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Abstract

The purpose of this paper is to study the feasibility of business models for small and medium sized enterprises (SMEs). SMEs are a demanding field of research because of their heterogeneous nature. SMEs should not be considered as smaller versions of large corporations, but instead they face somewhat different challenges. The business strategies of SMEs may vary greatly from the ones of larger companies, especially in their early growth phase. This article reports a business model planning case in an SME. First results indicate that 1) contemporary eBusiness model methods are largely founded on position or resources-based strategy approaches, and 2) current models support only weakly simple rules -based strategy thinking.

1 Introduction

Today, the importance of small and medium-sized enterprises (SMEs) cannot be ignored. SMEs play an important role in the European economies by their contribution to both employment and economic growth. SMEs represent 99 % of all enterprises in the EU and provide around 65 million jobs and they can be considered as an essential source for entrepreneurial spirit and innovation. (EU 2004) (Puhakainen & Malinen 2000)

Not surprisingly, SMEs are responsible for the vast majority of new businesses in recent years and they account for a significant share of economic output in OECD countries (OECD 2002). Furthermore, SMEs are also responsible for great share of job growth (Caskey, Hunt & Browne 2001).

The European Union defines SMEs based on the following criteria (The Commission of the European Communities 2003):

- Employees less than 250
- Turnover less than 40 million Euros
- Balance sheet less than 27 million Euros

- Large company ownership of the SME cannot exceed 25%

In this paper, we focus on SMEs that have growth potential, are relatively newcomers to the market and also often operate on turbulent markets. The specific context is ICT SMEs in the health care sector. We focus in our study into early stage SMEs, in view of the fact that the first years of SMEs are crucial for the survival of an SME. (LeBrasseur, Zanibbi & Zinger 2003.) In order to anchor our focus in a formal framework, we use the organizational life cycle model for small business development and survival imparted by Dodge & Robbins (1992).

Ventures fail despite the presence of market opportunities, novel business ideas, adequate resources and talented entrepreneurs. One possible explanation is the fundamental model driving the business. However, little attention has been given to business models by researchers (Morris, Schindehutte & Allen 2004).

Business models are a way of improving doing business under uncertainty (Osterwalder & Pigneur 2002). Business models can be seen in a certain sense as managerial equivalent of the scientific method – start with a hypothesis, which is then tested in action and revised if necessary (Magretta 2002.)

Our research questions are:

- Why business models should be deployed in growing SMEs in turbulent environments?
- Do contemporary business models support business development in growing SMEs?

We will find answers to the first question from previously made research on business models and SMEs. We construct our answer on the second question based on the information gained from the first question and based on an action research case study. The authors participated on a made-to-order research of business development for an SME operating in health care sector.

2 SMEs With Growth Potential

SMEs should not be considered as "miniature editions" of larger companies, but instead they operate in different segments of the markets. Small firms do not follow large firms but, rather pursue their own independent policies. (Audretsch, Prince & Thurik 1999.) In order to further distinguish the role of SMEs in global economies it is important to clarify their main characteristics. (Coviello & Martin 1999).

Generally speaking, small businesses are considered to have advantages in flexibility and the capability to react quickly on changes in their environment. Besides, small companies are able to provide niche products and services (Porter 1979). On the other hand, SMEs have a lesser amount of human, financial and technological resources than larger organizations (Puhakainen & Malinen 2000).

One study suggests that decisions in SME are often made on the owner's intuition rather than on the basis of market research. Also the vast majority of SMEs do not create their market, but rather just react to their clients' demands. (Schlenker & Crocker 2003), see also (LeBrasseur, Zanibbi et al. 2003)

Another research indicates that SMEs can not or do not use most of the range of tactics, which might give them flexibility over larger companies. The SMEs focus on managing their current expertise more effectively and give only little thought in long term strategic planning. (Levy & Powell 1998.) The research also disputes that survival is the central goal for SMEs and they take all manoeuvres to ensure their continuing existence. See also (LeBrasseur, Zanibbi et al. 2003)

Another significant discrepancy between different SMEs is their market environment and growth expectations. The vast majority of SMEs are not a source of economic growth in term of employment or turnover. For instance, a barbershop will face relatively unchanging maximum output in time, whereas start-up ICT companies may operate in highly turbulent markets and their growth potential can be basically limitless (Puhakainen & Malinen 2000). Also, bearing in mind that the copying and delivery costs of digital products and services are nearing zero, the role of innovation over production capacity gives SMEs in operating in ICT field growth and income possibilities that are well beyond their traditional SME cousins.

However, one should bear in mind that the term “SME” covers a wide range of business types, from self-employed sole entrepreneurs to multinational public limited companies. Company sizes differ radically from one industry to another. For example a hairdresser with 50 employees is a huge hairdresser whereas a telephone manufacturer with 300 employees is considered as a small telephone manufacturer.

The organizational life cycle model for small business development and survival imparted by Dodge & Robbins (1992) distinguishes between four different development phases, their characteristics and problems. The problems are furthermore divided into internal and external embodiments. Our theoretical discussion is linked in the development phase contemplation. Table 1 visualizes core elements of the organizational life cycle model. The shaded area is in the focus of this study.

***Table 1:** A Summary of Characteristics and Major Small Business Problems During the Organizational Life Cycle (Dodge & Robbins 1992).*

	Formation	Early Growth	Later Growth	Stability
Characteristics	- Idea to Actuality - Develop Business Plan - Build Financial Support - Identify Market(s)	- Rapid Growth - Highly Reactive to Market Demands - Matching Demand with Supply	- Sales Growth Slows - Competitive Effort Increases - Grow or Maintain Status Quo - Develop Controls	- Level Sales – May Decline Soon - Must Regain Early Momentum - Inefficiencies Surface - Bureaucratic Management
External Problems	- Market Assessment and Identification - Select Location - Establish Customer Contacts - Plan Marketing Activities	- Maintain Customer Contacts - Market Assessment and Identification - Expansion - Location - Dealing with Competition	- Maintain Customer Contacts - Expansion - Market Assessment and Identification	- Maintain Customer Contacts - Market Assessment and Identification - Expansion - Location
Internal Problems	- Financial Planning - Business Planning - Business Knowledge - Pricing	- Inventory/Cost Controls - Cash Flow - Financial Planning - Accounting Systems - Pricing	- Inventory/Cost Controls - Financial Planning - Business Planning - Pricing	- Inventory/Cost Controls - Production/ Facilities - Pricing - Organization Design and Personnel - Accounting Systems - Financial Planning - Business Planning - Location

3 SMEs In The Health Care Sector

The health care industry is a fragmented one in almost any country, and almost regardless of the segment you study within the industry. Missing dominant and powerful players gives the industry specific ramifications, as does its strongly regulated nature.

In this section we shortly discuss, what kind of competitive environment the health care sector is for SMEs in the ICT sector. As an analysis tool we use the traditional model of competitive forces by Porter (1980); see also Olmsted Teisberg, Porter & Brown (1994), as depicted in Figure 1.

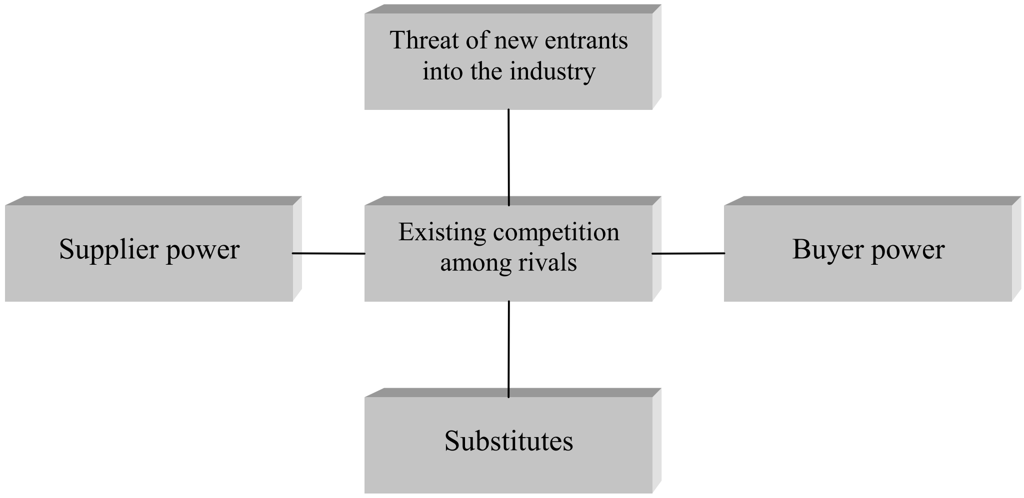

Figure 1: *The Competitive Forces (Adapted from Porter (1980))*

New entrants

Small ICT companies are most likely new entrants to the industry, and have to compete with bigger players and also with a multitude of similar companies in the industry. As ICT in the field is growing fast, it is clear that the total demand is growing accordingly, and that the old industry players have difficulties to satisfy the increasing demand. So, the industry as a whole is positive towards new entrants.

New entrants can be kept away from the markets through economics of scale or capital requirements. These clearly cannot be arguments for the case for SMEs. Further, government policy can help existing competitors. In general, governments are hardly to keep new entrants away from health care ICT-markets, but strong existing ties to public authorities by the current rivals can be a strong entry barrier for new companies. Further, Porter mentions access to distribution channels as a competitive force keeping new entrants away. In health care ICT, the distribution channels are vague if not completely missing, and direct contacts to buyers are valuable. Working on them is crucial for SMEs in the field.

Substitutes

Here the central questions are:

1 What kind of services and products are substituted by the offerings of small ICT companies in the health care sector?

2 What are the potential substitutes to the offerings by small ICT companies in the health care sector?

The typical role of new small ICT companies is to provide new innovative solutions that renew processes and substitute labour, but do not step at the toes of any old structured solutions or products. Of course there are vanishing technologies such as paper archives or film-based x-rays, but they are anyway in a marginal role. The potential substitutes for these products are the mainstream integrated solutions by bigger players, that little-by-little adopt the innovative solutions, especially if they are not protected by any patents or like.

Suppliers

Small ICT innovations are done through research and by competent staff. In the delivery of both the national education systems, especially universities are in a key role. Often small ICT companies are deeply rooted in university surroundings. Their competitive advantage could be in more flexible and productive university co-operation than what bigger ICT companies can achieve.

Usually, SMEs themselves work as suppliers to bigger consortia that deliver total service solutions to the health care organizations. So, establishing a good connection to the bigger players is a key task for them.

Traditional rivals

In the markets the small ICT companies meet the big software houses and teleoperators. The small companies have their flexibility as a competitive advantage, and can try to build different alliances with the bigger players and among themselves.

The very traditional rivals are those solutions to health care processes and information processing needs that are not computerized. Very many strong traditions exist in the field, but in general the suppliers of the old solutions are not protecting their markets very strongly. A good example is that for example companies in the digital medical image field are hard working to replace their own old manual systems.

Buyers

ICT services in the health care are mainly bought by public sector organizations, that are bound by many restrictions in their procurement, and that usually fight with small budgets. However, suppliers are usually selected based on open and official tenders, in which both small and big companies can succeed.

According to Porter, buyer power is big if the products purchased from the industry make up a significant part of the buyer's total costs. For ICT products and services this anyway does not seem to be the case. However counted, information and communication costs do not usually exceed 10 percent of any health care organization. Further the purchaser power is big if the products are standard and undifferentiated. Clearly this is not the case in health care ICT solutions. A typical large hospital can have 200-300 different information systems in use, not to speak of the number of the components in the supporting infrastructure. Further, low switching costs increase buyer power. It is well known that ICT applications involve high switching costs.

4 Strategy and Business Models

Strategic thinking has developed from the simple objective of satisfying customer needs to a complex art of winning, whether we are talking about winning the customer or your worst competitor.

Porter (1996) describes competitive strategy as being different. Strategy means deliberately choosing a different set of activities to deliver a unique mix of value. The key element in Porter's strategic thinking is positioning and the three general strategies; cost leadership, differentiation and focus; represent the alternative strategic positions in one industry.

Barney however, regards the resources of a firm as the basis of its sustainable competitive advantage (Barney, Wright & Ketchen 2001), and thus its strategic approach. The resources that are valuable, rare, imperfectly imitable and not substitutable whether tangible or intangible are to key to a firms success.

In stable markets, managers can rely on complicated strategies built on detailed predications of the futures, but in complicated and fast-moving markets where significant growth and wealth creation can occur, unpredictability reigns. According to Eisenhardt & Sull (2001) the most profound strategic implication of the "new economy" is that companies must capture unanticipated opportunities in order to succeed. Rather than picking a position or leveraging a competence, managers should select a few key strategic processes and craft a few simple rules to guide them. The comparison of these three different approaches to strategy are described in Table 2.

Table 2: *Three Approaches to Strategy (Eisenhardt & Sull 2001)*

	Position	**Resources**	**Simple Rules**
Strategic logic	Establish position	Leverage resources	Pursue opportunities
Strategic steps	Identify an attractive market Locate a defensible position Fortify and defend	Establish a vision Build resources Leverage across markets	Jump into the confusion Keep moving Seize opportunities Finish strong
Strategic question	Where should we be?	What should we be?	How should we proceed?
Source of advantage	Unique, valuable position with tightly integrated activity system	Unique, valuable, inimitable resources	Key processes and unique simple rules
Works best in	Slowly changing, well-structured markets	Moderately changing, well-structured markets	Rapidly changing, ambiguous markets
Duration of advantage	Sustained	Sustained	Unpredictable
Risk	It will be too difficult to alter position as conditions change	Company will be too slow to build new resources as conditions change	Managers will be too tentative in executing on promising opportunities
Performance goal	Profitability	Long-term dominance	Growth

In order to guarantee smooth strategy execution, firms require a very clear communication of concepts between the stakeholders. Business models play their part here. Figure 2 illustrates that a business model is the conceptual and architectural implementation (blueprint) of a business strategy and represents the foundation for the implementation of business processes and information systems. Business models describe the logic of a "business system" for creating value that lies behind the actual models. The theoretical foundations of business models are built most directly to Porter's value chain and strategic position concepts, and Barney et al. resource-based theory (Morris et al. 2004).

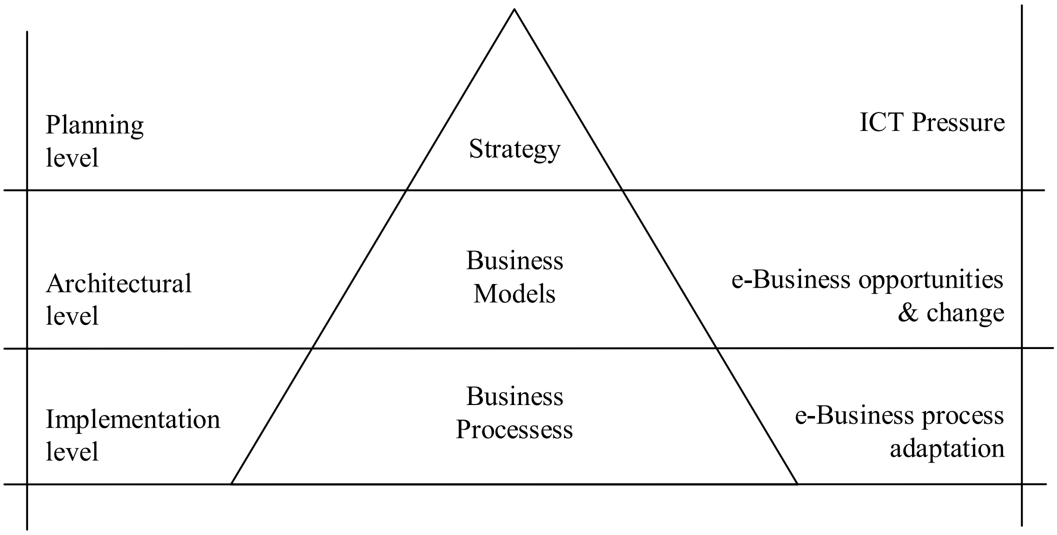

Figure 2: *Business Logic Triangle (Osterwalder & Pigneur 2002)*

Timmers (1998) defines a business model as

- an architecture for the product, service and information flows, including a description of the various business actors and their roles; and
- a description of the potential benefits for the various business actors; and
- a description of the sources of revenues.

Morris et al. (2004) distinguishes three categories of business models: economic, operational, and strategic level where the perspective becomes more comprehensive as one progressively moves from economic to the operational and from operational to strategic levels.

Magretta (2002) claims that terms *business model* and *strategy* are among the most sloppily used terms in business, and that they are often stretched to mean everything – and end up meaning nothing.

Although there are many different opinions about the definition and contents of a business model (e.g. Osterwalder & Pigneur (2002), Rajala, Rossi, Tuunainen & Korri (2001)) Porter has a point when claiming that a business model in itself does not yet provide understanding of how it will contribute to realise the business mission, but we need to know the marketing strategy of the company in order to assess the commercial viability and to answer questions like: how is competitive advantage being built, what is the positioning, what is the marketing mix, which product-market strategy is followed.

Furthermore, Magretta (2002) argues that when business models are used correctly they actually force managers to *think* thoroughly about their business. Business models' strength as a planning tool is that they focus attention on how all the elements of the system fit into a working entity. Business models fail to work if they fail either the narrative test (i.e. models are built on faulty assumptions about customer behaviour) or the numbers test (the business model is financially untenable).

It is noteworthy that different strategic approaches demand differently focused business models. A business model for stable markets that reflects positioning is different from a model that reflects simple rules for turbulent markets.

5 Case Study: MediWeb Ltd.

5.1 Case Description

The authors participated in a made-to-order research concerning business development for an SME operating in health care sector and shifting from the formation phase towards the early growth phase (see Table 1). Our role was to create a business model for a novel product. The research was conducted via market study, interviews and literature review on strategies and business models. Finally, the results were disassembled with the company management in a workshop.

The case organisation MediWeb Ltd. was founded in 1996 in Helsinki, Finland. MediWeb's key functional focus areas are prescription management, patient medication records and medication database management. The core business idea is to connect different health care organisations and information system together via an electronic prescription system.

The number of employees is around 10. Actual growth of the company from sole entrepreneur to its current scale has occurred within the past 18 months. Majority of the production is done by independent subcontractors. Thus far most of the cash-flow has consisted of public development funding and venture capital. The near-time aim of the company is to shift from public funding to sales revenue.

MediWeb's objective was to develop new practises to handle medication and rehabilitation in wards and elderly-houses, in order to create rapid sales revenue. The practises were based on MediWeb's previous technological innovations which were still on piloting phase, creating no revenue.

The starting point for creating the business model was the strategic thinking of the company management. There was no explicit strategy definition as such, but the behaviour of the management could be described as simple rules approach, since there was not a clear position or unique resources identified, but an opportunistic approach towards the turbulent business environment.

5.2 Building The Business Model With House Of Value Creation

Since meeting the customer expectations was one of the key issues, we decided to use the House of Value Creation (HVC, see Figure 3) to fathom out the business model. The House of Value Creation is one method used to design customer-oriented and sustainable business models. It is a meta-method consisting of three logical pillars (input, method and output) and of six process layers, suitable to network-oriented Business Models. (Quadt, Laing, Forzi & Bleck 2003.)

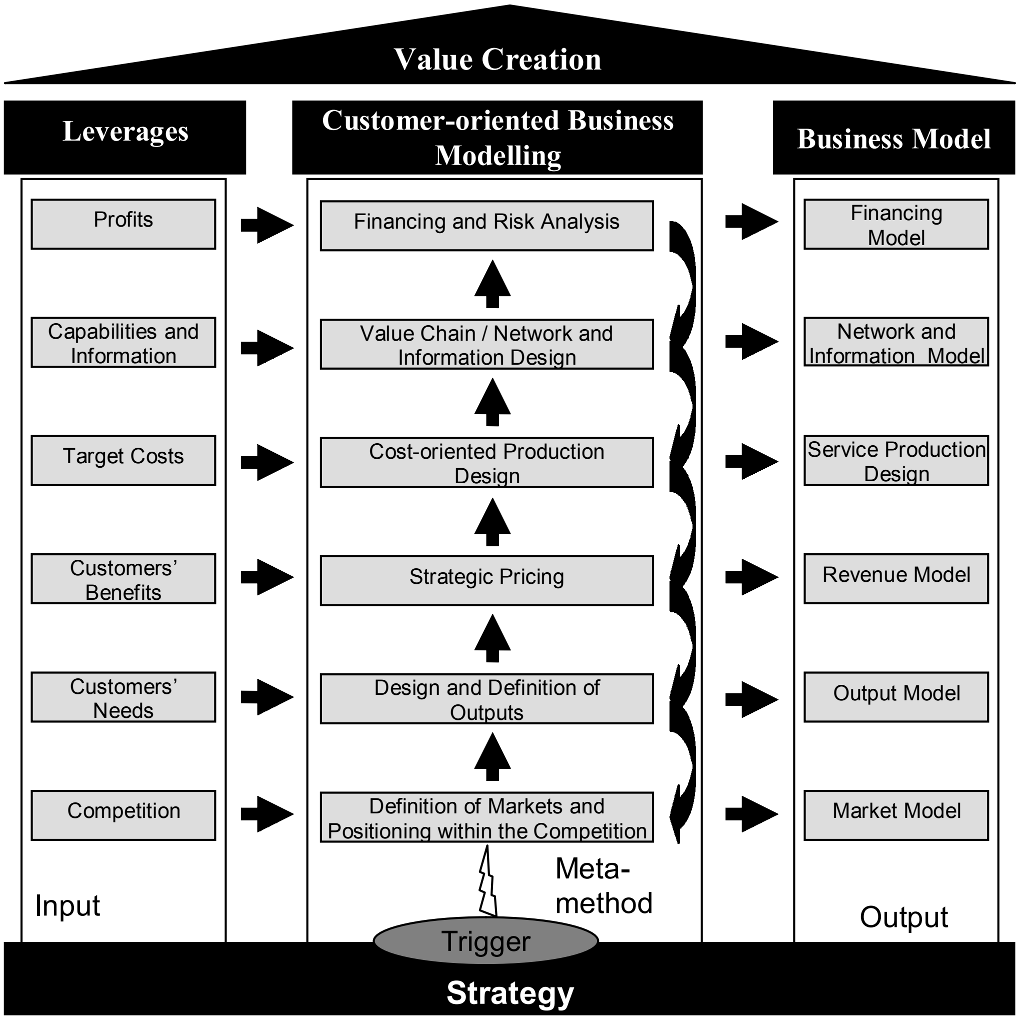

Figure 3: *The House of Value Creation (HVC) (Quadt et al. 2003)*

A rough idea of what the offered product could be triggered the first phase of the HVC – the process of defining the markets and positioning within the competition (as explained in chapter 0). The first phase in building the House of Value Creation was a relatively easy process, because the market *per se* was well defined.

The next phase, design and definition of outputs, was more difficult. The product is piloted in two places, in Finland and in Japan, but the pilots were still unfinished. This made it difficult to precisely define the customers' needs.

The critical question in phase three was whether the customers are willing to pay for the product. The pilots will later reveal if the customers did actually achieve benefits. Until then the process of strategic pricing remains uncompleted.

In this stage of the planning, the product was still more of an idea. It was almost impossible to identify possible target cost in order to go through the cost-oriented production design.

The phase of value chain / network and information design was again possible, because of the deep market understanding in the company management. However, the final phase could only include risk and financial analysis in general level, because of the vagueness of the business at this point.

To conclude, creating a complete business model for a certain product failed for the reason that there were not enough facts to identify the required input. During the research process we were forced to set aside the concrete business model design and decided to advice the management on the same issues, but on more abstract level.

6 Conclusions

Based on our study, there is only little research made on business models of SMEs. We argue that contemporary business model planning does not fully adjust into the needs of SMEs. Preliminary results of this study indicate that strategies based on positioning or resources thinking will not work on growth oriented SMEs in a turbulent environment. Different strategic approaches demand differently focused business models. A business model for stable markets that reflects positioning is different from a model that reflects simple rules for turbulent markets.

Position-based strategies are good, because they aim to identify an attractive market, but they are too rigid for opportunistic manoeuvres in rapidly changing markets. Resources-based strategies are good to understand the meaning of unique resources, but are concentrated on long-term dominance, and therefore do not support an SME in growth phase.

We see that many current business model methods are too detailed for the use of SMEs operating in turbulent environment that are in the early phase of their lifecycle. We recommend developing business model methods tailored for the need of SMEs based on the simple rules strategy. The importance of business models is emphasised in case of SMEs, since a business model for a single product/service may in practise present the whole business action of the company.

References

Audretsch, David B. - Prince, Yvonne M. - Thurik, Roy A. (1999) Do Small Firms Compete with Large Firms? Atlantic Economic Journal Vol. 27, No: 2, 201 - 209.

Barney, J. - Wright, M. - Ketchen, D. J. (2001) The resources-based view of the firm: Ten years after 1991. Journal of Management Vol. 27, No: 6,

Caskey, K. R. - Hunt, I. - Browne, J. (2001) Enabling SMEs to take full advantage of e-business. Production Planning & Control Vol. 12, No: 5, 548-557.

Coviello, Nicole E. - Martin, Kristina A-M (1999) Internationalization of Service SMEs: An Integrated Perspective from the Engineering Consulting Sector. Journal of International Marketing Vol. 7, No: 4, 42-66.

Dodge, Robert H. - Robbins, John E (1992) An Empirical Investigation of the Organizational Life Cycle Model for Small Business Development and Survival. Journal of Small Business Management Vol. 30, No: 1, 27-37.

Eisenhardt, Kathleen M. - Sull, Donald N. (2001) Strategy as Simple Rules. Harvard Business Review Vol. January, No: 107-116.

European Commission (2003) SME Definition. <http://europa.eu.int/comm/enterprise/enterprise_policy/sme_definition/index_en.htm>, retrieved 26.1.2004

LeBrasseur, Rolland - Zanibbi, Louis - Zinger, Terrence J. (2003) Growth Momentum in the Early Stages of Small Business Start-ups. International Small Business Journal Vol. 21, No: 3, 315-328.

Levy, Margi - Powell, Laura (1998) SME Flexibility and the Role of Information Systems. Small Business Economics Vol. 11, No: 2, 183-196.

Magretta, Joan (2002) Why Business Models Matter. Harvard Business Review Vol. No: May 2002, 86-92.

Morris, Michael - Schindehutte, Minet - Allen, Jeffery (2004) The entrepreneur's business model: toward a unified perspective. Journal of Business Research Vol. No:

OECD (2002) OECD Information Technology Outlook 2002. <www.sourceoecd.org>, retrieved 2.9.2002.

Olmsted Teisberg, Elizabet - Porter, Michael E. - Brown, Gregory B. (1994) Making Competition in Health Care Work. Harvard Business Review Vol. No: July-August 1994,

Osterwalder, Alexander - Pigneur, Yves (2002) An eBusiness Model Ontology for Modeling eBusiness. In: Proceedings of the 15th Bled Electronic Commerce Conference, ed. by

Porter, Michael (1980) Competitive Strategy: Techniques for Analysing Industries and Competitors. The Free Press:New York

Porter, Michael (1996) What is strategy? Harvard Business Review Vol. 74, No: 6,

Porter, Michael E. (1979) The Structure Within Industries and Companies' Performance. Review of Economics and Statistics Vol. 61, No: 214-227.

European SMEs and Electronic Commerce - A Seller's Perspective in Business-to-Business Operations (2000) TUCS - Turku Centre for Computer Science: Turku.

Quadt, André - Laing, Peter - Forzi, Tomaso - Bleck, Stefan (2003) Development of approaches and mobile business solutions for field service. In: Proceedings of the 8th International Workshop on Mobile Multimedia Communications, ed. by

Rajala, Risto - Rossi, Matti - Tuunainen, Virpi Kristiina - Korri, Santeri (2001) Software Business Models - A framework for Analyzing Software Industry. TEKES:

Schlenker, Lee - Crocker, Nicholas (2003) Building an e-business scenario for small business: the IBM SME Gateway project. Qualitative Market Research: An International Journal Vol. 6, No: 1, 7-17.

The Commission of the European Communities (2003) COMMISSION RECOMMENDATION of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises. Official Journal of the European Union Vol. No:

Timmers, Paul (1998) Business Models for Electronic Markets. EM-International Journal of Electronic Markets Vol. 8, No: 2, 3-8.