 to 49. Employee-wise, categorized as small firm.	Sales: Peak in 2002 with 1.19 MEur. Sales-wise, categorized as micro firm. Employees: Decreased from 50 to 10. Employee-wise, categorized as small firm.	Sales: Fluctuating between 0.5 and 0.9 MEur. Sales-wise, categorized as micro firm. Employees: 10, categorized as small firm.	Part of More Mobile Relations. The whole More Mobile Relations group employs 45 people in 2009.
Global expansion (markets, share)	The intention was immediately global, but reality was 100% international, with sales revenue from Sweden.	Internationalization degree: between 50 – 65%. Globalization degree: 10%.	Internationalization degree: 60%. Globalization degree: 10%.	Focused in Nordic region.
Operation mode and networks	Sales subsidiaries opened in US and Germany, and R&D unit in Canada (DIMOS).	Rep office opened in UK in 2001. In 2003, all offices in US, Germany, Canada, and UK closed. Strategic partnerships and distribution cooperation with various partners.	Mainly NIMOS and cooperating with partners, similar to the end of the previous phase.	Working together with other offices in the More group, including Denmark, Sweden, and Norway. Still utilizing partnerships.
Products	Focused on one product. Also used Software as a Service (SaaS) model for the first customer in order to test the pilot product themselves.	New product Presence Gate released. More or less focused on selling standardized software products.	Expanding to SaaS model, which requires more knowledge of the local market for advertising content creation. Releases 2 new products.	Focused on SaaS, providing mobile marketing services within the Nordic region.

Organizational Structure	Systems, structures, and formality are almost non-existent with informal communication.	Slowly adopting more functional, formal structures. Decentralized structure, more responsibility given to the managers in each field. Formal communication and business processes supported by IT systems.	Formal structure and processes in place with good software development processes.	Bureaucratic principles, formal structure with standardized rules and procedures according to More's guidelines. Centralization and decentralization balanced.
Survival crisis in end of phase	None.	The firm realized that the market is not growing as fast as expected, and needed to close down operations in foreign countries to survive.	In need of funding in order to get back to the growth path.	N/A

4.4.3 Factors Influencing the Growth and Survival of Add2Phone

Industry Development Since Establishment

The mobile marketing industry was so new that nobody knew what was the growth rate in the earlier years of Add2Phone's existence. It was assumed that it would grow rapidly but the growth was very moderate, about 10% per year. Finally, during the last two years, the market has been growing very rapidly, close to 50% per year, as usage of mobile Internet has been increasing.

The bursting of the IT bubble had a major effect on the growth and survival of the firm. After 2001, venture capitalists were not investing anymore into risky new mobile businesses and the whole mobile business went down. *"It went so bad, the situation, that the existence of the company was in question.", -Anttonen*. The mobile marketing business was not picking up as fast as expected either. Europe was slowly starting to mature but US was very slow. The firm was in a new market five to six years too early.

One reason that the mobile marketing business did not pick up as fast as expected was because within the whole mobile business, Add2Phone was in the "mobile marketing" niche, which meant that they had to deal with advertising and media agencies. The firm underestimated how these advertising agencies can be lagers and not pioneers when it

came to adopting anything "new". It took some time for these agencies and operators to finally understand that mobile marketing can be the next hype for their business.

Customers' basic needs across countries, from the technical aspect, have been relatively similar. However, there has been a need to, for example, adapt to local language for the marketing content.

The competition in the industry has been growing during the last couple of years when the mobile marketing business started to get adopted. For example, Admob owned by Google in the US and Yoc in Germany are their bigger competitors. The competition from the US is especially tough since they have the advantage of getting the critical mass in their big home market, which makes it easier for them to expand their business globally. The competition is also consolidating to few big players, such as the case where Google acquired Admob in November 2009. There have also been similar acquisitions by AOL, Microsoft, Yahoo, and Apple (Google, 2009).

There has not been any trade barriers in the industry.

Development of Most Critical Resources and Capabilities Since Establishment

Resource Amount

One of the most important intangible resources was the experience of the people the firm employed. Especially the experience in international business and sales as well as excellent engineering skills that their employee possessed were essential. As Paananen put it, *"We had a real dream team.", "Software business is very people driven business. So the talent.. One coder, if you have one good coder, he can beat easily 10 to 20 guys.", -Paananen.*

Another important resource for the firm has been financial resources and the capability to actually find and secure the funding. The original business plan was so extensive and aggressive that they really needed the funding to kick-start the business. The firm even had one dedicated founding member to take care of funding issues. Venture capital has been the most important funding source for the firm since the beginning. For example,

Trident Capital in the US not only brought in the needed funding but also provided information and knowledge when it came to various strategic options for the firm. Other funding sources have been Sitra, Stratos Ventures, Danske Capital, Tapiola Group, Head New Technologies, ABB Pension Fund, and Fides New Media (Laanti, 2004).

One of the limitations the firm had with regards to growth was lack of knowledge and skill sets in the media business. Once they moved from selling their technology to operators, to selling solutions/services to media and advertising agencies, they lacked the right contacts and skill sets, and required local presence for selling their services.

Managerial and International Experience

Most of the ten founders had many years of experience in international business and in the telecommunications industry. They reported in their original business plan that the founding team had about 100 years of international experience altogether.

Capabilities (Substantive, dynamic, and networking)

Substantive Capabilities

Amongst the substantive capabilities, Add2Phone considered technological capability to be important from the sense that technical engineers would be capable of adapting the products quickly to what the customers needed and wanted. In that sense, the firm did have a high competence level in technology. However, what was more important for them was the capability in management, which they believe they excelled in. Especially the CEO they got on board from the beginning had a background in running traditional firms as well as in finance. Being able to run the business, calculating the risks and costs, and making important decisions, such as closing down foreign offices early enough, was extremely critical for Add2Phone's survival. *"Management skills, of course … were critical, that we were able to see that something must be changed before we run out of the money.", -Anttonen*.

On the other hand, Add2Phone did not consider marketing competence to be important for them. Rather, direct sales capability was emphasized as the factor for growth. The firm believed that sales is everything, because if you do not get sales, then the firm

cannot exist. Technical capabilities could somehow be solved later on, but as a start-up firm, they emphasized the role of sales and getting customers.

Dynamic Capabilities

Add2Phone has been able to adapt to the rapid changes in the environment and as such, possessed dynamic capabilities. When the IT bubble burst and there were no venture capitalists investing into the firm anymore, they quickly were able to change their strategic plan and shut down the foreign offices to decrease the burn rate. Being able to make those critical decisions and change how the firm operated enabled them to survive the difficult times. *"We've gone through major changes in circumstances and the proof of that is that we survived and we have found our new growth plan", -Anttonen*.

Networking Capabilities

Add2Phone possessed an excellent networking capability and considered it extremely important. One of the reasons was because the founding team members were all experienced business managers who had a lot of working experience in other software and operator businesses. They brought in a vast network of connections. Many of the initial deals that were closed were thanks to their personal contacts and network, for example, as was the case with Europolitan in Sweden.

Add2Phone also actively participated in networking opportunities, such as Hewlett-Packard's (HP) Bazaar program in 2003 and Nokia's Forum Nokia Pro in 2004. HP and Add2Phone put together the HP MMS Bazaar Bundle, a complete set of applications and content from HP's Mobile Bazaar program designed to enable mobile operators to launch innovative MMS end-user services easily and cost-effectively. These types of partnerships with major players in the market brought in new contacts to the firm and also helped in closing deals, as was the case with Turkcell in Turkey with HP. Since Add2Phone did not have local presence anymore, HP's local presence in various countries helped the firm close deals faster and more reliably.

Add2Phone also put efforts into building distribution channels so that even if they did not have an office of their own, their partners would be able to sell their products and

services locally. For example, the deal with Latvian Telecom was through a partner in Latvia. *"We had a very strong partner network that we were building. That was our target, partner partner partner…..relationships are always important.", -Paananen*.

During 2003-2007, when the firm was hibernating, they took special care in maintaining the relationships with their existing customers. They did not have resources to do proactive sales to new customers, so they made sure that their existing customers were well taken care of, ensuring at least some revenue from those customers during the difficult times.

Government Support

Add2Phone has received funding from TEKES over the years. For example, already during the first year in 2000, TEKES granted Add2Phone with financial support of 134.550 euro for product development and 67.275 euro of loan (Add2Phone, 2001) and more in 2001. They were also receiving small amount of funding during 2006 and 2007.

Entrepreneurial Orientation and Lateral Rigidity

Add2Phone's entrepreneurial orientation and lateral rigidity has changed during its history. At the very beginning when the firm came up with the business plan for the new start-up, they were extremely bold, risk-taking, and proactive, already having 10 members as the founding team and hiring up to 50 employees within the same year.

They were not necessarily aggressive in pursuing initiatives ever since 2003. When the IT bubble burst, and the mobile market did not grow as fast as expected, the firm had to become conservative and reactive, mainly concentrating on surviving the difficult times by getting enough income to cover the basic costs, until the market would recover. However, within the limited framework even during the hibernating phase, Add2Phone encouraged themselves to innovate, and came up with new products such as the MAMA (Mobile Advertisement Management for Agencies). They did not lose the entrepreneurial spirit and pushed themselves to come up with new ideas and had a very opportunistic attitude.

At the beginning of Add2Phone's history, the firm certainly tried to create a new market whereby sending marketing messages and advertisements to mobile phones would become a new trend. However, the mobile market and the operator environment did not grow as fast as expected and so the firm had started too early in an extremely immature market. From 2003 onwards, the firm tried to predict future development by analyzing current market opportunities instead of taking risks and doing something entirely new, as they just did not have the time nor resources for that.

Add2Phone had a very flat organization at the beginning but as the firm started rapid growth during the establishment year, they had to quickly create some formal procedures and processes. They experienced some growing pain during that time, as fundamental changes were implemented to grow from a 10 person firm to 50 person firm, needing more formal communication channels. Since 2003 as the employee count decreased, it became a more flat firm with very little hierarchy. There has been a good mixture of formal and informal communication, facilitating cooperation amongst co-workers.

In one way, Add2Phone can be considered an agile firm, since they were able to make drastic changes in their business strategy and operation modes with their dynamic capabilities. However, from another perspective, the firm considers that they may have been a little bit rigid as well. When they realized that the mobile marketing industry was not growing as fast as expected, they could have completely changed their direction by dropping the product they were focused on, and instead developing something totally different. However, the firm stuck to and focused on doing mobile marketing business, waiting every year that the industry growth would pick up. This rigidity may have hindered the growth of the firm.

Software Business Specific Factors

Compatibility with Major Players

Being compatible with major players in the market was critical to Add2Phone for both growth and survival. It was a condition for business. Unless their software was able to interface with various things, they would not have been able to stay in business. As long

as the target mobile phone was used within the GSM network and was able to receive SMS or MMS, their products worked.

Lock-in Effect

Lock-in effect is critical to Add2Phone for both growth and survival, especially during the introductory and commercial breakthrough phases, just when you are still the early players in the market with niche products. Once the customer has chosen Add2Phone's product, it is difficult for customers to change to another vendor. It can also mean that if the potential customer has chosen another vendor over you already, it is difficult to get that potential customer to be your own customer.

However, lock-in effect does not necessarily happen just by getting the products sold to the customers nor from technical restrictions. Unique value offering compared to competitors, long-term customer relationship management, and extensive after-sales service is what guarantees whether there would be any lock-in effect. The firm also stressed that the customers should not feel that they are being tied down too much and lock-in should be subtle, seemingly leaving options for the customers to change vendors in order to create trust. *"... it has to be transparent also…. if customers think that you're fooling around with them, it will turn back to you.", -Paananen.*

Software Development Process

Add2Phone had considered software development process to be an important element from the beginning and as such, had already one person looking after the R&D processes from day one of the firm, even if it was not yet clearly written down as a process. At the very beginning of the introductory phase, when there were only a few engineers working, communication paths were as short as possible, and freedom and informal communication made it possible for them to develop products in a very fast and agile way. However, as the firm rapidly grew, they felt the pain of a growing firm and needed to implement more formal processes. *"Company growing from, let's say, from 12 people to 40, 50 people, that's the most challenging. When you are bigger than 50, 40, you don't know all the people….. you have to have processes.", -Paananen*.

Add2Phone believes that their software development process was good, especially since they had hired a dedicated person for that from the very beginning. Having a good process enabled the firm to minimize their risks with product development, quality, and delivery schedules. Having a good software development process in place helped the firm to prepare themselves for growth and survival.

Open Source Software

In the past, Add2Phone has used open source software in its own products to speed up the development. Also, Add2Phone was so early in the niche market that there were no competitors developing the same products with open source software. Even if there was, operators would not have adopted free software in their data centers, so it would not have been a threat to the firm's business.

In the future, even if there would be an open source software providing similar offering as their software products, the firm does not believe that they would be a threat to their business, because usually, free versions are limited in features. In addition, the firm now puts more efforts into selling services on top of the software products, and that will be where the revenue would be coming more in the future. Instead of treating open source free software as a threat, they are ready to use that free software even within their own software if it would help in speeding up their own software development.

Software Business Model and Growth Strategies

When selling software, the only way to scale is by selling software products. That is why Add2Phone started out as a software product firm. However, there was a limit to growth for Add2Phone if they would have just continued selling only software products. In order for them to grow, they would have had to come up with new products constantly. *"... typical shrinkwrap product, you sell it once ..... you provide maybe 12 months upgrade and so on.....shrinkwrap software, naturally then your options are maybe more limited.", -Paananen.*

Eventually, the firm started selling solutions and services on top of the products they developed. So instead of just having a business model of delivering the ready-made mobile marketing software to customers' premises, they used those products in their

own premises and ran the mobile marketing campaign services on behalf of customers. In this way, they were able to receive recurring revenue from the services instead of one-time revenue by selling the products.

The tricky part, however, in being in the software service business is that you cannot scale so easily, you need to understand your customer's market, and act more locally. At the time when Add2Phone changed their strategy from being a software product firm to a software service firm, they had no other offices in other foreign countries. As such, they could not act on their initial global vision anymore, since it would be difficult to provide services to distant markets. The firm could have better prepared for themselves in changing their business model by finding more partners who could work with them locally in other countries. Eventually, through some of their partners, especially in Europe, they were able to provide services. *"Everybody knows that if you are in service business it's hard to scale and it's more local, so you have to focus, focus, focus more. But with the services business we managed to survive.", -Paananen.*

Since the acquisition of Add2Phone, More is focused in providing mobile marketing services to advertisers within the Scandinavian region. Their mission is to be the service leader in Nordic countries, and to sell three service packages to more new customers. Add2Phone was initially targeting to be a global firm in software products but now has changed dramatically to providing software services focused in the Nordic region as part of the More Mobile Relations group.

5. DISCUSSION AND ANALYSIS

In the following section, cross-case analysis of the case firms' individual case descriptions is presented. The cross-case analysis helps to make generalization about the cases. The information gathered from the interviews and literature review is compared after which a revised theoretical framework is presented.

5.1 Cross-Case Analysis

5.1.1 Born Global Characteristics

All of the firms studied had a global vision from the outset, which is one of the characteristics of being a Born Global firm. Also, all firms except for Remedy had classified themselves as niche players operating on a global scale. The fact that they concentrated their efforts on a small segment has given them opportunities to become world leaders in their given field of business. This is in line with Laanti, et al. (2006) who argued that the way for small firms to grow globally is to compete in the area where the segment is too small for MNEs and is a new niche business area.

Table 8. Comparison of internationalization and globalization degrees

	Internationalization Degree			
	Tectia	**Remedy**	**Smartner**	**Add2Phone**
3rd year	56.25%	99.00%	90.00%	65.00%
6th year	78.40%	99.00%	98.00%	60.00%
	Globalization Degree			
	Tectia	**Remedy**	**Smartner**	**Add2Phone**
3rd year	37.50%	99.00%	0.00%	0.00%
6th year	62.50%	99.00%	38.00%	10.00%

Furthermore, three out of the four case firms adhered strictly to the Born Global firm criteria whereby foreign sales reached 25% within three years and sales from outside the home continent reached 25% within six years of establishment. Unfortunately, Add2Phone ended up being classified as a Born International firm due to not reaching the globalization degree of 25% within six years but was decided to be included in this

study anyway, since the firm had a strong global vision at inception. Table 8 summarizes the case firms' internationalization and globalization degrees.

5.1.2 Development Phases

All four case firms entered the *introductory phase* at the start of its business, which lasted between one to two years. The *introductory phase* was typically quite short, since Born Global firms tend to aggressively pursue foreign growth from inception. After the *introductory phase*, all four case firms followed a path that was unique to its own history.

Tectia and Remedy are the firms that still exist as individual business entities at the time of this study. Tectia went through all four phases as defined by Gabrielsson and Gabrielsson's (2009b) framework but after the fourth phase, stepped back again into the third phase *global breakthrough and expansion*. On the other hand, Remedy Entertainment did not go through distinct phases after the *introductory phase*. *Commercial breakthrough, foreign expansion, and global breakthrough* happened all at the same time for this case firm, since the target market for their direct sales was in the United States. Selling in large volumes to the United States meant that the firm went through all those phases at once.

Smartner and Add2Phone ended their independent history by being acquired by other firms. Smartner went through all the four distinct phases but when entering the *maturity phase*, SEVEN acquired them. Being a Born International firm, Add2Phone did not enter the third phase of *global breakthrough and expansion* phase and instead entered the *hibernation phase*, and was eventually acquired by More Mobile Relations. What both firms have in common is that they were in crisis with regards to funding and needed new ways to grow. At least for these firms, acquisition seemed to have been the answer to future growth. This is in line with Delmar, et al.'s (2003) argument that acquisition growth is more likely in older and larger firms, and in mature industries.

Figure 25 compares the growth patterns of the case firms.

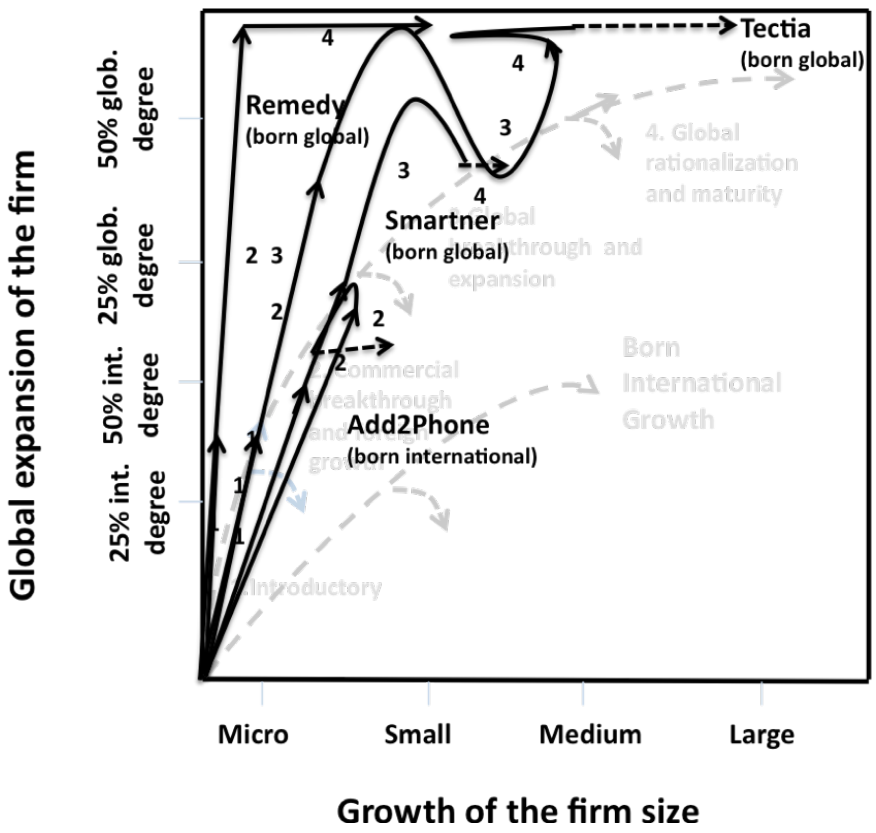

Figure 25. Growth paths of case firms

Out of the four case firms, Tectia was the only firm that met with a crisis, which triggered it to proceed to the next developmental phase. Other firms did not necessarily always have a crisis point when transitioning from one phase to the other. Tectia was the only case firm that clearly had crisis points related to managerial issues, such as the founder facing burn out or not having competent management team members. All other crisis points faced by the case firms were related to limited funding and financial burden.

Regarding the foreign operation mode development, all four case firms started immediately exporting their products abroad (NIMOS[4]). Due to the nature of software products, firms can sell their products easily, whether in the form of technology or as licenses. Only Add2Phone skipped the NIMOS stage, since they had offices in various

[4] NIMOS= Non-direct Investment Marketing Operations

countries already from the start of their business. Table 9 shows the development of foreign operation mode for each case firm.

Table 9. Foreign operation mode development

Traditional	NIMOS -> DIMOS[5] -> NIPOS -> DIPOS[6]
Tectia	NIMOS -> DIMOS
Remedy	NIMOS
Smartner	NIMOS -> DIMOS
Add2Phone	DIMOS

Tectia and Smartner continued their development by establishing sales subsidiaries in other countries whereas Remedy did not. This was clearly because their offerings had expanded to include services, which needed to be provided locally. For all three firms who had sales subsidiaries abroad at some point (Tectia, Smartner, and Add2Phone), de-internationalization was seen, whereby they had to close down foreign offices due to changes in strategy or crises.

The lack of any production operation, whether direct or non-direct, can be explained by the fact that the need for manufacturing facilities in software business is quite rare. Traditional manufacturing concept could be equivalent to product development in software firms, which usually reside in the R&D unit in the headquarters. R&D activities are typically kept in Finland since capabilities in technology is one of the most important success factors driving these software firms to global markets.

Regarding the development of the product offering, all four case firms were focused in developing a software product during the introductory phase. However, soon after, with the exception of Remedy, all other case firms started providing services along side their products. Tectia and Smartner even went into systems and eventually providing high-tech know-how to customers. Table 10 shows the development of product offering for each case firm.

[5] DIMOS= Direct Investment Marketing Operations
[6] DIPOS= Direct Investment Production Operations

Table 10. Development of product offering

Tectia	Products and Services -> + systems -> + know-how
Remedy	Products -> + intellectual properties
Smartner	Products -> + systems -> + services + know-how
Add2Phone	Products and Services -> Services

5.1.3 Factors Influencing the Growth and Survival of Case Firms

Industry Development Since Establishment

The industry growth rate of the niche market where the case firms have operated in, have affected both the growth and survival of all the firms. Tectia grew rapidly during the first few phases of its history when network security was still a new trend and growing rapidly. The gaming industry enjoyed a very high growth rate over the years, which had a positive influence on Remedy's growth and survival. For Remedy, the side growth in the console market also contributed to their growth and survival. On the other hand, for case firms Smarter and Add2Phone, which were dealing with products in the mobile market, the slower than expected growth of the market hindered their growth and also sometimes to a point where their survival was questioned. This empirical evidence suggests that industry growth does affect firm's growth positively, as indicated by Oviatt and McDougall (1994) and Mudambi and Zahra (2007).

In some studies, it has been found that because software plays such a key role at various levels of economic activity, software sales are less susceptible to economic fluctuations than other products (BSA, 2002). However, the IT bubble bursting back in year 2000 had an enormous negative impact on the survival of the case firms in the B-to-B software business, namely to Tectia, Smartner, and Add2Phone. Many customers slowed down with their IT purchases and venture capitalists were not investing anymore into risky new businesses. On the other hand, the burst of neither the IT bubble nor the typical economic downturn affected Remedy, since it is believed that customers continue spending on entertainment especially during the gloomy depressive times. The generic economic downturn may affect publishers to tighten their wallets so not to invest into new IP titles, but since Remedy already has had publishers on their side for

developing new game products, this did not affect them either. Table 11 summarizes the industry growth of case firms.

Table 11. Industry growth of case firms

Company	1. Introductory	2. Commercial breakthrough and foreign growth	3. Global breakthrough and expansion	4. Global rationalization and maturity
Tectia	Medium	High	High	Low
Remedy	High	High	High	Medium
Smartner	Low	Low	High	Medium
Add2Phone	Low	Low	N/A	Medium

Scale: Low -> Medium -> High, based primarily on qualitative analysis

Although some researchers have argued that it is better to go later into the market than too soon (Christensen, et al., 1998; Shepherd, 1999), some software firms seemed to have gained competitive advantage by being the "first one" in the given niche market. For a while until competitors caught up, Tectia was able to enjoy good profit by being the single provider of a solution. This is in line with the study by Shepherd (1999) of venture capitalists assessment criteria of new venture survivals. Despite the issues of uncertainty and lack of legitimacy facing a pioneer, venture capitalists believe the advantages of being early typically outweigh these initial disadvantages (Shepherd, 1999). After the network security moved from a niche to mainstream market, Tectia faced tough competition, jeopardizing their leadership and affecting growth and survival. On the other hand, for case firms Smarter and Add2Phone, which were dealing with products in the mobile market, it can be said that they had entered the new market a little bit too early. Educating the customers and market took too much time, costs, and efforts, affecting the growth and survival. After the mobile business market picked up, the rise of competition had big impact on both Smartner and Add2Phone. Especially for Add2Phone, major competitions coming from the US clearly hindered their growth. This empirical finding is in line with Mudambi and Zahra (2007).

One interesting finding that is worth noting is that although Smartner considered Blackberry's entry into the European market initially a threat, it influenced Smartner's

product strategies to be changed. Blackberry played an important role in pushing and evolving the mobile email market forward and influenced Smartner to change their offerings, which contributed to the growth and survival of the firm. Thus, competition is not necessarily always just a threat, but can act as a catalyst to better your firm strategies and product offerings.

Remedy is a case firm that is a little off from the other case examples, since they did not enter a niche market – rather a gaming market that was already full of competition. Also, they face three levels of competition; independent game developers competing for publishing deals, other game products in the market, and other types of entertainment forms. Gaming industry is indeed an extremely competitive environment and in order for Remedy, or any other independent game developers for that matter, to survive, they need to have a unique asset that makes them stand out from the rest.

Finally, none of the case firms faced any major trade barriers. Also, for Tectia, Smartner, and Add2Phone, which mainly operates in the B-to-B software business, customer needs across countries have been relatively similar, reducing the need to customize their software products. Remedy, operating in B-to-C, has had to be careful of the cultural differences and preferences that arise from different countries, but they have developed only one standard game (with some local languages). Thus, the homogenous customer needs across countries (industry globalization drivers) seem to affect firms positively on growth and this can also be evidenced from Tectia whose growth was at times limited, due to needing to put all their R&D resources into customizing their products and solutions depending on the *size* of the customers' operations.

Development of Most Critical Resources and Capabilities Since Establishment

Resource Amount

The type of resource that was considered important throughout all the four case firms was the amount and quality of skilled human resources. This is in line with the finding of Cusumano (2004) and Rönkkö, et al. (2008) who suggested that competitive

advantage in a knowledge-intensive industry like the software business often arise from the skills and know-how of personnel than from other resources the firm possesses. Tectia's growth, especially at the beginning of their journey, was greatly influenced by the existence and the amount of engineers who were capable of developing incredible technical products. The same can be said for Remedy, Smartner, and Add2Phone. Smartner's growth and survival was positively affected by the abundance of the *"right", "smart"*, and *"skilled"* people that they employed. The accumulated knowledge and experience of people in the company also made the human resource valuable and rare, being experts of how mobile phones work. Add2Phone also had a *"dream team"* that consisted of people with experience in international business and sales and excellent engineering skills that made it possible for them to think global from the start and develop unique products. Remedy considered that as a creative business, the value is in the people who are creative and productive. Without these people, they are not able to create a brand and IP to sustain their growth and survival.

In some cases, the lack of knowledge and resources clearly affected negatively on the firms. For example, the lack of knowledge and resources in the VPN hardware business at Tectia and the lack of knowledge of the media industry at Add2Phone affected the firms to an extent that it hindered their growth, sometimes to a point that it questioned the survival of the firms.

Another common resource that was an important factor for growth and survival for all case firms was financial resource. For Remedy, Smartner, and Add2Phone, financial resources provided (or not provided) to them by publishers or venture capitalists steered the direction of the firm. All three case firms have been in situation where if funding was cut, their survival would be at stake. Remedy did face a situation where one of the publishers cut funding due to delay in Remedy's deliver schedules and so in order to survive, they had to run around collecting loans from banks. Add2Phone and Smarter actually eventually had to be acquired by other firms in order to sustain growth and survive when there was no funding available in the market. Tectia also considered financial resources to be extremely important but they were different from other case firms in a sense that they were almost never in trouble with shortage of cash. During the

earlier phases, mainly the founder Ylönen's other firm ACR funded Tectia's activities. During the growth in second and third phases before the IT bubble burst, Tectia was offered many types of funding from various firms including other Finnish enterprises and banks. Although most of the financial offers were not taken by Tectia, knowing that funding is available encouraged them to take more risks. Finally in December 2000, Tectia conducted an IPO which brought about 40 million Euros in new capital to the firm, securing financial resources for the upcoming years. Being the only public firm within the four case firms, Tectia clearly was more stable financially than others, but without these financial resources, the firm would not have survived through its crisis period in year 2001-2002.

Managerial and International Experience

The existence or non-existence of managerial and international experience was clearly a factor for growth and survival of case firms. With the exception of Add2Phone, the founders of other case firms did not have much previous managerial and international business experience. This finding supports Luostarinen and Gabrielsson's (2006) study where it was found that managers of Born Global firms are young and inexperienced in business management and international business.

Tatu Ylönen, the founder of Tectia, did not have any international business experience before establishing the firm although he had conducted research at the Helsinki University of Technology and had established a couple of other smaller start-up firms. The lack of managerial and international experience prompted Ylönen to recruit business managers early on. However, he regrets not hiring early enough at the point of establishment of the firm, as having experienced business managers on board quickly may have helped avoid some earlier issues with F-Secure partnerships and other organizational growing pains that are inherent in rapidly growing firms. The founders at Remedy and Smartner also did not have prior international business or managerial experience. In Smartner's case, they hired two additional members immediately during the establishment year to compensate for the missing business experience. Although these two additional members (CEO and CFO) did not have extensive international

experience either, their prior business experience still helped the firm to avoid any mistakes and expand their business rapidly. Remedy was also low on stock and variety similar to Tectia and Smartner in terms of managerial and international experience but they compensated this by learning themselves extremely rapidly, thereby putting emphasis on the stream.

Add2Phone was the only firm, which had all stock, variety, and stream (Reuber & Fischer, 1999) of managerial and international experience at the start of the firm. Despite the market conditions being unfavorable to them, the firm was able to survive through its turbulent times thanks to these managerial experiences. This finding is in line with Shepherd, et al's (2000) study that survival probability of Born Globals is higher especially at the early growth stages if the entrepreneurs have previous experience, thus being able to cope with uncertainty, conflict, and confusion that tends to reside in growing small organizations. If the stock and variety were low, firms compensated by learning or by hiring already experienced managers in order to avoid negative impact on growth and survival. Table 12 summarizes the level of *stock* and *variety* of managerial and international experience that the case firms possessed during the introductory phase. As firms progressed through the growth phases, their experience accumulated, increasing the *stream*.

Table 12. Comparison of managerial and international experience

Company	**Stock**	**Variety**
Tectia	Low	Low
Remedy	Low	Low
Smartner	Medium	Medium
Add2Phone	High	High

Scale: Low -> Medium -> High, based primarily on qualitative analysis

Capabilities (Substantive, dynamic, and networking)

Substantive Capabilities

All case firms possessed some type of substantive capabilities that contributed to their growth and survival. For Tectia and Smartner, the existence of *technological*

capabilities was the most important, contributing to their growth. Tectia's technical capability to develop the world's de facto standard Secure Shell protocol and Smartner's technical capability to develop leading edge technology as well as to merge its own products with Commtag's products were essential to the firms. This is in line with Knight and Cavusgil's (2005) finding that technological leadership is essential for growth.

Although Remedy and Add2Phone acknowledged that their technological capabilities was important and was contributing to their growth, they emphasized more of the *management capabilities*. Add2Phone was able to survive through its turbulent times thanks to their management capabilities in being able to run the business, calculating the risks and costs, and making important decisions quickly. Management capabilities at Remedy, Smartner, and Tectia were not as high level as Add2Phone, but these firms constantly learned and recruited people who possessed the capability.

All case firms except Add2Phone also considered *marketing capabilities* to be essential for growth and survival. Remedy was able to create sustainable IP and brand and design artistic graphics that would grab the attention of game players. Also, despite limited resources, Smartner was able to increase awareness of their products and get on the radar of important players in the market, such as industry analysts and the media, via effective PR and marketing. For Tectia, the shortage of marketing capabilities hindered their growth. During the earlier phases of their development, Tectia focused too much on technological aspects and neglected the importance of marketing. Later on, even though Tectia acknowledged the importance of marketing capabilities, shortage of skilled marketing and sales personnel who understood both technical and marketing aspects clearly hindered their growth. This is in line with the national software survey conducted in Finland by Hietala, et al. (2004). According to the study, the most common problem areas in finding capable personnel were in sales and marketing, especially for the international markets. Also, quite often, some technical knowledge is required from sales and marketing personnel in software business. However, this also seemed to be lacking.

All in all, each case firm possessed some type of substantive capabilities that influenced them to grow and thrive, summarized in table 13.

Table 13. Levels of different substantive capabilities.

Company	Technological	Managerial	Marketing
Tectia	High	Medium	Low
Remedy	Medium	High	High
Smartner	High	Medium	Medium
Add2Phone	Medium	High	Low

Scale: Low -> Medium -> High, based primarily on qualitative analysis

Dynamic Capabilities

As Born Global or Born International firms, the cases studied in this research was often limited in the amount of resources and at times in essential substantive capabilities compared to more established competitors or bigger enterprises. However, they all seemed to have possessed dynamic capabilities (Zott, 2003) or what some others call resource fungibility (Sapienza, et al., 2006) in order to grow and survive in the turbulent and constantly changing software business environment. Both Tectia and Remedy were able to reconfigure their substantive capabilities and adapt their product strategies and organizational structure in response to external dynamics. Without the dynamic capability and/or resource fungibility, they may not have been able to survive as independent firms during the last 15 years.

Smartner and Add2Phone also possessed dynamic capabilities. This can be seen in both cases in a similar manner. First, when the IT bubble burst and there were no venture capitalists investing in risky businesses, they were both able to quickly change their strategic plans to survive the difficult times. Otherwise, they both could have easily gone bankrupt. Second, both made critical decisions to merge and get acquired by other firms in order to sustain growth for the future. Without the capability to quickly re-strategize and adapt to the changing environment, their businesses could have stopped at any time.

Networking Capabilities

Networking capability has been important for all case firms. For example, Tectia, Smartner, and Add2Phone all utilized networks and their contacts from previous work experience to connect with new customers. They also often utilized multiple partner networks to reach out to customers since conventional single channel strategy does not work effectively for Born Globals. This is because indirect channel middlemen are often reluctant to invest enough into marketing new and often unknown products of Born Globals (Luostarinen & Gabrielsson, 2006).

For example, Tectia signed a reseller agreement with F-Secure at an extremely early stage to compensate for the missing competence in sales and marketing. This type of marketing and reseller agreement with an existing and larger firm reduces the "novelty to market", which is concerned with the degree to which the customers are uncertain about the new firm and products (Shepherd, et al., 2000). This type of relationship provides a reduction in the financial risk associated with educating the market, and provides legitimacy to the customers much quicker than trying to market on your own (Shepherd, et al., 2000). However, as could be seen in Tectia case, relying on MNCs for distributing products can sometimes lead to conflicts, similarly seen in Stonesoft and Checkpoint case studied by Gabrielsson and Kirpalani (2004), thus extreme caution is needed.

Although networking capabilities are found to be essential for all types of Born Global software firms, they are found especially important for software service firms, targeting enterprise customers, such as Tectia, Smartner, and Add2Phone. Erramilli (1990) points out that inseparability of production and consumption inherent in service business requires service firms to enter foreign markets in the form of foreign direct investment. Because Born Global firms tend to be limited with resources, and in order to avoid risk, software service firms may partner with local firms or follow domestic customers abroad (Coviello & Munro, 1997). Also, for mission-critical services that affects the basic IT infrastructure of firms, prospects will not make a deal with an unknown firm lacking any kind of credibility. In order to overcome the liability of newness (Zahra, 2005), service firms may network with established MNCs. Reuber and Fischer (2005)

also emphasizes that in a complex business, high-status customer, who is large, established, and internationally recognized by name is of most importance, whereas in less complex business, it is not that relevant. Thus, although networking capability is important for all case firms, it seems it was more important for firms that entered the service business that is complex and targeted to enterprise customers, such as Tectia, Smartner, and Add2Phone, than Remedy, who simply developed game products targeted to individual game players as one-time sales. Table 14 summarizes the type of networking that was important for case firms during each phase. As can be seen, networking capability was important in every phase for all firms.

Table 14. Networking in case firm growth phases.

Company	1. Introductory	2. Commercial breakthrough and foreign growth	3. Global breakthrough and expansion	4. Global rationalization and maturity
Tectia	- Distributors - Recruitment	- Distributors - Industry organizations	- Distributors, resellers, VARs - Strategic partnerships	- Distributors, resellers, VARs - Strategic partnerships
Remedy	- Publishers	- Publishers - Freelancers		- Publishers - Freelancers
Smartner	- System Integrators - Recruitment	- Distributors - Strategic partnerships	- Distributors - Strategic partnerships	- Distributors - Strategic partnerships
Add2Phone	- Recruitment	- Distributors - Strategic partnerships	N/A	- Distributors - Strategic partnerships

Government Support

All four case firms have received governmental support, either in the form of financial support or consulting and business advice. All firms received financial support from TEKES at least during the introductory phase, but also in the later phases. Tectia also received consulting services from FINPRO when entering new foreign markets. In addition to TEKES, Remedy received funding from Kera (nowadays Finnvera) and Smartner from Sitra.

Entrepreneurial Orientation and Lateral Rigidity

During the earlier phases of their history, all case firms possessed high levels of entrepreneurial orientation, whereas as the firm continued to grow and stabilize, they all tended to become more conservative and less risk-taking. This is in line with the findings by Kuivalainen, et al. (2007) who stated that younger and smaller firms at the beginning of rapidly internationalizing phase may still be risk taking and proactive compared to the more advanced globalized firms.

With a very high level of entrepreneurial orientation, both Tectia and Add2Phone led an extremely rapid growth during the earlier phases. They were proactive and risk-taking in various aspects. However, due to too rapid expansion of focus for Tectia and mobile market not growing quickly as expected for Add2Phone, both firms faced challenging times and survival was sometimes at stake. As they slowed down on their proactiveness, their growth stopped, but they were able to avoid bankruptcy. Still, even during these reactive times, both firms did not actually stop innovating. For example, the fact that Add2Phone was able to come up with new products during this phase showed to Telenor that the firm was a good and interesting firm. This may have led to Telenor making an offer for acquisition to Add2Phone, leading the firm back to the growth path with the new resources.

Both Smartner and Add2Phone's entrepreneurial orientation level went down since foreign firms have acquired them. This is usually unavoidable when the chain of command comes from elsewhere and bureaucratic principles and systems are put in place. This lateral rigidity in decision-making process may have slowed down their organic rapid growth but helped in being stable and not needing to face survival risks.

Remedy, on the other hand, can be considered a special case. Remedy has taken the conservative approach and not taken new initiatives and not been proactive, at least during the last 10 years. If they had been more risk-taking and proactive with new business initiatives, it is possible that they could have grown faster. However, it has been their conscious decision not to grow too rapidly and to focus on what they are good at. On the other hand, because the firm operates in the hit-based gaming industry,

focusing and betting on one product at a time, they have a survival risk at any point in time. For example, if they put all their resources on Max Payne 1 development and it did not sell, they would have most likely faced survival crisis. In order to balance the risks, Remedy has focused all their resources on developing the best game, and avoided taking risks in any other new business initiatives or proposals that came along. Being conservative and not having too much entrepreneurial orientation has helped them to avoid survival crisis. Table 15 summarizes the level of entrepreneurial orientation of case firm during each growth phases.

Table 15. Level of entrepreneurial orientation.

Company	1. Introductory	2. Commercial breakthrough and foreign growth	3. Global breakthrough and expansion	4. Global rationalization and maturity
Tectia	High	High	High	Low -> Medium
Remedy	Medium	Medium		Low
Smartner	High	High	Medium	Low
Add2Phone	High	High	Low (hibernation phase)	Low

Scale: Low -> Medium -> High, based primarily on qualitative analysis

Software Business Specific Factors

Compatibility with Major Players

Being compatible with major players in the market is considered to be critical for both growth and survival for all case firms, whether the firm is developing software products or software services.

Tectia, Smartner, and Add2Phone, which develop both software products and software services, need to be compatible with various computer operating systems as well as, for the latter two, with various mobile phones. Remedy, developing only software products, also need to be compatible with the platform the game would be running on, for example, PC and various consoles. Making the decision of which platforms to support is extremely critical for the firms. They cannot afford to support every single platform that

is available in the market, as it would cost too much with development and testing, but making a mistake in which platforms to support or not to support may also be detrimental to the firms. For example, Tectia has made wrong decisions in trying to support some platforms such as Symbian. After extensive development and testing phase, the product did not sell after all and they had to cancel the product. This experience hindered the growth of Tectia at the time, as most of the R&D resources were being poured into developing the product for Symbian. Remedy has also chosen to develop their newest game "Alan Wake" exclusively for the XBox 360 console. Five years ago when they made this decision, it was not yet known how well this console would be selling in the future. If, today, Sony Play Station 3 console would be selling much more than XBox 360, Remedy's survival could have been at stake.

Lock-in Effect

Lock-in effect is critical for both growth and survival for the case firms doing business in both software products and services. Software services are usually targeted at enterprise customers, and professional services and customer-tailored software are provided on top of the product license sale. As such, once the enterprise customer has chosen the case firm's products and services, it is difficult or expensive for them to change to another vendor frequently, securing continuous revenue stream for the case firms. This finding is in line with Rönkkö and Pöyry's (2006) study.

Although lock-in effect is critical for both growth and survival throughout the various phases of Tectia, Smartner, and Add2Phone's development, it can be assumed that they are more critical during the introductory and commercial breakthrough phases, when the firms are still the early players in the market with niche products, before the competitors start coming in. It can then work as an entry barrier to rising competition. This finding is in line with Cusumano's (2004) view.

Unlike the case firms that provide both software products and services, Remedy does not experience any lock-in effect with their software game products. Game products, which are targeted to consumers, are typically used temporarily, until new game

products are purchased. As such, the only way independent game developers can create a similar effect is to develop sequels of the first version of the game.

Software Development Process

All case firms emphasized the importance of software development process and that it is critical for growth. Typically, during the introductory phase, all case firms' software development processes were informal and highly agile, using mostly implicit specifications. All case firms considered the agile process to be critical in order for a small firm to quickly create a unique and credible product. However, as the firms continued to grow and expand their business, they realized the importance of stable development process with predictable, systematic procedures.

All case firms have experienced a phase where unstable software development process affected and hindered their growth. For example, Tectia faced some challenging times of being reliable with their release schedules, maintaining high quality, and executing promised roadmaps. At some point, all R&D efforts were being put into fixing bugs and testing their software that they were not able to invest time into developing any new products. Earlier studies have found that the effectiveness of R&D and innovation practices is an important factor for firm survival (Karagozoglu & Lindell, 1998). Although Tectia acknowledged the desires and need to develop breakthrough technologies for new product development, the firms' limitation in resources made it quite difficult to allocate resources between the existing product development and maintenance (bug fixes and adding new features) and new product development. This is also in line with some of earlier studies of high-technology based firms (Karagozoglu & Lindell, 1998). Since technology advances rapidly in the software industry welcoming new entrants constantly, it is important that management is able to allocate resources to new product development for long-term survival.

Remedy also faced challenges with their software development process during their recent "Alan Wake" game development and admitted that they may have grown faster if they had had more reliable and stable software development process in place. The same

was said for Smartner, who faced challenges when trying to integrate their process at the time of acquisition by SEVEN.

Although unstable software development process may affect growth, it was not seen to affect survival of the case firms as such.

Open Source Software

The findings related to how the existence of open source software affects growth and survival on the four case firms were divided. First of all, Remedy did not consider the existence of open source software to be a threat to their business because open source teams are not able to produce games that are similar to Remedy's games, due to limitations in budgets. They are basically targeting completely different end users.

Both Smartner and Add2Phone have used various open source software in their own products to speed up their own development. As such, the existence of the open source community has actually helped these case firms. Both firms do not believe that open source software which does similar thing as their products would be a threat to their business, since most open source software products would be limited in features and capabilities. Their enterprise customers also usually require services on top of the extensive features, which open source community is not able to provide reliably.

Finally, Tectia was a special case where the existence of open source software (namely OpenSSH) actually affected their growth to an extreme extent in the past. The free version of their products hindered their growth, as many customers preferred to install that instead of products that would cost them. For some period of time, OpenSSH took away Tectia's potential business and the firm struggled to re-position itself in the market to differentiate themselves from the free version. It is not until recently that the firm re-branded themselves, positioned themselves to target enterprise customers who also require extensive features and services. In addition, the firm has succeeded in developing many new products which the open community is not developing, as of yet.

Software Business Model and Growth Strategies

Software product firms typically have the ability to grow at enormous rates by tapping a global mass market for packaged products, as long as they come up with a hit product. However, as Cusumano (2004) argues, packaged software products will encounter a point when the market is saturated and the growth starts to slow down or competitors come up with similar low-priced alternatives. Firms then have to come up with another hit product, which is hard to do, or learn how to manage a maturing business by entering the service arena for recurring revenue. If firms cannot adapt to this change quickly enough, their survival may be at stake.

This is the case for Remedy who faces a limit to growth selling only software products and operating in a hit-based industry. Also, if they fail with one game that they have been developing for several years, it may affect their survival negatively. Thus, the firm is searching for ways to change their business model so that their growth and survival would not be influenced by one software product. One idea they have is to turn their firm into a "creator of a game-based intellectual properties" and instead of developing only game software, they would be franchising and licensing the right to use their IPs that were created for the games software.

For the rest of the three case firms, they have all realized the growth limit of one-time license sales with software products. They are also all common in a way that their target customers are enterprise customers, who appreciate support and other consulting services provided by the software developers. As such, call case firms have provided services and also know-how to enterprise customers in exchange for recurring revenue, which guarantees longer-term revenue than one-time license fees. Services are typically provided more efficiently locally by local contacts, so all three case firms have either had subsidiaries in major markets or have utilized local partners extensively.

Other Factors

Based on the extensive interviews, there were some additional factors that were raised by the interviewees, which shed light on what influences growth and survival of these Born Global software firms. Table 16 lists the additional factors and are explained below.

Table 16. Additional factors affecting growth and survival.

	Growth	Survival
Luck	+	+
Nature of software industry	+	-
Capability to Focus	-	+
Low levels of growth aspirations	-	+
Internationalization and localization capabilities	+	+
Creativity	+	+

+ means positive effect and – means negative effect.

Luck

Something which firms have no control over – "luck" – was identified as one factor that may have *contributed to the growth and survival* of some of the case firms. For example, the huge success of "Max Payne" game, which contributed to the growth and survival of Remedy may be attributed to "pure luck" and being *"in right place at the right time", -Reini.* On the other hand, being in the wrong place at the wrong time influenced Add2Phone's growth and survival, as they were in the potentially high-growth market way too early. This is in line with Autio, et al.'s (2007) remark that high growth may result if the firm is simply in the right place at the right time, and the same applies to failures so that bad fortune may ruin the growth of a firm and even drive it to bankruptcy.

"We were at the wrong time at the wrong place.", -Paananen, Add2Phone.

The Nature of the Software Industry

The nature of the software industry can be considered as *positive growth factor and negative survival factor*. The low investment needed for software development at the beginning compared to manufacturing firms allows software start-ups to emerge easily. It is also very easy for software firms to globalize. Especially with software products, it is easy to achieve economy of scale, allowing rapid growth. Even when providing software services, as long as you have partners in local countries, you can globalize your services. However, that also means that it easily increases competition (Hoch, et al., 2000), so if the new start-up has all the core resources and capabilities in

management, sales, marketing, and funding, and your products do not have any lock-in effect, then you are very much threatened. Indeed, both Hoch, et al. (2000) and Nambisan (2002) agree that software business is characterized by intense competition, and that there is always a threat for new competition. Thus, software firms have to be alert all the time regarding the changing environment.

"It can be globalized quickly and there are lots of advantages but then the competition is also a lot harder. It's a lot tougher field to compete because everybody, the barrier of entry to make a software, anybody can do that. One person can do a piece of software.", -Mäki, Remedy Entertainment.

"Low investment for instance, in equipment or factories makes it easy to enter the field and can mean that new competitors can emerge. And with a small, talented team, a small new entrant can sometimes do impressive things that may threaten a big incumbent.", -Ylönen, Tectia.

Capability to Focus

The capability to focus may be a *factor for survival but not necessarily for rapid growth*. For example, "focus" has been Remedy's culture all along, as can be seen when the firm established another firm Futuremark when 3D benchmarking product "Final Reality" became a success because Remedy themselves wanted to focus on developing games. Also, Remedy decided to "focus" on developing the recent "Alan Wake" only for the Microsoft Xbox360 platform so that they can do it really well for that particular platform instead of also developing it for other platforms such as Play Station 3. Thus, their "focus" strategy has helped Remedy to create only four games during the past 15 years but they have all been extremely successful since they have put all their resources and skills to developing those games one at a time. In this hit-based gaming industry, this has contributed to the survival of the firm. On the other hand, it has not contributed to a rapid growth of the firm. It is important to note that they have consciously made the decision not to grow rapidly.

"I would say there are a couple of success factors strategy-wise and I think focus is definitely one of them….by focusing, you are, by definition, limiting your options what you are doing….because it's a hit-driven business, we have to focus every bit of skill and expertise and knowledge that we have to that one product to even have a chance being in the Top 10. ", -Reini, Remedy Entertainment.

The same phenomenon can be seen in the Smartner case. The fact that they were limited in funding meant that they were sometimes slow in growth or in survival crisis, but it also forced the firm to develop as a firm instead of expanding the firm too quickly in terms of products and people. At different phases, Smartner focused on specific agenda to survive. For example, in 2001 when they were short on funding and downsized the organization, they still clearly focused on their internationalization strategy, to close international deals in Europe. Their choice in focusing on enterprises services instead of also doing consumer services also helped them differentiate themselves from other firms. Also, when the firm started to develop the "push" mobile email product, they put all their resources into that one product and all other projects and products were put into maintenance mode.

"I think one of the things that we were pretty good was that the ability to keep focused on just a few things and try to take them .. not sort of switch focus too quickly, but quickly enough.", -Räisänen, Smartner.

Low Levels of Growth Aspirations

One of the factors that have *limited* Remedy's *growth* can be considered as an internal reasoning whereby they themselves have not wanted to grow so rapidly. This is in line with the findings of Rönkkö, et al. (2008) who argued that the reasons why so many Finnish software firms remain small is because the founders have low level of growth aspirations and are unwilling to grow the business considering the increased level of risk associated with it. Remedy realizes that staying small has its benefits such as fast iteration and easier communication. However, low level of growth aspirations does *affect positively on survival rate*.

"I think the only limitation has been sort of internal reasoning that we haven't wanted to grow just because of growth.", -Mäki, Remedy Entertainment.

Internationalization and Localization Capabilities

In order for software product firms to scale, the product must be sold in as many markets as possible, pushing them to globalize their business immediately from the beginning. This also then meant that the product must be easy to localize for various

markets if required from the local customers. Smartner/SEVEN possessed a high level of localization capabilities whereby their product was developed so that it was extremely easy for them to localize their products into different languages and brands to suit various operators and countries. Their capability in internationalization and localization *affected positively to growth and survival*.

"What contributed was that we developed one piece of software that was replicable in different markets. … the fact is that we could replicate our product in different markets with relative ease.", Räisänen, Smartner.

Creativity

The software business in gaming industry differs from the other basic software industry in many ways. One being that the gaming software operates in a hit-based industry. To be able to sell and succeed financially in this industry, the firm needs to create a game that aims in being on the top 10 best titles of the year. Otherwise, the firm ends up burning a lot of expenses with little return, affecting the survival of the firm. Developing successful game software requires a completely different capability in addition to many other capabilities that basic software business needs and that is the capability to be creative. The game product must be fun, enjoyable, and entertaining. There are some components of entertainment that is very hard to define or produce in a structured manner and is dependent on the creativity and innovativeness of the people the firm employs. Thus, Remedy's capability in being creative has had a *positive affect on both growth and survival*.

"The gaming industry does differ a lot from a basic software industry company. Because there is the components of entertainment and that is very hard to define or produce in a structural manner. So entertainment is born out of creativity of people so it is very hard to confine that or even define that in a "how to make a game fun". That's the ultimate question for every game developer, how to make a game fun and enjoyable, so it's the.. what I say, usually, is the defining difference between the basic software companies such as SSH or any other company.", -Reini, Remedy Entertainment.

5.2 Revised Theoretical Framework

Based on the case study conducted in this research, a revised theoretical framework identifying the growth phases and factors influencing the growth and survival of Finnish Born Global software firms can be presented.

Related to the growth phases, it was expected that Born Global software firms evolve through four phases during growth towards large firms:

1) Introductory,
2) Commercial breakthrough and foreign growth,
3) Global breakthrough and expansion, and
4) Global rationalization and maturity phase.

Indeed, all case firms passed through the *introductory phase* at a fast pace after which they followed a path that was unique to its own history. Although Gabrielsson & Gabrielsson's (2009b)'s growth phases generally apply to these firms, the following notes can be added:

- Born Global software firms' introductory phases are extremely short, experiencing commercial breakthrough and global breakthrough almost at the same time.
- Acquisition and mergers should also be added as an alternative to organic growth, and not necessarily labeled as a failure.

Before presenting the actual revised framework of factors for growth and survival, propositions that were postulated for empirical study are reviewed and revised below.

Proposition 1a: The commercial and global breakthrough of a born global firm is positively related to the industry growth rate, the globalizing enablers in the industry, the amount of resources and managerial experience, the existence of substantive and dynamic capabilities, and a high level of entrepreneurial orientation in decision-making (Gabrielsson & Gabrielsson, 2009b, p13)

Proposition 1a is mostly supported by the empirical analysis. All of the case firms grew rapidly when the industry growth rate (Vernon, 1966) has been high but when it has

been slow, the commercial and global breakthrough did not progress. All of the firms also benefited from the globalizing enablers in the industry (Yip, 1989) and high levels of entrepreneurial orientation in decision-making (Lumpkin & Dess, 1996), except for Remedy. Remedy has not had a high level of entrepreneurial orientation in decision-making, thus their growth has been slow. However, they have successfully gone through the phases of commercial and global breakthrough, thus high level of entrepreneurial orientation in decision-making is not necessarily always needed.

The amount of resources (Hannan, 1998) such as skilled human capital and financial resources, and managerial experience (Reuber & Fischer, 1999) contributed to growth as well. Substantive and dynamic capabilities (Zahra, et al., 2006) were especially seen to be instrumental to growth for these Born Globals due to the fact that they were often limited on the amount of resources and the nature of their capabilities then defined the course of their future growth.

Proposition 1b: The global rationalization of a born global firm is positively related to higher global seller concentration, pressure for resource alignment, and a low level of both industry growth rate and entrepreneurial orientation in decision-making. (Gabrielsson & Gabrielsson, 2009b, p13)

Proposition 1b receives support from Tectia and Smartner cases, which have experienced the global rationalization phase. As the niche market started to become mainstream, the increase in competition and decrease in the growth rate have pushed both firms to rationalize and globally align their operations. Furthermore, the level of entrepreneurial orientation in decision-making clearly decreased as these firms entered the maturity phase and started operating as an established business.

This proposition was not evaluated for neither Remedy nor Add2Phone as it was not applicable to them. Instead of reaching the global rationalization phase, Add2Phone was acquired by More Mobile Relations. The industry growth rate has not slowed down either, on the contrary, it is a growing industry in the future, thus More Mobile Relations is not in the maturity phase either. Global rationalization phase was not applicable to Remedy either, since they do not have any other offices in foreign countries and they are not in a maturity phase. However, they realize the need to

rationalize their operations constantly as requirements for high-end games and technology change rapidly and they need to keep their costs and expenses of development in check. Remedy does need to rationalize their operations when there is a higher global seller concentration in the industry. They have been under pressure to align their resources and develop better software development processes. Since the industry growth rate has not slowed down in the gaming industry, it cannot be predicted how that will influence on Remedy's growth. However, it can be assumed that if there would be a slow down in the gaming industry, Remedy will have to rationalize their operations even further.

Proposition 2: The survival of a born global is positively related to the industry growth rate, the amount of resources and managerial experience, the existence of substantive and dynamic capabilities, and lower level of entrepreneurial orientation. (Gabrielsson & Gabrielsson, 2009b, p13)

Proposition 2, in a similar manner as proposition 1, was supported fully by the empirical analysis. The survival of all case firms benefited from the industry growth rate and when there was economic downturn such as the IT bubble bursting, at least Tectia, Smartner, and Add2Phone experienced difficult times, even questioning their survival. In addition, lack of resources, especially financial resources, often ignited survival crises for the firms, which suggests that the amount of resources the firm possesses is positively related to its survival. Lack of managerial experience and certain types of substantive capabilities certainly had significant effect, for example, on Tectia, pushing them to shut down their VPN hardware operations. High level of entrepreneurial orientation, which was often seen during the earlier phases of these case firms, accompanied high risks, almost igniting survival crises.

Proposition 3: The commercial breakthrough, global breakthrough, global rationalization, and survival of a born global are positively related to high networking capabilities (Gabrielsson & Gabrielsson, 2009b, p14).

Proposition 3 was also supported by the empirical data. All case firms, due to constraints in resource and capabilities as small start-up firms, utilized their networking capabilities heavily and also invested their time and efforts into enhancing the

capability. If these firms were limited in resources and could not obtain them from partnering and networking with other firms, their survival would have been at stake.

Proposition 4a: The growth throughout different phases and survival of a born global are positively related to the level of compatibility with dominant players, existence of lock-in effects, and choosing the appropriate strategies for growth and business models, and are negatively related to the existence of open source software.

Proposition 4a was supported fully only by Tectia. While the level of compatibility with dominant players in the market (Coviello & Munro, 1997; Cusumano, 2004) and the appropriate strategies for growth and software business models that firms adopt were certainly a major factor for both growth and survival of all case firms, lock-in effects and existence of open source software was only partially supported. As for the lock-in effects (Cusumano, 2004), while it was a major factor for Tectia, Smartner, and Add2Phone, it was just not applicable to Remedy, since the effect simply does not exist in the gaming industry. The existence of open source software was thought to affect these software Born Globals to an extent that it would slow down their growth and affect survival rates but this was only true for Tectia. All other firms considered the existence of open source software to actually be a positive trend, as they themselves can utilize different free software in their own codes. They also believed that open source software products are often limited in functionality, thus not competing directly with their own full-blown products, which are targeted to enterprise customers, along with services. Tectia, on the other hand, experienced major threats from open source software, namely OpenSSH, which had actually originated from their own codes, since the founder and inventor Tatu Ylönen had given it out for free in the earlier phases. They made a mistake of competing head to head with OpenSSH and it was not until in the later phases when they re-positioned themselves by adding more products and services to their solutions, to be IT security provider for enterprise customers. OpenSSH's existence hurt Tectia's growth for quite a long time and it could have also affected their survival. As such, it can be concluded that with the exception of Tectia's earlier phases, the existence of open source software does not negatively impact firms' growth and survival.

Thus, proposition 4a can be re-formulated as follows:

Revised Proposition 4a*: The growth throughout different phases and survival of a born global are positively related to the level of compatibility with dominant players, existence of lock-in effects, and choosing the appropriate strategies for growth and business models.*

Proposition 4b:The global breakthrough, global rationalization (latter two phases of growth) and survival are positively related to mastering the management of software development process.

Proposition 4b was partially supported by all case firms. While all firms had an agile and flexible development processes during the earlier phases, which made it possible for them to adapt quickly and come up with new products in the emerging new markets, they all experienced a phase where unstable software development process affected and hindered their growth. However, there was no evidence that not mastering the management of software development process would ignite survival crises.

Thus, proposition 4b can be re-formulated as follows:

Revised Proposition 4b: *The global breakthrough and global rationalization (latter two phases of growth) are positively related to mastering the management of software development process.*

Proposition 4c: Software product firms are expected to grow at a much faster rate than software service firms but there may be a limit to growth, thus they are bound to enter the service arena, creating more and more hybrid firms, doing both software product and service business, in order to increase the chance for survival.

Proposition 4c was fully supported by all case firms. All case firms acknowledged the limits of growth for software product firms and naturally expanded their offerings to the service arena, securing recurring revenue for the future. The exception was Remedy, who develops game software products and do not provide any services to secure recurring revenue. However, they too, see the limit of needing to develop a "hit" product every time, and so are looking for different ways to grow and survive in the future.

Additional Proposition

Based on the extensive interviews, the following new propositions can be added. For details of the analysis, see section 5.1.3, under "Other Factors".

Proposition 5a: *Growth and survival of a born global firm is positively related to having "pure luck", internationalization and localization capabilities, and creativity.*

Proposition 5b: *Growth of a born global firm is positively related to the nature of the software industry (scalability, low investment) while survival is not.*

Proposition 5c: *Survival of a born global firm is positively related to the capability to focus and low levels of growth aspirations, while growth is not.*

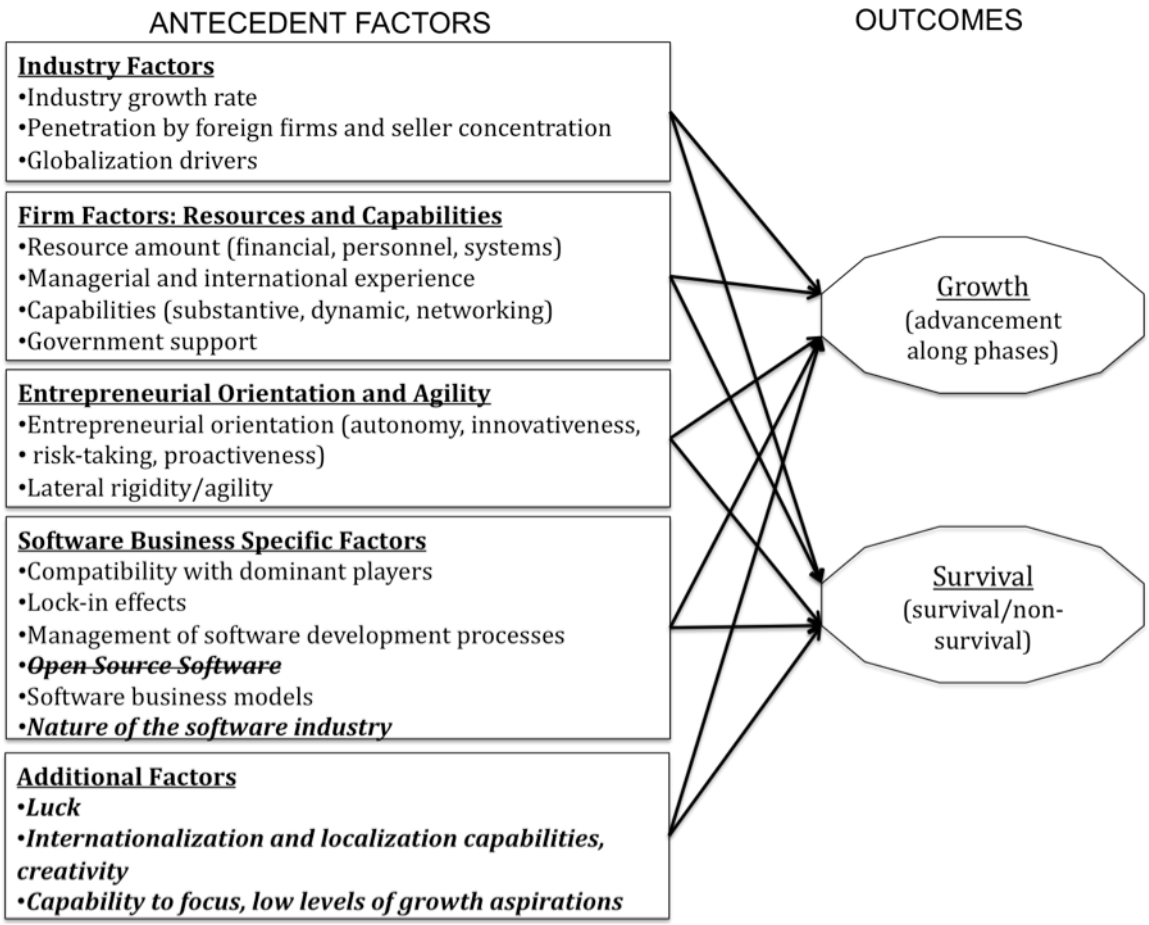

Figure 26: Revised framework

Based on the supported, revised, and added propositions, the framework for the growth and survival of Born Global software firms can be presented as in figure 26. The revised factors are highlighted in italics and bold font.

6. CONCLUSIONS AND RECOMMENDATIONS

In the following section, the theoretical premises and research findings of the study will be summarized. Also, the main contributions of the study to the international business literature are presented. Finally, managerial implications and recommendations to support organizations are followed by recommendations for further research.

6.1 Summary

In order to summarize the findings from this study, it is useful to revisit the original research problem, which was:

How can innovative born globals grow to become truly global firms while also surviving, taking into consideration their limited resources to address the global market opportunities and required holistic management of the process?

In light of the research problem, the objective of this study was to identify the development phases and factors of growth and survival of Born Global firms. This thesis especially concentrated on the growth phases and growth and survival factors of Finnish software Born Global firms. Thus, the following research question was set:

How do born global firms in the software industry become adults and what factors impacts their global growth and survival?

This question was supplemented by three specific sub-questions:

1) *What are the growth phases of these firms?*
2) *What are the factors that impact the growth and survival of these firms?*
3) *How do differences in the business model (software products, software services, and hybrid solutions) affect the different paths that firms should take to grow and survive?*

Summary findings for each sub-questions are presented below, which collectively answers to the main research question.

Research question 1: What are the growth phases of these firms?

In line with Gabrielsson and Gabrielsson's (2009b) growth phrase framework, Born Global software firms may go through the following four phrases during growth towards large firms:

1) Introductory,
2) Commercial breakthrough and foreign growth,
3) Global breakthrough and expansion, and
4) Global rationalization and maturity phase.

More specifically, Born Global software firms go through the introductory phase at an extremely fast pace after which they follow a path that is unique to its own history. Some are likely to have a combined phase where commercial breakthrough and foreign growth phase and global breakthrough and expansion phase happen at the same time, since it is easy, especially for software product firms, to globalize immediately at inception.

In addition, half of the case firms studied has been acquired by another larger firm, which suggests that the fourth phase can be substituted by acquisition or merger as an alternative path to growth. Although some may regard "being acquired" as a non-survival case, the case firms studied did not see it that way; it was just another way for the firms to continue growing and surviving in the turbulent software industry.

Research question 2: What are the factors that impact the growth and survival of these firms?

Of all the different factors that may impact the growth and survival of Born Global software firms that are identified in the international business literature, industry factors, firm factors such as resources and capabilities, entrepreneurial orientation and lateral rigidity, and software business specific factors were investigated in this paper. The following summarizes the results.

Industry factors: High industry growth rate (Vernon, 1966), low industry penetration of foreign suppliers, low global seller concentration (Driffield and Munday, 1997), and the existence of industry globalization drivers (Yip, 1989) influence Born Global software firms' growth positively. A low industry growth rate in turn affects the firms

negatively to an extent that it may cause non-survival (acquisition, in the cases studied in this paper). Also, increase in global seller concentration in the industry, decrease in the industry growth rate, and pressure for resource alignment pushes the firms to global rationalization and maturity phase.

Firm factors (resources and capabilities): The amount of resources (Laanti, et al., 2007), managerial and international experience (Reuber and Fischer, 1999), the possession of substantive capabilities (Verona, 1999), dynamic capabilities (Zahra, et al., 2006), and networking capabilities, resource fungibility (Sapienza, et al., 2006), as well as availability of governmental support (Knight & Cavusgil, 2005) positively influenced growth as well as survival of Born Global software firms at various phases of its growth. It is especially significant to note that the possession of various types of substantive capabilities, such as managerial, marketing, and technological capabilities, were more important than excelling in one type of capability. Possessing only one or two types of capabilities while lacking in others actually hampered case firms growth aspirations and affected survival.

Entrepreneurial orientation and lateral rigidity: The existence of entrepreneurial orientation (Knight & Cavusgil, 2005) had a positive impact on Born Global software firm's growth but negative impact on survival. On the other hand, lateral rigidity in decision making (Luostarinen, 1979) had a positive impact on their survival with a negative impact on growth. Entrepreneurial orientation usually existed during the earlier phases of firm growth, fueling growth for the firms, while lateral rigidity increased as firms matured.

Software business specific factors: The level of compatibility with dominant players in the market (Coviello & Munro, 1997; Cusumano, 2004), the appropriate strategies for growth and software business models that firms adopt, existence of lock-in effects (Cusumano, 2004), and existence of proper software development process affects Born Global software firms' growth and survival positively. Mastering the software development process was seen especially important during the later phases of its growth compared to the earlier phases when firms need to be more agile and responsive to the evolving market. In addition, having "pure luck", internationalization and localization

capabilities, and creativity seemed to have positive affects on growth and survival. Also, while the nature of the software industry affects positively to growth but negatively to survival, the capability to focus and low levels of growth aspirations had positive affect on survival while having negative affects on growth.

Research question 3: How do differences in the business model (software products, software services, and hybrid solutions) affect the different paths that firms should take to grow and survive?

The nature of the software industry allows new start-ups to emerge easily, due to the fact that they do not have to set up manufacturing facilities and initial investment can be low. Especially software products can be exported to global markets easily with the help of digital channels and increase in the similarity of customer needs across markets for different types of software products. It is easy to achieve economies of scale, allowing rapid growth, thus software product firms are expected to grow at a much faster rate than software service firms. However, that also means that it easily increases competition (Hoch, et al., 2000; Nambisan, 2002). When the times are bad, revenues can collapse because customers can simply stop buying new products and is sometimes challenging for firms to come up with new products after the "hit product" that made the firms grow rapidly in the beginning. The firms most likely to survive the down times are those with a solid base of loyal, satisfied customers who pay "recurring" fees over long-term contracts for product updates, bug fixes, customization, and other services (Cusumano, 2004), thus software product firms are likely to move into the software service arena, making them more of a hybrid solution firm. Networking capability is also seen more essential for software service firms than software products firms during the introductory phase.

6.2 Theoretical Contributions

The main contributions of this study to the international business literature are the extensive literature review that was conducted related to the growth phases of Born Global software firms and also the factors that may impact the growth and survival of such firms, in-depth study and empirical analysis of four Finnish software firms, and the revised theoretical framework that was then proposed.

Although Born Global firms' internationalization process seems to deviate from the traditional view, its growth phases resemble conventional lifecycle models of organizational growth. For example, stage-wise organizational growth models (Scott & Bruce, 1987) receives some empirical support from this study. However, transitional crises or periods of revolution when progressing from one phase to another was not necessarily seen every time, although suggested by Gabrielsson and Gabrielsson (2009b) and Greiner (1972). This study's empirical findings suggests that Born Global software firms may grow extremely fast throughout various phases without necessarily facing any crises, as the growth tends to happen so rapidly.

Gabrielsson and Gabrielsson's (2009b) growth phrase framework provides a useful blueprint for studying Born Global firm's growth and survival, and this study contributes by adding some additional possibilities of how Born Global software firms may grow to become adults. More specifically, based on empirical evidence, Born Global software firms may have some of the growth phases combined into one. Also, half of the case firms studied has been acquired by another larger firm, which suggests that the fourth phase can be substituted by acquisition or merger as an alternative path to growth. Although some may regard "being acquired" as a non-survival case, the case firms studied did not see it that way; it was just another way for the firms to continue growing and surviving in the turbulent software industry.

There are also some other additional findings from the empirical analysis. Gabrielsson and Gabrielsson (2009b) suggested that during the introductory phase, entry to first foreign markets starts with below 25% internationalization degree with sales in less than six countries. This was not the case, at least for Tectia, Remedy, and Smartner, which were categorized as true Born Global case firms. If a software firm is categorized as a Born Global firm, then it seems likely that the sales are immediately on a global basis already from the introductory phase. In addition, at least Tectia and Add2Phone experienced "de-internationalization" phase when both firms had to close down foreign sales subsidiaries and either become conservative or hibernate until the bad economic times were over. Gabrielsson and Gabrielsson's (2009b) framework more or less suggested incremental growth phases, thus it may be useful to add additional

possibilities whereby firms may hibernate or de-internationalize temporarily, which does not necessarily mean non-survival.

Related to the factors that impact growth and survival of Born Global firms, at least the ones that were outlined by Gabrielsson and Gabrielsson (2009b), such as industry factors, firm factors, and entrepreneurial orientation and lateral rigidity, were mostly supported by the present study. The in-depth empirical data also suggested that while all other factors have unilateral impact on commercial and global breakthrough as well as on the survival, entrepreneurial orientation and lateral rigidity exhibited bilateral impacts on the outcomes, affecting commercial and global breakthroughs and survival in the opposite way. In other words, entrepreneurial orientation was found to have a positive impact on the growth of case firms but a negative impact on survival. Lateral rigidity, in turn, had a negative impact on case firms' growth while having a positive impact on survival.

When looking at some of the specific factors, in line with Gabrielsson and Gabrielsson (2009b), networking capabilities were seen as extremely important for both growth and survival of Born Global software firms, especially due to the fact that they are rather limited in resources from the outset with such ambitious goals as going global from day one. Also, good mixture of different types of substantive capabilities is more important for the firms than excelling in one or two specific types of those capabilities.

As indicated earlier, novelty of this particular study was to add software business specific factors that may influence growth and survival of Born Global firms. This paper was able to shed some light onto factors such as the level of compatibility with dominant players, existence of lock-in effects, and choosing the appropriate strategies for growth and business models, which influence growth and survival of Born Global software firms. Mastering the management of software development process was also found to be important when growing during the global breakthrough and global rationalization phases. In addition, it was found that having "pure luck", internationalization and localization capabilities, and creativity influence growth and survival of the case firms. While these additional factors were seen to have unilateral impact on both growth and survival, there were also some factors that were identified

from the empirical data that gives bilateral impact. For example, it was found that growth of a Born Global software firm is positively related to the nature of the software industry while survival is not, and survival of a Born Global software firm is positively related to the capability to focus and low levels of growth aspirations, while growth is not.

6.3 Managerial Implications

Based on the results of this study, following suggestions can be made to entrepreneurs and managers of Born Global software firms:

- Firms should take note that possession of the following factors will contribute to growth and survival: abundance of resources such as human capital and financial resources, managerial and international experience, substantive, dynamic, and networking capabilities, and governmental support.

- Excelling in one type of substantive capability is not enough; firms should invest their efforts to obtain a diversity of substantive capabilities across marketing, technological, and management capabilities. Accelerated internationalization and demanding software business environment requires business managers to be competent in variety of aspects.

- Born Global firms with limited resources should put particular emphasis on their networking capabilities, as it provides a valuable alternative to ownership-based control of assets. Cooperation with external partners or forming strategic alliances in marketing and R & D is one way of acquiring resources otherwise lacking from Born Global firms (Luostarinen & Gabrielsson, 2006).

- If the firm is specialized in software products, there may be limits to growth, so the firm should look into expanding into software services, which secures recurring revenue or other types of business. However, entering the software service field as a Born Global firm may be challenging due to limited resources, thus networking with MNCs and local partners in various countries is essential for rapid growth.

- Firms should balance their strategy in a way that they focus on particular products or activities when needed. With limited resources, spreading the wings to every direction possible is not the way to go. Focusing all the efforts into getting one thing done excellently will contribute to growth and survival, although the growth would not be as rapid.

- Firms should seriously take note that the following software business specific factors will contribute to growth and survival; level of compatibility with dominant players in the market, existence of lock-in effects, and having the appropriate software business models and growth strategies.

- While agile and flexible software development process during the earlier phases of firms' growth may contribute to the rapid development of new products, not having appropriate processes in place as firms continue to grow and mature may be detrimental to the firm and eventually hinder their growth. Firms should put efforts into defining the software processes in a way that is acceptable to all stakeholders, which helps development proceed in scheduled and organized way.

- Firms developing software products should not customize it too much, because then it would not scale globally. Software products should be standardized as much as possible. Even firms providing services should implement service modules and localize only those parts where local language and other sensitivities are required.

Last but not least, as Cusumano suggests (2004), software start-ups need to be strategically flexible, reinventing themselves multiple times during the course of their existence. In order for Born Globals to grow and survive at the same time, it is important that management team is flexible and balances their entrepreneurial orientation with strategies that they choose to take. Taking all sorts of risks no matter what may lead to failure, but killing the firms' entrepreneurial orientation will rule out any innovation that is needed for firms to grow and survive.

6.4 Recommendations to Support Organizations

During the interviews conducted for the empirical study, the following two additional questions were asked in order to identify how governmental organizations can help Born Global software firms to grow and survive in the future.

1. What is the firm's view of current government support?
2. How can government support better the firms in critical decision-making points?

All four case firms received financial support from TEKES during their growth and as such, their views tended to be focused on TEKES. The views varied depending on the interviewee but in general, financial support was seen to help the case firms a lot. For example, Remedy considered TEKES to be a *"fantastic partner"* who has been really helpful in providing development funds, which is critical for independent game developers in reducing some of their risks. They also viewed Finnish educational system to be excellent, producing abundant young resources and a good base of employees. Some firms such as Smartner and Tectia considered the process for applying for the funding to be too complicated at times and the decision for the funding extremely slow. Also, it was perceived that TEKES is too much focused on investing into firms that seem "safe", instead of taking risks.

Based on the in-depth interviews, following recommendations can be made to support organizations:

- More financial support throughout the different growth phases instead of just during the introductory phases would be beneficial.
- Put more emphasis on computer science education, for example, at the Aalto University School of Technology, so that more brilliant engineers with technical expertise will be born.
- Since there are so many start-up firms in Finland with high competence in technology, more emphasis could be put on building marketing competence.
- Provide various types of information and make it easy for entrepreneurs to start a firm, decreasing the amount of bureaucratic paperwork.

6.5 Recommendation for Further Research

Since this study was explanatory and qualitative in nature, it leaves room for further research on various aspects related to Born Global firms' growth and survival. Although the author has tried to cover in detail the growth phases of the four case firms and to identify the factors affecting growth and survival of Born Global firms in Finnish software business, it is hoped that this study will trigger interest and raise questions in the minds of the readers to conduct further research on the topic at hand. Some future research recommendations are listed below.

- This study focused on case firms originating from Finland, which is classified as a SMOPEC country. Future research should cover case firms from another SMOPEC country or from comparatively larger countries, which has larger domestic markets, in order to produce interesting grounds for comparison. A study comparing firms from different countries may also be interesting.

- This study focused on case firms doing software business. Characteristics of the software industry are increasingly becoming similar to other knowledge-based industries competing internationally (Coviello & Munro, 1997; Hoch, et al., 2000), thus the findings from this research can be extended to cover other knowledge-based industries with caution. However, future research should address other industries such as manufacturing and entertainment industries, to be able to obtain more generalized results.

- This study included case firms doing business either in B-to-B or B-to-C. Although the author covered some aspects that could differ because of the firms operating in different target markets, future research could tackle the differences in more depth to investigate whether the growth patterns and factors for growth and survival are different between firms operating in B-to-B or B-to-C businesses.

- This study focused on identifying the factors that affects growth and survival of Born Global software firms. Although the author did touch upon whether those factors positively or negatively affected on the outcomes, it was not the main

objective of the study. Thus, further investigation into the level influence may be interesting.

In conclusion, further research is needed to test and refine the growth paths and factors influencing growth and survival of Born Global firms. A more accurately and tested theory could become a valuable tool for both researchers of Born Global phenomenon as well as entrepreneurs and managers of firms.

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Interviews

Firm	Interviewee	Position	Date	Location	Duration
Tectia Corporation	Jari Mielonen	CEO, 2008-present	Dec. 21, 2009	Helsinki	101 min.
Tectia Corporation	Tatu Ylönen	Founder & Board Member	Dec. 10, 2009	Helsinki	255 min.
Tectia Corporation	Arto Vainio	Former President & CEO (July 2002 - Oct 2008)	Dec. 18, 2009	Helsinki	122 min.
Remedy Entertainment Oy	Mika Reini	CFO (2000- present)	Feb. 17, 2010	Espoo	213 min.
Remedy Entertainment Oy	Markus Mäki	Founder & Director of Development	Feb. 16, 2010	Espoo	91 min.
Smartner Information Systems Oy	Jussi Räisänen	Founder & Former VP of Business Development (2000-2007)	Feb. 18, 2010	Helsinki	219 min.

Smartner Information Systems Oy	Seppo Salorinne	Former Product Manager at Smartner, currently Director, Product Management at SEVEN (2004-present)	Feb. 22, 2010	Helsinki	132 min.
Add2Phone Oy	Jari Anttonen	Founder & Former CEO of Add2Phone, currently Managing Director of More Finland	Jan. 26, 2010	Helsinki	117 min.
Add2Phone Oy	Vesa-Matti Paananen	Founder & Former CTO	Jan. 28, 2010	Helsinki	102 min.

APPENDIX. CASE QUESTIONNAIRE

0. Background information (asked only if not already known):
    a. Can you describe the firm's foundation and the persons involved in it?
    b. When was the company founded (initiated & registered & product ready for sales)?
    c. Development of size of the firm in sales revenues and number of employees from establishment (can you provides statistics on this)
    d. Share of sales outside Finland and its development from establishment (3 years, 6 years, now)
    e. Share of sales outside Europe and its development from establishment (3years, 6 years., now)
    f. Describe how and when initially it became obvious that the firm is seeking to internationalize/globalize, and why (Global vision)?

1. Please explain how your company has grown?
    a. Can you see certain phases that your firms have gone through during growth?
    b. What have been the most critical decision making points to achieve growths in your view since establishment? When? Why? (at what phase)
    c. How the firm and its first product were born (introductory phase)
        i. How did you develop the product and find the market/customer for it?
        ii. When did you start initial / pilot sales and to whom?
    d. When did you start sales of your products in large volumes (commercial breakthrough) and to which country? Which products?
    e. Explain the expansion to foreign countries, when sales started in each foreign country (year, country)
        i. When did you receive first major foreign deals? What country?
        ii. How did you expand to foreign markets from there, which countries and why?
    f. How and when did you expand to markets outside Europe (global breakthrough)
        i. What countries?
        ii. Did you try to penetrate further markets already entered (Europe and outside) and how?
    g. Have you started to align your operations and activities across countries globally and when? Please explain what activities have been aligned? (global rationalization and maturation)
    h. How the foreign operation modes have developed since establishment?
    i. How the product offering has developed since establishment?
    j. How well the attached picture explain the growth phases of your firm, please draw the development. (Introductory phase, Commercial breakthrough, Foreign growth, Global break through, Global expansion, Global rationalization, Maturation)

2. What factors (external or internal) have influenced most the growth of the firm
    a. What factors has contributed to the global growth of the firm?
    b. What factors have limited the global growth of the firm?

3. What challenges have you faced during growth?
    a. Have your company been at risk of going out of business, please describe such crisis (Or in case of non survival: Describe the survival crisis)
    b. What factors (external or internal) contributed to the crisis in your view

4. Pls explain the development of industry environment since establishment of the firm?
    a. What has been the industry growth rate?
    b. How similar/different the consumer/customers needs are across countries?
    c. How would you describe competition in your industry? Do you have global competitors, please name them? Is it consolidating to few big ones?
    d. Are there trade barriers in the industry, e.g. customs, trade limitations, protectionism?
    e. How do you see that nature of industry environment has impacted on your firm growth at different phases/critical points you mentioned (Introductory phase, Commercial breakthrough, Foreign growth, Global break through, Global expansion, Global rationalization, Maturation)
    f. How do you see that nature of industry environment has impacted on your firm survival?
5. Please explain the development of most critical resources and capabilities since establishment of the firm?
    a. Why these have been critical?
    b. Explain your main founders and top management team experience as entrepreneur and with regards to international experience (how many years in total)?
    c. Most important physical resources (equipment/plant), intangible resources (experience of people, brand names, innovative human resources), and financial resources (internal and external)?
    d. Identify the most important firm capabilities (core competences) in technology, marketing and management?
    e. In terms of resources, how have you managed to adapt to the rapid changes in the environment? How do you renew your resources and capabilities? (Dynamic capabilities)
    f. Describe the nature of your relationships with suppliers, customers, competitors or other important contacts? How good you are in building networks and leveraging those? (Network capabilities)
    g. Government support received, what type and when?
    h. How these discussed resources and capabilities have impacted on your firm's growth in the critical phases/points you mentioned (Introductory phase, Commercial breakthrough, Foreign growth, Global break through, Global expansion, Global rationalization, Maturation)

i. How do you see that these resources and capabilities have impacted on your firm survival?

6. How would you characterize the firm culture in terms of experimenting new initiatives and taking risks in failing? How has the culture changed from establishment? (Entrepreneurial orientation)
    a. How do you succeed in encouraging emergence of new ideas within the firm? (Innovativeness)
    b. What is the firm's attitude towards failures when implementing initiatives (Risk)
    c. Is your firm alert to emerging opportunities or aggressive in pursuing initiatives (Proactiveness)
    d. Do you try to predict future development by analyzing current market opportunities or do you create the new markets by influencing other parties (Causation/ effectuation))
    e. How aggressively do you compete with competitors (aggressive competitiveness)?
    f. Hierarchy, bureaucracy, established practices and traditions (autonomy)?
    g. How good are you in rapidly adapting to changing conditions (agility/rigidity)
    h. Is the selection criteria for growth related initiatives based on expected returns OR based on affordable loss (Causation and effectuation)
    i. How has the discussed firm entrepreneurial culture (innovativeness, proactiveness, risk taking etc.) influenced the growth of the firm ?
    j. How has the discussed firm entrepreneurial culture (innovativeness, proactiveness, risk taking etc.) influenced the survival of the firm?

7. What is your view of current government support? How government could support better your firm in critical decision-making points and advancing from a particular stage to the next?

8. Software Business Specific Factors for Survival and Growth
    a. Can you identify any factors that are specific to Software Business, which affect positively or negatively growth and survival of software firms?
    b. How important is compatibility with dominant players in the market? Have there been any incidents where you chose wrong strategies for compatibility related decisions?
    c. How important is lock-in effects for growth and survival? How do you achieve lock-in effects?
    d. How important is customer reference and credibility? Is customer reference more important at certain stage of growth phases? What about strength of brand?
    e. How good do you think is your software development process? Have you evolved the processes over the years and how? Has there been any point of time when a not-so-good software development process led to a bad

situation, such as delay and schedules or too many bugs leading to losing trust and credibility from customers? What did you do to combat this?

f. What do you think about open source software? Are they your competitors? What do you do to compete with them? Do you think open source software competitors threaten your business?
g. What is your growth strategy (scaling, duplicating, granulating)? What is your business model (software product, software service, hybrid)? Why don't you concentrate on one of them instead of being a hybrid solution firm, since these two business models require different sets of capabilities?

9. Have I forgotten to ask something important about growth and survival?

10. Is there any material that you could distribute that describes your growth development?