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## Rapid internationalisation enabled by the Internet: The case of a knowledge intensive company

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**Abstract** In this paper we will show how knowledge intensive firms can quicken their internationalisation by using the Internet as a sales channel. When properly applied the Internet can provide a way to decrease the effects of liability of foreignness and resource scarcity, and herewith contribute to an increased speed of internationalisation. The focus of the empirical research is on a Finnish knowledge intensive company and the development of its international operations and sales channels. The study applies the longitudinal case study method when examining in-depth the development of Futuremark Corporation for a period of five years.

**Keywords** International new venture · Internet · Sales channel · Speed of internationalisation · Resource scarcity · Liability of foreignness

### Introduction

Adoption of international perspectives and strategies has become indispensable for knowledge intensive firms (Karagozoglu and Lindell, 1998). Among others, limited opportunity windows and the significant threat of imitation create a need for pre-emptive internationalisation: knowledge intensive firms must be international from the inception or risk facing

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a disadvantage to organisations that are international already. Early and rapid internationalisation is especially important for software firms, which need to develop international mechanisms to protect their commercial value from expropriation (Oviatt and McDougall, 1994).

Internationalisation is slowed down by liability of foreignness and resource scarcity of the knowledge intensive new firms. The speed of internationalisation is paramount for these firms. In this study we address this important research problem; how can these firms overcome the slowing effects of resource scarcity and liability of foreignness. In particular, our main research question will centre on how and under which conditions knowledge intensive new firms can use Internet as a sales channel to increase their speed of internationalisation. A knowledge intensive firm is defined as a firm which depends on the knowledge inherent in its activities and outputs as a source of competitive advantage. Knowledge intensity differentiates a subset of *sustainable* international new firms from those likely to be less successful (Oviatt and McDougall, 1994).

The study uses case study methodology and consists of an in-depth case description and analysis of the internationalisation of a young software firm, Futuremark Corporation. We will cover in detail the underlying factors, which enabled this case firm to use the Internet as its sales channel, and how this reduced the negative effects of liability of foreignness and resource scarcity. We examine factors such as customer and product characteristics, and how the Internet decreased the effects of psychic distance by converting the case company into a firm without a country of origin. The case study is outlined in such detail that the readers have the opportunity to draw own conclusions and test the conclusions presented by the authors.

## Theory

### Liability of foreignness

Internationalising newly established firms suffer from a double liability, in which the liability of newness (Stinchcombe, 1965) is exacerbated by a liability of foreignness. In the literature on multinational enterprises (Hymer, 1976), the liability of foreignness—the costs of doing business abroad that result in a competitive disadvantage for an MNE sub-unit—have been broadly defined as all additional costs a firm operating in a market overseas incurs that a local firm would not incur. In general, the liability of foreignness can arise from at least four, not necessarily independent, sources: (1) costs directly associated with spatial distance, such as the costs of travel, transportation, and co-ordination over distance and across time zones; (2) firm-specific costs based on a particular company's unfamiliarity with and lack of roots in a local environment; (3) costs resulting from the host country environment, such as the lack of legitimacy of foreign firms and economic nationalism; (4) costs from the home country environment, such as the restrictions on high-technology sales to certain countries (Zaheer, 1995). The liability of foreignness implies that foreign firms will have lower profitability than local firms, all else being equal, and perhaps even a lower probability of survival.

### Resource scarcity

New firms face the challenge of obtaining resources for survival and performance (Barney, 1991; Peteraf, 1993) and successful internationalisation (Oviatt and McDougall, 1994). Differences in resource availability compared to large global competitors have been reported as one of the major barriers to early internationalisation of new firms (Karagozoglu and

Lindell, 1998). The resource challenge involves around resource availability and access, and uncertainty (Gulati and Singh, 1998). Resource availability involves the ability to identify where the necessary resources are available, essentially focusing on search costs and difficulties. Resource access involves a firm's ability to acquire needed resources. Uncertainty often makes access to resources problematic for new firms because other firms are reluctant to exchange resources with a new firm that faces an uncertain and hazardous future (Gulati, 1998).

In this paper, we discuss how and when the Internet can be a resource-conserving international entry mode. Research has found that new firms tend to internationalise a smaller percentage of their resources essential to their survival than mature organisations do (McDougall et al., 1994). Crick and Jones found that most firms in their sample adopted a risk-averse low-resource commitment strategy (Crick and Jones, 2000). For instance they often internationalised by solely exporting through overseas agents. Shrader et al. found that U.S. firms controlled international risk by entering several countries using low resource consuming entry modes, thus maintaining a low dependence on any single foreign market (Shrader et al., 2000). Usage of low resource consuming entry modes may be a conscious choice, and not solely dictated by resource scarcity.

When firms have more resources, they can circumvent the pressure for slow and gradual resource commitment (Petersen and Pedersen, 1999). Alternatively, the firm must use resource-conserving internationalisation modes. New firms use increasingly alternative transaction governance structures, such as networks, in their internationalisation (Oviatt and McDougall, 1994). Due to their poverty of resources and negotiation power, new ventures may even use such structures when the risk of asset expropriation by partners is high (ibid. 1994, p. 55).

### Internet as sales channel

International entrepreneurship is a rather recent research area focusing mainly on the entrepreneur or the entrepreneurial firm in an international context (Dana et al., 1999). Internet and its impact on international and global operation modes and sales channels is a relatively unexplored area in international entrepreneurship (Dunning and Wymbs, 2001; Kotha et al., 2001; Singh and Kundu, 2002).

We have therefore adopted concepts from the international business and marketing literature to discuss international sales channels and the Internet. The internationalisation stage literature identifies two groups of marketing operations (a) export operations, such as indirect, direct and own export and (b) marketing operations abroad, such as sales, sales promotion or marketing subsidiaries established abroad (Luostarinen, 1979, 1970). Moreover, the marketing literature identifies two main sales channel alternatives (a) indirect sales channels and (b) direct sales channel (Hardy and Magrath, 1988).

Gabrielsson combined these two research streams into a model of international sales channels (see Fig. 1) (Gabrielsson, 1999). He argued that companies should choose between several operation strategies when expanding abroad. These can be, indirect export (i.e. through a middleman at home), direct export (i.e. through a middleman in the host country), own export (no middleman in the home or host country) or establishment of a sales, sales promotion or marketing subsidiary. In addition, the company needs to select a sales channel strategy as follows: direct, (the producer sells directly to the end-customer), or indirect, (the producer sells through a channel middleman to the end-customer). Figure 1 below, has originally been developed for traditional channels, but can easily be adopted also for Internet sales. This in mind, Fig. 1 shows that the Internet can be used on three sales channel levels:

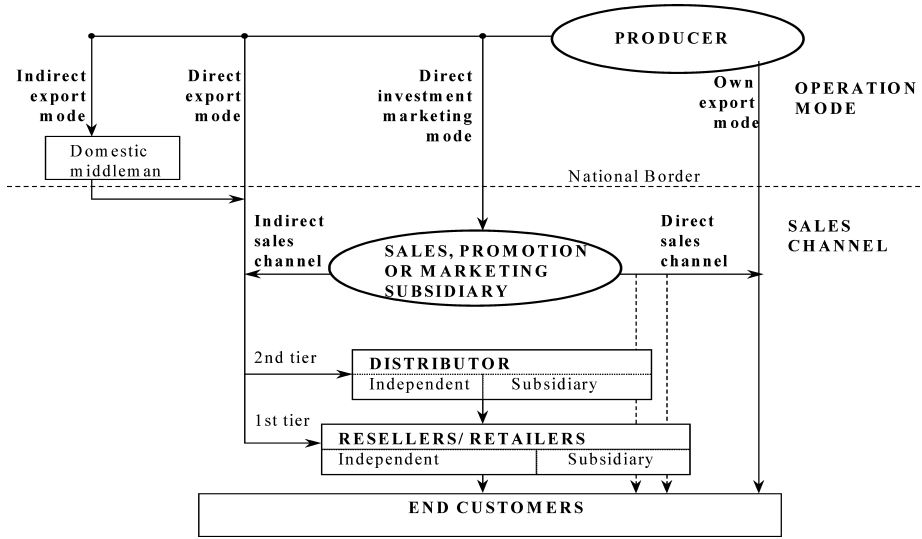


Fig. 1 Relation between international marketing operation modes and sales channels (Gabrielsson, 1999: 23)

(1) by the producers for exporting purposes; (2) by the foreign sales, promotion or marketing subsidiaries; (3) by the channel members in sales and marketing.

The impact of the Internet on company configuration of international operation modes and sales channels is overlooked in the literature, although, some researchers argue that the impact can be significant (Gabrielsson et al., 2002). According to Porter, the strategies for the Internet firm can concern either configurations of physical and virtual activities or a concentration on segments where Internet-only model offers real advantage (Porter, 2001). The chosen strategy of Internet as main distribution channel or complementing channel will then reflect on the extent of which traditional international operation modes and sales channels are selected.

The use of the Internet as an international distribution channel has expanded rapidly. The variety and quality of content and ease of access through better technology show constant improvement. A positive spiral has taken place. As more and more individuals hook up to the net, the true commercial potential is being explored. Security has improved to the degree that many feel comfortable conducting business on the Internet; companies such as Amazon.com and AOL are paving the way towards profitable Internet business.

**Methods**

The empirical investigation of this paper was carried out as an explorative longitudinal single case study of Futuremark Corporation. Single case study enabled us to build inductively from data rather than deductively through theory testing. The case study’s strength is in the likelihood of it resulting in theory development (Eisenhardt, 1989). The single case study approach is recommended when the case represents an ‘extreme case’ or ‘revelatory opportunity’ to analyse a phenomenon previously inaccessible to scientific investigation (Yin, 1991).

We have followed the internationalisation process of the case company over a period of five years (1999–2003). During this time, we have interviewed people who have been closely involved in the internationalisation process of the firm. The interviews have been loosely structured, lasting between 60 and 150 minutes. Altogether, we have carried out 12 formal interviews and numerous informal discussions, both on phone and by e-mail during 1999–2003. The case informants include both members of the case firm as well as external informants, such as advisers, financiers, and customers.

### **Case: Futuremark corporation**

The history of Futuremark started in the summer of 1997. VNU Business Publications, the largest computer magazine publisher in Europe, had contacted Remedy Entertainment, a young Finnish recreational game developer (e.g., Max Payne) to create software for testing three-dimensional (3D) graphics capabilities of computers. Remedy considered the project as a good opportunity to obtain some PR and to test their new products, and decided to go ahead with the deal. Remedy's benchmark software for the measurement of 3D capabilities—'Final Reality'—was launched in the form of CD-ROM supplements to computer magazines in the summer of 1997. The software was a success—millions of copies were distributed worldwide in a short time. Despite of the success, the software was seen to deviate from the core business of the 3-year old Remedy Entertainment, thus it was spun-off to an independent firm. Therefore, in November 1997, Futuremark was established to capitalise on the three-dimensional graphic benchmark software originally developed by Remedy Entertainment.

It has been a high priority for Futuremark to acquire experience and know-how, not only on the operational level, but also in upper management. Two key elements in this strategy were Risto Siilasmaa and Artturi Tarjanne. In the spring of 1999, Risto Siilasmaa bought a share in the company and became the chairman of the Board of Directors. Siilasmaa was the CEO, founder and part owner of *F-Secure*, one of the most successful Finnish software companies to date. Artturi Tarjanne, a veteran of the industry, who had acted as the company's trusted advisor and consultant was also recruited to the Board in 1999. The two co-founders, Aki Järvillehto, Managing Director, and Markus Mäki, Technology Manager, had a technological and business background and were soon joined by a third partner, Nathan Harley, with marketing and business background. In 2001, Risto Vehviläinen, an IT veteran, with background in IT management and consulting was appointed CEO and Aki Järvillehto took up the position as VP of Business Development.

Futuremark's headquarters is in Espoo, Finland with an office in California, USA.<sup>1</sup> The company aimed to become international from the beginning. It focused on the U.S. market because it was considered the biggest market area, and their major clients and partners had their headquarters there. The management perceived the U.S. market as the key for global expansion. From its inception, Futuremark had a subsidiary in London and in 1998; the office was moved to Toronto, Canada. Later on, in fall 2000 at the age of 3 years, Futuremark established a sales subsidiary in California, and at the same time, it initiated the shut down of the Toronto office.

<sup>1</sup> Originally Futuremark planned to include other activities at its California office, but decided eventually to concentrate only on sales and marketing. The reason behind concentrating all R&D activities to Finland was the fact that it's a good place for technology companies and the company considered the U.S. rather expensive.

The following case description is divided into three periods, based on the development of Futuremark's international operations and sales channels: Phase 1 (1997–1999), Phase 2 (1999–2001) and Phase 3 (2001–Present).

Phase 1 (1997–1999): Based on Remedy's successful Final Reality benchmark, Futuremark launched 3DMark 99—the gamers' benchmark—in October 1998. This was available on the company's Internet site, from which it could be downloaded free of charge. In two years, Futuremark was able to distribute 8 million copies of the software. It had been primarily distributed as supplemental CD-ROM to computer magazines (6.0 million in 18 countries), but increasingly also through the Internet (1.3 million, worldwide). The distribution of utility and recreational software CD-ROMs as magazine attachments was common practice among software and computer magazines. Futuremark received a modest per unit compensation from the publisher and the end user received the CD-ROM free of charge.

Futuremark's software was highly specialised and was targeted as a standardised measure of computers' 3D capabilities. The product enjoyed a competitive advantage against rather expensive and heavy computer memory-requiring competitors' products, which could not be afforded by private users. Its main competing product 3Dwinbench (owned by Ziff-Davis, the world's largest publisher of IT magazines) was more expensive and much larger, and thus unloadable from the Internet.

In addition to 3DMark, Futuremark produced demonstration software (demos) based on OEM assignments to hardware producers. The demos contributed half of the sales in 1999, but this segment did not grow as fast as expected. In addition, a trade off was evident as the demos tied up resources from the core business of benchmark development outlined in the business plan. The increasing PC penetration rate and a boom in Internet connections were creating an exponential demand for benchmarking services. One Internet subscription could actually mean multiple users as more than one person used the connection at home or at work. Thus, Futuremark had identified a growing business segment, the consumers interested in Internet purchasing. In 1999, the cash flow from the benchmarking business, or rather the lack of it was not considered to be crucial. The key to profitability and larger revenues was in the commercial exploitation of an established standard, a 'dominant design,' in the marketplace. The potential in this area was considered so high that it was perceived to be an attractive approach, even if it resulted in loss-making operations in the short-term.

During 1999, Futuremark attracted external financing first from a group of business angels, and later in the year from Conventum Limited, a Finnish investment bank with a venture capital portfolio. These investments enabled Futuremark to launch new businesses in the U.S. Futuremark's products were bundled with original equipment manufacturer's (OEMs) offerings, where the software would be available with the hardware it supported, that is, graphics drivers.

Phase 2 (1999–2001): Futuremark provided on its web site access to the benchmarking software as well as access to an online performance database, assisting users in upgrading their computers. New areas included links to vendors' pages, sponsoring and online advertising. Advertisements had become more commonplace on the Internet, what was once considered a puritanically non-commercial environment. Advertisers paid for advertisement space as in any conventional media. The net had provided access to specific target segments. Legitimate concerns existed about privacy and the security of financial transactions, but the consensus seemed to be that any hurdles would be overcome. With a targeted "audience" that had grown from 14 million distributed copies in 1999 to 30 million in 2003, Futuremark had access to a large and attractive customer segment, which provided a large captive audience for advertisers seeking to target this segment, and provided Futuremark with a potential for

advertising revenue. Advertisement revenue at the time was negligible and was considered a “bonus”.

In spring 2001, Conventum and Nexit Ventures made their second joint-investment in the company and invested € 2 million, in addition to their € 2.5 million the year before, to be used for R&D on PC performance information and web services. This round of funding secured the position to continue intense R&D and at the same time accelerate licensing based revenues from the Recommendation Engine technology in the international market. In addition to graphical (3DMark) and computer (PCMark) performance benchmarking software, the company produced in 2000 and 2001 new software products that were able to measure audio and video performance. The target was to build a family of benchmark products that would be able to measure all relevant user computer performance, and hopefully tie the users to Futuremark services. In the end, this should be converted into financial gain. In 1999, Futuremark formed a strategic alliance with BABCo (Business Applications Performance Corporation),<sup>2</sup> which enabled the expansion of the product range into audio benchmarking. Radio stations were available on the net and people were already listening to music. Products such as SysMark, WebMark and MobileMark were the result of the alliance.

The company applied a dual strategy on the Internet. A simpler version of the program was available free of charge on the Internet, and for the more advanced versions there was a charge. Thus, customers were able to familiarise themselves with the product before buying it. According to the interviewees, the benefits of selling on the Internet were various. The audience was captive; i.e. looked at their screens as they downloaded the software. The Internet might also grab attention more effectively than direct sales pitches and advertising leaflets in the mail. In addition, the medium provided high potential for product demonstration and ease of purchase (click a few times with the mouse and enter a credit card number). The reproduction costs of CD-ROMs were small and the cost of downloading the software from the net was minuscule, as users paid for the on-line time to the service provider. Often such on-line time was set at a fixed rate and thus the user incurred no additional charges. There was very little cost for the user of Futuremark’s software and high potential utility.

Phase 3 (2001–present): Futuremark has been constantly forced, but also able to refocus its business strategy. The Internet-based Business-to-Consumer business idea from 1999 proved to be unprofitable, marketing on the Internet to large consumer groups turned out to be too expensive for a small company. However, sales to Internet consumers is still generating 20% of Futuremark’s turnover and is important in terms of product development, chat groups and fans. Futuremark’s site has several hundred thousand frequent users. Although, no specific market data existed about the personal profile of 3DMark users, technical information about users’ computers is, detailed and stored in a database, to date 7 million. Today, the database is proven most valuable for business users as an analysis tool. In the past, PC manufacturers were forced to use different benchmark software to measure performance of different computer types. PCMark is providing both consumers and business users a unified benchmarking tool.

To date, with sales exceeding 30 million copies, 3DMark has become the global de facto standard and a market leader in benchmarking 3D technologies. For example 2.5 million copies of 3DMark launched in February 2003 were downloaded in a month. Hardware manufacturers as well as some 500 PC magazines and online publication worldwide use 3Dmark.

<sup>2</sup> BABCo a non-profit consortium. BABCo’s charter is to develop and distribute a set of objective performance benchmarks based on popular/personal computer applications and industry operating systems. BABCo’s current members include: CNET Labs, Inc, Compaq, Dell, HP, IBM, Intel, Microsoft and VNU Business Publications Ltd. (UK).

It is likely that Futuremark will continue to dominate the 3D benchmarking software market. However, it will remain to see whether Futuremark can combine growth with profitability.

Futuremark has extended its pure Business-to-Consumer Internet strategy towards a Business-to-Business Internet strategy. The company has been divided into two distinct business units to better focus their scarce resources. The Measurement Services introduced a Performance Analyzer, an online service that enables PC shoppers to with a click of the button know exactly how much the adding of a new graphic processing unit will improve performance. This has opened up a new level of license revenues from the distributors and online resellers of PCs and related equipments. Among others, PNY uses the Performance Analyzer on its site to market its memory and graphic cards, and NVIDIA for information collection and processing in their solutions. Futuremark's Beta Partner Program connects 16 leading PC, processor and other component manufacturers that have interest in joint-development and -testing of performance benchmark programs.<sup>3</sup> Through the program Futuremark is able to keep up with the development in new hardware, and to produce up-to-date benchmarking software.

The current strategy includes multiple revenue streams and has shifted from Business-to-Consumers towards Business-to-Business derived incomes in accordance with changes in business opportunities. Futuremark has evolved from a benchmarking software developer to a value-adding technology service provider. The main focus of the firm is in benchmarking software and services to corporate and end-user customers. In addition, Futuremark is providing services to IT industry companies. It provides them an online performance analysing tools, which enable these firms to provide enhanced customer support.

Global sales (outside Europe) have developed rapidly within three years to over 70% of the total turnover. Company estimates indicate that in 2003 almost all of the revenue would come from outside Europe.

### **Analysis and discussion on the case**

Futuremark is a typical Internet firm and fulfil the characteristics summarised by Singh and Kundu (2002): multinational/global from inception (70% of sales outside its own continent within three years, today nearly all); world-wide competition (mainly European and North-American competition); SMEs that complement strategic assets through networks of partnerships and alliances (co-operation with BABCo and the Beta program); unique advantages based on network resources, open accessibility, innovative entrepreneurship, and information sharing.

Futuremark's business strategy development can be divided into three phases: Phase 1 (1997–1999): Benchmark software distributed mainly through indirect sales channels as supplemental CD-ROMs attached to computer magazines, and a smaller part through direct sales derived from the Internet and OEM assignments by hardware producers. Phase 2 (1999–2001): Benchmark software distributed increasingly to consumers on the Internet—a direct sales channel. Phase 3 (2001–present): Benchmark software and services increasingly distributed to corporate customers, which utilise the Internet to promote their business-an indirect sales channel for Futuremark. Today, Futuremark is using multiple sales channels on the Internet, but the indirect sales channel is the dominant.

<sup>3</sup> Futuremark's Beta Program include: AMD, ATI, Beyond3D, CNET, Creative Technologies, Dell, Extreme Tech (Ziff-Davis), Gateway, Imagination Technologies/PowerVR, Innovision Multimedia, Intel, Microsoft, NVIDIA, S3Graphics, Transmeta and XGI Technology.



Internet as sales channels has been instrumental in Futuremark’s globalisation process. Without this dynamic electronic marketplace Futuremark would have been forced to invest heavily in marketing to be able to grow. The company would probably have been forced to use other strategic alternatives, e.g., using traditional agents and importers, thus slowing down the globalisation process. By using the Internet, Futuremark has been able to minimise the need for developing different international operation modes. The company has established only few foreign international sales subsidiaries, and even their role has been mainly in sales promotion and networking with other industry players, and no other operation modes have been called for.

By using the Internet as sales channel, Futuremark has decreased its liability of foreignness. First, the Internet has decreased the costs directly associated with spatial distance. Once being developed, it is possible to distribute a software product to different countries using the Internet without any additional cost per unit of downloaded or distributed software. Internet as sales channel also decreased travel costs, which are among the first category of sources of liability of foreignness. Second, using the Internet as sales channel also decreased the costs resulting from the host country environment, such as the lack of legitimacy of foreign firms and economic nationalism. It has been proposed that Internet make firms stateless, thus removing the source of economic nationalism (perception of being alike).

Futuremark also decreased its liability of foreignness by moving from the Business-to-Consumer to Business-to-Business market. By dealing with smaller groups, Futuremark was able to get increased added value from each business transaction. Internet as sales and distribution channel is resource conserving. By using the Internet, knowledge intensive new firms should be able to approach more market areas simultaneously, without the threat of distributing their resources too thinly on too many markets.

Internet is an effective tool to create market pull for a software product by raising the company’s profile and getting other people talk about it, which is often called building mind-share. Because marketing is all about creating perceptions about a product in the minds of the customers, the battle for mind-share is critical for success.

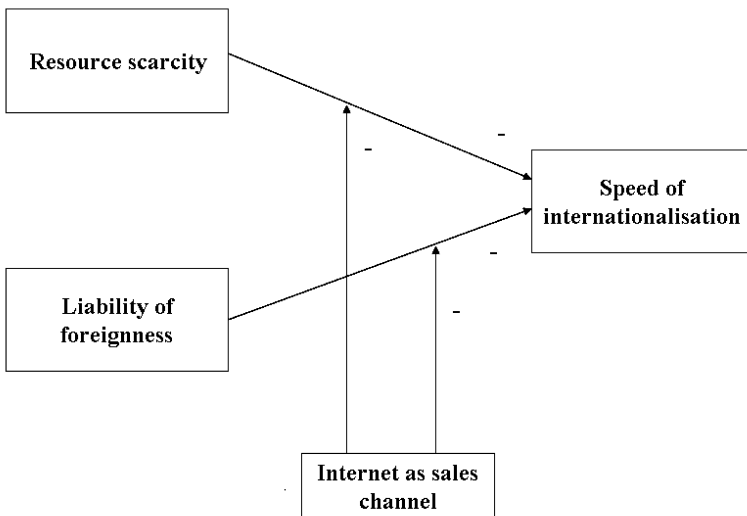


Fig. 2 Proposed model.

Based on the case evidence, we propose a model on how the use of Internet sales channels influences the speed of internationalisation (Fig. 2). As the model in Fig. 2 suggests we propose a negative relationship between liability of foreignness and speed of internationalisation. Furthermore, we propose a negative relationship between resource scarcity and speed of internationalisation. However, we expect usage of Internet as sales channel to counter moderate both these relationships, and thus to influence positively the speed of internationalisation. Faster speed of internationalisation is expected for firms facing liability of foreignness and resource scarcity that are using the Internet as sales channel than for those that are not using the Internet.

## Conclusions

This research explores a relatively new phenomenon, the Internet and its role in decreasing liability of foreignness and resource scarcity. We have integrated two theoretical perspectives to explain the speed of internationalisation of knowledge intensive new firms. We have demonstrated how the traditional internationalisation literature can contribute to the literature on international entrepreneurship (Oviatt and McDougall, 1994). The integration of the theories moves us to better understanding the rapidly internationalising knowledge intensive new firm and should be explored further.

The implications for the entrepreneurship literature are several. In international entrepreneurship research, speed of internationalisation has attracted much attention (Zahra and George, 2001). To capture the potential of knowledge advantage, a firm must move fast in the international markets (Oviatt and McDougall, 1994; Preece et al., 1999). In this paper we have examined a particular form of international activities, namely the use of the Internet, and how it can influence the speed of internationalisation. We have showed how the Internet can provide a mean to decrease the effects of liability of foreignness and resource scarcity, and herewith contribute to an increased speed of internationalisation.

The use of the Internet may have an influence across several process variables of internationalisation. Contrary to Preece et al, who argued that variables drawn from the international entrepreneurship literature would affect international intensity and global diversity differently (Preece et al., 1999), we propose that the use of Internet has the potential to increase both the international intensity and the global diversity of the knowledge intensive firm. Using the Internet, these firms appear to compensate the lack of critical mass in international experience and business development.

Our paper also has implications for internationalisation literature. Internet is a novel sales channel. Traditionally firms have internationalised stage-wise using several operation modes sequentially and expanded slowly to international markets (Johanson and Vahlne, 1977; Luostarinen, 1979). Recent research in this area seems to indicate that incremental new ventures do not follow the incremental stages of internationalisation (Luostarinen and Gabrielsson, 2004; McDougall et al., 1994). This is, however, a great entrepreneurial challenge, and little has been written on the practical solutions of how to actually do it. We believe that the Internet can simplify the internationalisation path and the marketing organisation structure necessary for conducting international business. For example, with the Internet the need to be physically in touch with the customers is reduced.

Our conclusion is that the Internet can have two different impacts on the company's international marketing operation mode and sales channel. A firm can apply a traditional international marketing operation and sales channel strategy based on Fig. 1, where Internet

is a complementing sales channel. This can reduce the resources and functions conducted by the sales and marketing subsidiaries in target markets. Alternatively, a firm can apply the Internet as the main sales channel and use international marketing modes selectively, for example in countries where there is a substantial time difference between home and host country.

The authors recommend additional studies investigating how knowledge intensive new ventures can apply the Internet in their internationalisation process. Empirical survey research should also be conducted to verify the results and the proposed model of this study. Also, the use of the Internet on sales channel levels deserves more attention. The authors welcome comments from other scholars and practitioners.

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