THE DYNAMICS OF SME DEVELOPMENT – TWO CASE STUDIES OF THE INTERNATIONALISATION PROCESS[1]

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ABSTRACT

Internationalisation is interesting per se and as an example of general development processes of firms. Previous research has been dominated by deterministic models, which predicted incremental growth or change. Recent studies have demonstrated that discontinuous patterns are just as common. A longitudinal case study of two small Norwegian firms has suggested a number of factors that may contribute to the propensity to different development patterns. One set of characteristics seemed to produce development patterns consistent with strategic management models, while another set of characteristics favoured change patterns consistent with entrepreneurial models. In addition to the factors that are represented in other studies, our observations indicate that the product structure may influence development patterns and even the propensity to change.

INTRODUCTION

Development processes are found in all types of firms, and in all parts of their value creation processes. The development processes are essential for the firms' adaptation to changes in their environment. They are also part of the improvement of quality and efficiency, which both contribute to their competitive advantage and sustainability (Teece et al 1997). Each development process has its own characteristics and mechanisms, which are specific to the various fields of the firm. But the various fields and processes have many general and similar aspects, such as learning, de-activating of previous and activation of new information sources and flows, transformation or new combinations of resources and renewal of decision processes. Finally, all development processes have an investment

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period, which precedes the payback and must be financed through organisational slack or through allocation of resources from outside the process.

In this article we will address the internationalisation process of small firms, which results in a change in the firm's cross-border activities. The internationalisation process is interesting per se because it highlights the change from activities in local, transparent and familiar venues to international, opaque and unfamiliar venues. At the same time the market potential of the firm is dramatically changed. But internationalisation is also an example of a general development process, which is highly accessible to research because the key factors of the process often are well documented and clearly discernible to the participants as well as to outside observers.

THEORY

There is evidence that business development may follow other paths in addition to the gradual and planned venues of strategic models. The discussion of linear versus interactive innovation processes (eg. Isaksen (ed.) 1997, Van de Ven et al 1999) emphasises the profound difference between the extension from current situation in a structured and gradual development process and the quantum leaps, which to a great extent is possible only through accessing external technology or competence.

The studies of internationalisation were for a long time dominated by the so-called stages models whereby the development is presumed to pass through consecutive stages of increasing commitment to international activities. The dominating research models in the same period were cross sectional surveys, quantitative or categorical data, and a focus on categorisation and simple uni- or bi-varate statistics (discussed thoroughly by e.g. Turnbull 1987, Andersen 1993, Leonidou and Katsikeas 1996, Havnes 1998). The research methods as well as a strong link to strategic management models (Teece et al 1997) are probably two factors that contribute to the early dominance of these models.

The criticism of the stages models have mainly focused on the inherent problems of finding logic delimitation between stages. They mostly lack an explanation of the mechanisms that takes the firm through the stages, and the unidirectional change pattern give these models an almost deterministic character (Andersen 1993, Havnes 1998). However, analysis of longitudinal panel data indicates that more than 40% of internationally active SMEs follow discontinuous development patterns, which are inconsistent with the stages models.

Entrepreneurial models are better suited to explain such development patterns than strategic planning models (Teece et al 1997, Havnes 1998).

The change process

Any change- or development process requires a number of factors. A stimulus (information) is required to signal that change is desirable, resources are required to sustain the process until a new positive value balance is established, new channels of information must be established and new information processed, and necessary motivation and competence must be present. In most respects small firms have less variety and quantity in accessible resources, information and competence available for their internationalisation than large. Nevertheless, evidence show that SMEs both are active and competitive in international markets (Philp 1998, Leonidou and Adams-Flouru 1999, Moen 1999).

The explanation for the observed discontinuous development patterns as well as the competitive strength of SMEs in large, international markets may be found in their ability to rapidly adapt dynamically to exploit new opportunities (Teece et al 1997, Moen 1999). Their lack of internal capabilities and intrinsic information systems must then be compensated by external access to resources, information and competence – usually conceptually depicted as networking (i.a. Tikkanen 1997, Ahokangas 1998, Havnes and Senneseth 2001).

The research problem

The mechanisms of the information processes, generation of new competence and the limiting effect of resource scarcity are inter-linked and all crucial to understanding the dynamics of the internationalisation process. This complex phenomenon can only be investigated by simultaneous assessing several factors and their interaction. We will do this by addressing the research question:

> *How do internal capabilities and external networks interact and decide the dynamics of the internationalisation of SME?*

METHODOLOGY: TWO LONGITUDINAL CASES

The outlined research question is by nature explorative. It requires rich data and information collection that can be adapted to the situation in the firm. Case-type data from interviews of several persons in the firm is required for this purpose. Furthermore, development processes take time, which necessitates data collection at several points in time (Midtbø 2000) in order to identify causes as well as their effects.

The data for was collected by two-wave semi-structured interviews at six-month interval in two firms. The two firms were both active internationally and had both shipping- and oil-industry among their customers. The interviews took place in the period November 2000 to May 2001.

THE CASES

Firm A

The fist case is an enterprise that designs and produces modular solution for cabins and recreation rooms for ships and offshore oil platforms, a market with a high business risk. Enterprise A, was established in 1984. The firm employs 18 persons including the owners, and is a typical family business.

Stable ownership

The firm was started by father and son. After the retirement of the father, the firm is now jointly owned and managed by mother and son. The son is technical manager and the mother is administrative manager. The management team further includes three department managers - architectural, steel and structure and module production.

Economy

The past few years the sales have fluctuated between NOK 11 and 13 millions (1.3 and 1.6 million Euro). Income is based on a few large contracts, which are capital intensive. Since each contract requires a major part of the capacity of the Firm A and has long duration, A is required to alternate its focus between sales and production. Normally the success rate of tenders is 20%, and often production phases exceed the planned termination date. It is therefore always difficult to phase in a new production cycle precisely at the end of the previous. Two recurring problems for Firm A are therefore to obtain the necessary financial guaranties in banks and to balance production capacity. Frequently A is forced to lay off part of their production staff to reduce costs in periods between contracts.

Markets

The market fluctuations are geographically specific and follow the cycles for new building and rebuilding of oil installations and ships. Firm A was founded when the investments in the Norwegian oil fields and ships were very high. When these markets later cooled off, the only available option for A was to find alternative markets. Large market fluctuations and no capacity to produce several contracts in parallel, force A to follow a market strategy, which appears to be ad hoc and short-term.

The first serious decline in the domestic markets during the mid-nineties culminating in a production and sale crisis in 1995. Instead of closing down or reducing the production capacity, the enterprise turned to Asian markets. The first experience in this region was as a sub-supplier to a building contract for a large Norwegian client in Singapore. Based on this experience and with the references from the large Norwegian client, Firm A was later awarded a contract combining consulting and manufacturing for the Vietnamese state owned oil company.

The past few years there has brought a general decrease in new-building markets in the oil industry. However, new opportunities have arisen with the rehabilitation, maintenance and upgrading of technology on old floating oil platforms. This market is expected to grow further in the coming years. At the same time shipbuilding is picking up after a long slack period.

Products

The main product concept has been standard and has not changed since the enterprise was established. But each product has to be adjusted to the specific requirements of each customer. In parallel with this and the market fluctuations there has been a constant revision of regulations and specifications pertaining to shipping and offshore oil installations. Production procedures and competence therefore needs to be constantly upgraded.

A new market trend in the industry sector is increased demand for total package solutions. This often requires that A co-operate with other small supplier firms. According to the managers of A, total packages have been positive for the enterprise. The risk is reduced since the marketing costs are divided among several suppliers. In such networks A provides the technical solutions and has therefore strong influence on the organisation of the job. The technical manager is selective when bidding on jobs. He uses his acumen to pick projects and activities consistent with the capabilities of the firm.

Networking

The total package solutions require a value chain based on a wide and flexible network . Since the production and sale activities occur in different periods, different parts of the networks are activated at different parts of the value creation process. In early stage there is a strong emphasis on market and product information, in the late stages the focus changes to manufacturing and distribution. Throughout this cycle the technical manager changes roles according to the current task structure.

The changing personal roles are consistent with the roles at the purchasing end of he value chain. After 6-7 years in foreign markets the technical manager knows key persons in the business and that is instrumental for the access to market information. Although Firm A has few regular customers, the firm is often invited to bid on up-coming jobs. In the market A encounters competitors that are partners in other arenas. In this manner the network represents both co-operation and competition. Since Firm A has niche products it must go outside the local milieu, to find partners that meet their needs. The co-operation with the large customer in 1995 was for example a success criterion for the new market orientation.

Firm B

The firm in the second case designs and produces systems to monitor performance and safety for ships, offshore petroleum installations, land-based industry, and public utility systems. The enterprise employs 32 persons. The management group is professional and consists of managing director, technical manager, ICT manager, QA/ HSE manager, marketing manager and managers for the three departments (Industry, Marine, and Offshore). This structure reflects a wide competence among the management group. Turnover is yearly approximately NOK 32 millions (4 millions Euro).

Changes in ownership

The second firm was established in 1980. During twenty years of production, ownership has changed several times. The founders all came from the local milieu and most of them were active in the firm. In 1984 another small local firm took over 51 per cent of the shares. In 1992 the enterprise became part of a large company in their strategy to secure the supply of vital components for their own products. Only a few shares were held back and controlled by persons in the management. One problem encountered in the period of external control was that profits were accumulated in the Mother Company and not accessible to the production firm for their own plans for development. External ownership was therefore a barrier for economical growth. In year 2000 the Mother Company wanted to sell out their interests in the enterprise. A group of persons from the management group and the production department with a few local strategic investors bought all the shares in firm. Decisions on retention and accumulation of profits in the firm can now be based on the strategic plans of Firm B and not those of the Mother Company.

Products

The monitoring systems are based on modules, and the customers can choose between different components. Modules as well as systems can thus be designed and developed in incremental processes. The concept allows each product to be adapted to the needs of each customer. The systems can be modified and extended by installing new components in existing systems. This is one way of strengthening the ties with each customer[2]. Likewise, the ties are reinforced by the service of existing systems. This continuous contact with B's own and competitors' products in operation provide important information for product modification and development of new products.

Both maritime products and products for the petroleum industry are strictly regulated by product and safety laws and regulations. These are frequently changed nationally and internationally with direct effect on the requirements as well as the conditions for product development. For the same reasons product development is an integral part of a continuous learning process.

The core components and technical solutions are common to all market niches, see below.

[2] One example of a new product is land based monitoring and control systems for ships at sea, which improve contact between the ships and staff located at land. The product is developed in co-operation with Agder University College and the Norwegian Industrial and Regional Development Fund (SND). During the development process, the enterprise also had frequent contact with customers. The product idea was based in similar existing products. Still the product represents a radical innovation for the firm. Land based monitoring and control systems for ships are now ready to be introduced to customers.

Economy

Each contract of B is small compared to its total capacity. Contracts will therefore never require individual, external financing. Positive profit margins have permitted Firm B to finance its development and growth through the proceedings from ongoing business.

Markets and sales

Due to the small individual contracts sales must occur more often in enterprise B than in A. Consequently Firm B has a large group of customers and continuous sales activities. In addition to the current customer base and contacts during servicing of existing products, trade fairs are important venues for marketing.

The three separate market niches of Firm B - maritime/petroleum, process industry and public utility – have different economic cycles. So far B has mostly operated in domestic markets or as sub-suppliers to Norwegian exporters. However, many of its deliveries and services are provided internationally. Being at domestic markets keeps the costs low. The distribution channels are short and so are the geographical and cultural distances to customers. Transaction costs are thereby reduced. Only five per cent of the sales are at international markets, mainly to the neighbour country Sweden. Even though export sales are small there are deliveries to foreign markets at least every third month.

The approaches to production and marketing activities for international markets are the same as for domestic. The pushes towards international markets may be described as slow and deliberate. This careful approach to new markets represents a long-term strategy to develop the economic activity through slow growth. The motivation to go global stems from this growth strategy and a security in case of a decline in domestic demand.

Networking

Network is important for the innovative processes also for Firm B. The main objective for the networking is to get information about new opportunities for growth and development such as new laws, customers, new technology, customer needs, etc. Customers as well as suppliers and colleagues are important information sources for B in this respect. Key persons in Firm B are active in a local professional association for maritime enterprises.

Furthermore, the personal contacts are important to disseminate information about the firm's products. For this purpose active contacts with current and new customers are very important, and potential new customers are often informed about the enterprise by earlier customers. In some situations the enterprise are allowed to use their customers' name at a reference list. The marketing manager claims that using reference lists is very characteristic marketing practice in the shipping industry.

ANALYSIS

The most important factors, which can explain the two enterprises' motivation and strategies to go global, are summarised in Table 1.

Table 1 Summary of explanatory factors

Firm A	*Firm B*
Family owner-managers	External owners and professional owner-managers
High level of risk	Low level of risk
International markets are dominating	National markets are dominating
Client references used	Client references used
Large and few capital intensive contracts	Small and several less capital intensive contracts
Internationalisation motivated by dwindling domestic markets	Internationalisation motivated by growth strategy in a wish to grow
Product specialisation	Product diversification
Network based on supply chain	Network based on access to information
No or limited profit	Long history of profits

The various dimensions of the outcome of the internationalisation processes are similarly summarised in Table 2.

We note some very interesting differences. The dynamic patterns of the internationalisation processes of these two firms are quite different. Firm A had a discontinuity some years ago when the activities in foreign markets started. Since that time there have been only small changes in the international commitments. Firm B has had a continuous, but small, growth in international commitments during this period.

[3] One example of a new product is land based control systems for ships, which improve contact between ships and staff located at land. The product is developed in co-operation with Agder University College and the Norwegian Industrial and Regional Development Fund (SND). During the development process, the enterprise also had frequent contact with customers. The product idea was based in similar existing products. Still the product represents a radical innovation for the firm. Land based control systems for ships are now ready to be introduced to customers.

Table 2 Summary of the outcome factors

Outcome during observation interval	*Firm A*	*Firm B*
Sales	Decreased	Increased
Export	Decreased	Increased
Radical product innovation[4]	None	One
New markets[5]	None	Yes
New domestic customers	None	Yes
New foreign customers	Yes	Yes
New suppliers	None	Yes, foreign suppliers
Change in network	None	Yes
New foreign partners	None	Yes
Foreign investments	None	None

Firm A started its internationalisation in order to compensate for receding domestic markets, a reactive motive. Firm B needed the international markets to fulfil its growth strategy, a proactive motive. However, both firms expanded internationally within the same market niches as at home, using reputable Norwegian clients as references.

The value chain of Firm A is increasingly depending on co-operation between several firms, whereas Firm B is either self-sufficient or uses sub-suppliers. Firm B has therefore more direct control over the value creation process. This is also reflected in the networking activities of the two firms. Firm A uses the network for accessing manufacturing resources as well as for marketing. Firm B uses its network primarily for collecting market intelligence.

One significant difference is the size of contracts relative to the total capacity of the two firms. Firm A has considerable larger contracts with longer production periods than Firm B. This gives A higher risk, less continuity in sales activities, and less possibility to finance production through overlapping production cycles. In total this means that A has very little organisational and financial slack available for development processes, while B can finance as well as allocate internal resources for such purposes. The consequence is that changes, such as internationalisation, are postponed as long as possible in Firm A. Firm B has an opportunity to start changes early with low commitment in experimental phases, while other on-going activities secure profits in foreseeable future.

[4] New products that have not been produced in the enterprise or presented in the markets.
[5] Have the enterprise sold products at new markets since index 1?

The larger firm size and higher continuity in marketing, sales and production activities allows Firm B to use more specialised personnel. This increases the competence and experience, which go into the development processes. Although both of the firms must be regarded as small, Firm A falls into the size category where Moen (1999) suggests that size matters for performance and Firm B into the size category where performance is not so much sensitive to the influence of size.

DISCUSSION AND CONCLUSIONS

The data available from this type of case study does not allow any testing of hypothesis. The main purpose is to give insight into the processes. This will be the basis for future formulating hypotheses, which can be tested in later studies.

Spilling (1998) found that enterprises, owned by many, often have intentions to grow. Most of the enterprises that grow develop and materialise ideas in co-operation with others. He confirmed that enterprises that have intentions to grow often represent something new or innovative. Our evidence supports that growth intentions are higher with multiple owners. However, we find innovation, here manifested as internationalisation, both as part of a growth motive and as a survival motive.

Explanations for the slow expansion in foreign markets can be found in traditional growth strategies in economical literature, which promote linear increased production and sales as means to limit potential risk (Teece et al 1999). The internationalisation process of Firm B confirms very well with this description. If the internationalisation process fails, B is able to leave foreign markets at an early stage. At the same time foreign markets are gradually opened up for increased sale.

The approach to internationalisation found in Firm A is quite different. The dynamics of the process is discontinuous. It can be expressed as the ability and willingness to turn around and do things differently when appropriate. Teece et al (1999) used the term dynamic capability to denote this capability. It is also very similar to the most recent definitions of entrepreneurship (Wiklund 1998, Knight 2000), namely the ability to discover and exploit new opportunities.

In spite of the differences in products, both firms operate in the shipping and offshore oil production markets. Differences in market characteristics are therefore not sufficient to explain the differences in the internationalisation processes. As noted above, the observed difference in resource endowment is a much more likely candidate for explanation. Our two cases suggest that resource scarcity is a limiting factor, but that resource abundance in itself not necessarily stimulates internationalisation.

One possible explanatory factor for the dynamic behaviour is the normal size of contracts relative to the total capacity of the firm. As pointed out above, this is important both for the continuity of activities, for the financial capacity, for the risk and for the resource requirements for further development. Our assessment is that this factor is very important, but it has not been given much attention in previous studies.

The internationalisation process is connected to critical activities, where firms do not have full and correct information. Internationalisation processes therefor carry high risk. Lindmark (1994) describes the internationalisation process for small and medium sized enterprises by looking at the activities the process implies: "The export start and expansion process is not only a task of direction and co-ordination internal resources of the exporting firm. To a very high extent it is also a task of finding, committing, directing, co-ordinating and evaluating external resources attached in favour of the exporting activity"

Our two case firms have different approach to risk reduction. Firm B has the opportunity through its resource abundance and product structure to proceed cautiously and expand gradually in international markets. Firm A was in a 'do or die' situation, and used the opportunity to follow a large client abroad. This gave the necessary experience. Later the firm was also able to call upon this client for reference also to some extent for advice. The strategy for risk reduction was therefore limitation of the uncertainty by information through existing domestic clients.

It has been found that networking (Camagni 1991) can explain some aspects of internationalisation (i.a. Ahokangas 1998, Havnes and Senneseth 2001). The latter found correlation between high intensity of network activities and growth in market extension. This corresponds with our findings, although our two case firms have different approaches to networking. However, our observations may just as well indicate spurious relationships as causal relationships between networking and the dynamics of the internationalisation process, and the direction of such causality may be either way.

Theoretical implications

Although our research started with the desire to increase our understanding of internationalisation processes in specific and development processes in general, the most result is probably increased ability to pose precise questions for further research.

(a) We have been able to identify propensity for continuous or discontinuous change patterns in internationalisation, similar to previous research. Our data suggest a number of factors that may contribute to the presence of either development pattern. Can data from other contexts confirm the relationships between these factors and the change patterns?

(b) Can our suggestion of product structure as discriminating factor for characteristics of development processes be confirmed in other firms and/or in other industry sectors?

(c) We have found that different factors stimulate the internationalisation process in our two case firms. Is this difference decided by internal or external factors? Is it specific to persons, firms or their environment?

(d) And finally, is it possible and feasible to make a general model depicting all factors and all mechanisms of the development of SMEs?

The results from our case study are consistent with the results reported from previous quantitative survey studies. Although we are sceptical to the practical potential of a general development model, we feel confident that longitudinal case studies are required to increase our understanding of the development processes.

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