The usage of the first customer reference for starting a complex software business – lessons learned in the Thai Software Industry

Jari Ruokolainen [A]

[A] Licentiate In Technology, Department Of Industrial Engineering and Management, Helsinki University of Technology, PL 1000, 02015 TKK, Finland

email: jari.ruokolainen@pp1.inet.fi

Abstract

The first customer is the first reference for a start-up company. The first reference customer is especially important for the companies, which produce complex software products for the business-to-business market. Without real world tests, it is hard to convince the next customer. The first reference is important not only for testing the product technology, but also for verifying the business concept: the business logic behind the product, sales arguments, support functions and the readiness to solve the customer problems. It appears that those companies, which make an effort to develop the business concept, grow faster than those which use the first reference for verifying the technology. Actually, only a few companies, according the survey, use the first reference to find sales arguments. Instead, 40 % of the companies use the first reference for checking the technology. The practices, that is, how the first reference customers are used, vary from case to case. Therefore, the purpose of the studies was to identify the best practices. The location, Thailand, a lately industrialised country, might highlight some observations, which perhaps cannot be detected as easily in Western society as in the Far East, for example, the usage of social capital. This paper concludes three different studies (multiple case study, survey, longitudinal case study) done by the author with the help of Helsinki University of Technology and Asian Institute of Technology.

Keywords: First reference customer; Start-up software company; High technology market.

1. INTRODUCTION

The results of the work done for the first customer can be used to convince the next customer. The importance of the first reference can exceed the importance of the innovativeness of the product. A customer can give more credit for a good reference than for the inexpensive price or the advanced technology of the product. References are important for the companies, which produce complex software products for the business-to-business market. The products need to be verified in real world cases.

Usually, customer implementation of the complex software takes place through projects of various sizes.

The high technology market has been reported to be volatile (Beard and Easingwood, 1992; Beard, 1995) Actually, the supplier has to face the scepticism of the buyers. Therefore, start-up software companies find it very difficult to convince the first customer, because they do not have the past experience. The start-up high technology supplier with a new product is definitely a risk for a customer. The risk can be reduced by proving that the business concept works in the real world. The reference customer can be the tool the start-up needs to gain the trust of the market.

The importance of the subject was tested by asking Thai software entrepreneurs, producing complex software packages what had been the most important event for them in the past (Ruokolainen, 2003). 40 % of the entrepreneurs indicate that the getting the first reference customer was the most important event in their entrepreneur history.

What convinces the next customer to purchase a similar system? It can be assumed that the first reference verifies not only the product, but also the whole business concept including support, marketing and other company operations. Therefore, the first implementation project can teach the start-up a lot about how to do business.

The second interesting question relates to what makes the first reference case successful or unsuccessful. Finding the first reference customer might be quite challenging for the start-up: how can they find the first reference customer? The first implementation of the project can fail: what are the factors that support the success or cause the failure of the first customer implementation. If the first reference is important for the future business, it is important to study the subject a little bit more profoundly as has been done in this research.

Based on the previous questions, the main target of this research is to find the key variables and to investigate how they lead to a successful start or failure of the start-up by using the first reference customer. Thus, the main research questions are as follows: What are the variables affecting the success or failure of using the first reference? What is their meaning in terms of getting more sales?

Three different studies (Ruokolainen and Igel, 2003; Ruokolainen, 2003; Ruokolainen *et al*., 2003) have been undertaken in order to gain profound knowledge about the subject: a multiple case study, a survey and a longitudinal case study. Before introducing the studies, the relevant literature is briefly reviewed in the next chapter. The methodologies and information collection methods used are then presented. Then the results and lessons learned are reported. Finally, the discussion section is presented. The last section also includes policy recommendations.

2. LITERATURE REVIEW

Three different literature paths have been followed in order to find more information about the issues relating to the usage of the first reference customer in start-up companies. The literature topics below have been researched in order to gain a profound understanding of the state of the art issues close to the subject. These literature paths are as follows:

1. Partnership Theory
2. Entrepreneur Research
3. Leader User Design Methodology

Partnership Theory

The partnership theory emphasises the meaning of long-term cooperation, an open and honest relationship and a mutual commitment (Keough, 1993; Spekman, 1988; Asmus and Griffin, 1993). In the past, the competition and arms-length approach were believed to help in obtaining the best price, delivery and quality terms (Spekman, 1988). The tendency of longer-term cooperation leads to a situation, in which it would be difficult for a new player to enter the business. Start-ups have additional challenges with the first customer, because the financial positions of the start-ups are not usually strong and they do not have the references to convince the first potential customer. New opportunities usually open up when technology innovations can be presented; or in discontinuity of current technology and business occurs.

The partnership theory also emphasises the win-win situation, which contradicts traditional purchasing practices: using competition to knock down the prices and delivery terms (Spekman, 1988). In the reference business, the win-win situation can be achieved, for example, in the situation in which the customer has the opportunity to get something from a start-up company that does not yet exist on the market; and the start-up supplier gets positive arguments to help market its new product and company. However, the start-ups form a risk for the first customer since it is new technology and the start-up has little experience running a business.

The whole product concept including account management, customer support and other similar elements are included in the business concept. The start-up must convince the potential customer that they are capable of not just selling a good product, but also of handling handle conflicts, maintaining the systems and other issues relating to business relationships. According to Gummesson (1987), this can be called a multiheaded customer and seller concept. It can be assumed that the success of the first reference customer helps the start-up a great deal in getting into the market by proving that the product concept, including the above elements, works.

The start-up companies might not have the resources to manage complex customer networks. Usually complex networks management is needed to take care of big accounts like large companies with a centralised purchasing function. Therefore, it might be useful for start-up companies to use small and medium size companies as the first reference. The decision process can be assumed to be simpler in small companies than in large enterprises.

Entrepreneurship research

One way to open the door for a start-up is to use existing contacts. It can also be assumed that those who have a relationship with a customer may have a better chance of succeeding in entering the market. Several researches have proved the key role of social capital in setting-up a start-up company (Aldrich and Zimmer, 1986; Otsgaard and Birley, 1994). Start-up companies can use the existing contacts of the owners to find customers or to get venture capital (Birley, 1995; Eisenhardt and Schooven, 1996). However, the need for social capital along with the innovation process seems unclear. In other words, what role does social capital play in the different phases of the innovation chain?

The entrepreneurship research also shows that the managing directors of start-ups tend to concentrate on solving the technological problems at the expense of the commercialisation (Freel, 1998). Research also indicates that more than 40 % of the start-up companies have problems with marketing (Huang and Brown, 1999). Freel hints that the characteristics of the entrepreneur might affect the success of the start-up. The characteristics might be based on the history or education of the entrepreneur.

Actually, Autio (1995a) wrote that empirical studies suggest that rapid organic growth is both rare and often even unwanted among new, technology based firms. Half of the Thai companies, producing complex software packages, measure success by successful customer cases (Ruokolainen, 2003). One of the entrepreneurs stated that the profit is a bonus from satisfied customers. This means that the companies might wish to grow but not at the expense of customer satisfaction.

Leader user design methodology

There are different opinions in the literature about the benefit of the lead customer in the R&D process. The lead user methodology of the involvement of the key customer in the R&D process has been reported to positively affect the success of the product (Herstatt and von Hippel, 1992, Urban and von Hippel, 1988). Some of the research has not supported this (Ylirenko, 1999). Actually, the customer's involvement has been criticised as limiting the R&D (Bidault and Cummings, 1994; Johne, 1994). The strong involvement of the customer might also lead to a situation where the start-up ends up in the role of subcontractor – and not developing the product for a large market. Problems

with Intellectual Property Rights (IPR) have been reported (Bruce *et al,* 1995): customers, in some of cases, tend not to give the IPR of the product to the start-up and claim they own the rights. This can, in the worst cases, lead to the bankruptcy of the start-up.

Conclusion

Most of the market-related research studies have been done for companies, which have long since passed their start-up phase. The marketing strategies of the start-ups have not been widely studied in the literature. Beard and Easignwood (1996) writes that the commercialisation stage is often neglected in the literature on new product development, innovation and high tech-marketing. The different options, regarding how the start-up successfully uses the first reference, have not been studied widely in the literature.

The literature research is not able to provide a solid base for executing normative research into the subject. Therefore, it was decided to first carry outexplorative research using the multiple case study methodology. After that normative research methods would be easier to use.

However, some of the possible variables could have been already identified in this phase. The variables are as follows:

(1) The skill set of the entrepreneur: The entrepreneurship theory hints strongly at the characteristics of the entrepreneurs, which might be explained by the background or education, preventing the successful marketing of the start-up.

(2) Social capital: The relationship theory does not indicate how, when or what kind of social capital is needed in the usage of the first reference. However, it can be assumed that social capital has a role.

(3) The commitment of the first reference customer: The leader user design methodology and the partnership theory emphasise the commitment of the customer in the business success. More information is needed to get a better understanding of it in this research context.

3. METHODOLOGY

Three different kinds of research methodologies have been used to investigate the subject of how to benefit from the first reference: a multiple case study, survey (nomothetic) and longitudinal case study. The multiple case study can be used exploratively to reach a deeper understanding of the phenomena, for example, to find

variables, with a limited number of sample companies. The survey methodology can be used for testing variables with a larger sample size than in the multiple case study. The results can be verified by the longitudinal case study research.

Selecting the sample base: The companies for the different research studies were selected with the help of Software Park Thailand, which has an extensive database of the Thai software companies (more 200 names in the database). One of the jobs of Software Park is to keep and maintain a database of the Thai software companies. The target population of the research forms the companies, which produced large complex software systems for the business-to-business market. In addition, it is assumed that a project is needed to implement the software system. The first reference is especially important for such companies: they have to test their products first in the real world. Today, the ages and sizes of the companies vary considerably. The idea, however, was not to concentrate on the current situation, but on the first years of each company. Because the companies exist today, they all have succeeded in entering the market.

Using multiple case research methodology: In the first study, the multiple case study methodology has been used (Gummeson, 1993). The first research was explorative in order to find the model and related variables. This was because no clear concept was suggested in the literature. Statistical methods are difficult to use without understanding the phenomena. Multiple case study methodology was believed to bring profound new information. A total of nine different Thai software companies were interviewed to learn how they have succeeded in expanding the business in the start-up phase. The target was to gather homogeneous examples to make the comparison possible. Usually 3 interviewers attended the meetings and some of the interviews were taped. After the interviews the records of the participants were compared.

Using survey methodology: In the second study, the nomothetic methodology was used to investigate the found variables of the multiple case study. Autio (1995b) writes that the nomothetic research method leans on the positive scientific tradition with survey-type gathering of empirical data and analysing it. According Autio (1995b), the method is well suited for searching for correlations between phenomena. Linear correlation has been used to find the relationship between a single variable and the sales growth. It can be argued that the investigated system is a multivariable system, in which several variables might affect each other and the sales growth. Therefore, linear regression analysis has been also used to find if a group of variables can explain the sales growth. In some cases binominal distribution has been used to check if certain observations could be regarded as random events and if the linear correlation could not be used.

A total of 27 Thai companies form the sample base. Actually, it can be assumed that the sample group presents quite a large portion of the current population. In addition,

the sample group can be thought to represent also the coming start-ups, which expand the current target population to also include the future population It can be assumed that the companies investigated, the samples base, allowed the use statistically of tools, which are based on random deviation. The questionnaires were sent beforehand to the target companies. The meetings were arranged with the entrepreneurs (owners or founders) of the companies. Much background information had been gathered to support each questionnaire. Usually the entrepreneurs had a story to tell.

Using longitudinal case research methodology: The results of the above studies were verified using the longitudinal case study methodology (Eisenhardt, 1989). The first information of the company was gathered already in the mid 90s as part of a large survey of the Thai technology companies. The follow-up study was done in the late 90s.

The three different research methodologies create a profound knowledge of the companies trying to enter the high technology market in the recently industrialised country.

4. REVIEW OF THE RESULTS OF THE STUDIES

Descriptive Statistics

This research has focused on the first years of the companies – in their start-up phase. The ages of the investigated companies vary quite considrably. The average age of the company sample base is 7.1 years. The oldest company was 30 years old and some of the companies were established as late as 2000. The entrepreneurs of the oldest companies well remember the events relating to their first customer. And usually everyone wanted to tell a story relating to their first customer. The longitudinal case study research covers the history of a company from 1985 until 2002. 9 companies were interviewed for the multiple case study research. 27 companies were involved in the survey.

The economic up and down turns could not be seen to affect the success of the start-ups. This is because the sample size is not big enough per year to calculate any meaningful figures. However, one of the most successful companies was established during the economic downturn. Opposite examples could be also found.
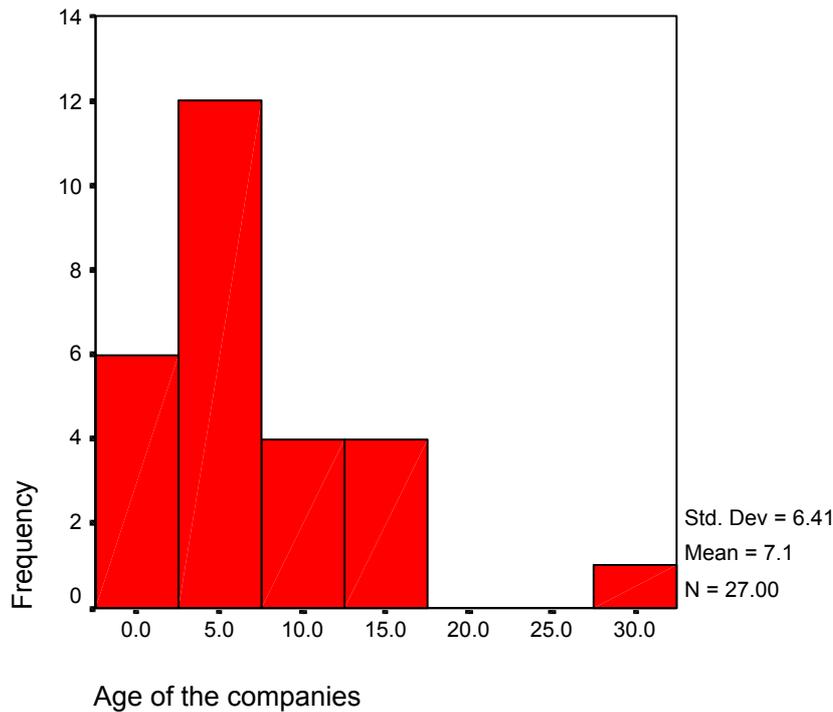
Figure 1: the age distribution of the sample companies

The sales information was collected up to the fourth year from the start-up. A linear calculation was done to get the 'sales growth –index'. The sales growth index shows what could have been the sales after the first year in millions of bahts. Sales figures were not obtainable from the oldest companies, which have been left out of the correlation and the regression analysis. Some of the youngest companies were still the start-up phase and comparative sales figures were unobtainable, because they had just finished the first pilots.
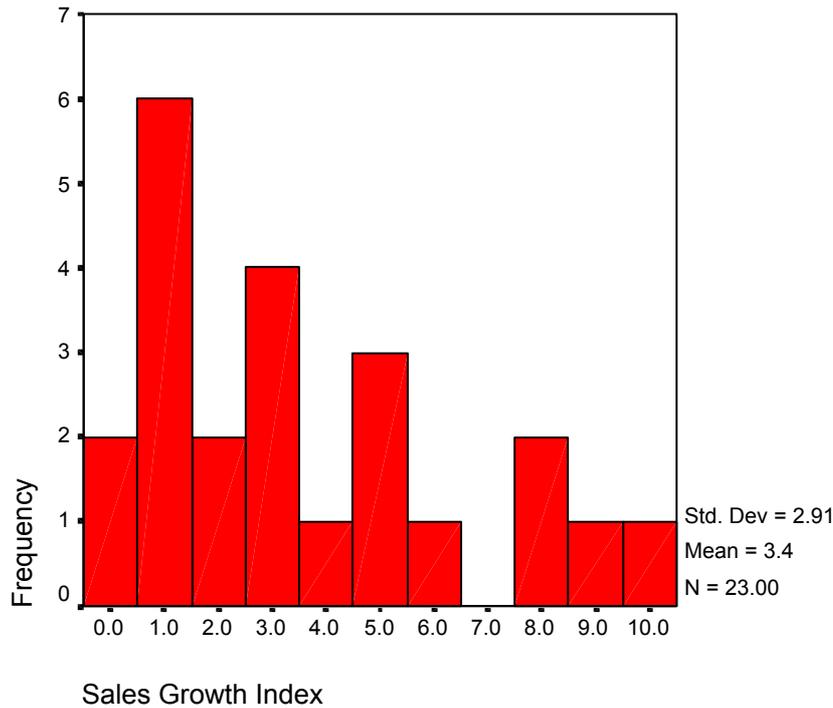
Figure 2: the sale growth index of the sample companies

Variables identified through the multiple case study

The multiple case study methodology was used to identify the process of the usage of the first reference and related variables with help of the nine case companies. A simple process of the usage of the first reference customer was found (see Figure 3). Different variables could be attached to each phase. The variables found are listed in Table 2. The analysis of the variables will be introduced later. Each variable will be verified with the help of the longitudinal case study.

All the phases in Figure 3 must be passed in order to fully utilise the first reference customer. In the first phase, the first reference customer must be found. In the second phase, the system must be implemented. In the third phase, the business must be expanded with the help of the reference customer.

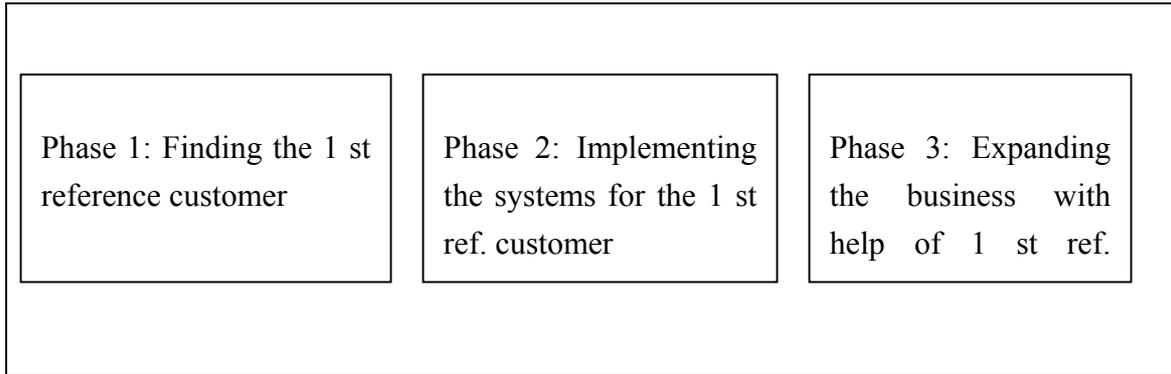| Phase 1: Finding the 1 st reference customer	Phase 2: Implementing the systems for the 1 st ref. customer	Phase 3: Expanding the business with help of 1 st ref.

Figure 3: Simple process of usage of the first reference

The following variables were identified to relate the phase above during the multiple case study research:

1. Social capital: 5 out 9 cases found their first reference customer mainly based on past social contacts. Various types of contacts were detected. The multiple case study indicates that social capital might have an important role especially in finding the first customer (phase 1).

2. Background of an entrepreneur: The multiple case study indicates that international working experience could help the entrepreneur succeed with the implementation of the first reference customer case. The entrepreneurs' educational level was also studied. (phase 2).

3. Commitment of the first reference customer: The multiple case study indicates that the commitment of the customer affects both of the two last phases – succeeding in the implementation and expanding the business. Various types of commitments could be found. Intellectual Property Rights seem to be an issue in a few cases (2/9).

4. Learning from the first reference customer: According to the multiple case study, with help of the first reference customer, the start-up company could test and learn things which might be important in expanding the business (phase 3). Learning business related things seems to indicate more sales

5. Marketing value of the first reference customer: The marketing value of the first reference customer is supposed to affect the last phase, expanding the business. The literature recommends using only large reference sites (Beard and Easignwood 1996). The multiple case study indicates that the value of the business knowledge of the first reference customer might have some effect.

Next each variable and sub variable will be presented from the perspective of each type of research:

- What variables or subvariables were found (multiple case study)
- What is their meaning (survey study) and
- How was the result verified by longitudinal case research.

The meaning of social capital

One thing learnt from the multiple case study was that the owners reported having difficulty finding the first reference. The literature also indicates the scepticism of the high technology market (Shanklin and Ryans1984). The customer can regard a start-up's new complex software product as a high risk. Many (5/9) of the start-up companies seem to overcome this problem by using the social contacts that they have gained over the years. Other options could have been the innovative product or to keep the price low. According to the multiple case study, the first customer was found through various kinds of social channels: families, friends, friend of a friend, old colleagues etc. Granovetter (1973) reports a similar phenomenon in the labour market calling it "the strength of the week ties". The contacts with the previous employers seem to be an important source for the first reference.

The survey confirmed the assumptions, partly based on the multiple case study research. The survey indicates that 67 % of the 27 start-up companies have previous contacts with the first reference customers. The result can generalised over a large population with the help of binominal distribution (contingency less than < 0.05). This survey was not able confirmed the meaning of the contacts to the previous employer. It was not possible to state whether a certain type of previous contact was more important than the others. Instead the answers were distributed quite equally with 10 different options. All the contacts seem to be quite equal sources for the first reference customer.

This result was also verified through the longitudinal case study. The first customer was the owner's long-time friend from school. This friend needed special software for her pig farm to generate a feed programme. It looked like a good opportunity for the company, because there were a significant number of pig farms in Thailand.

The meaning of what was learnt from the first reference customer

The multiple case study indicates that the start-up companies learn many key things about the business development through the first reference customer. The companies reported that they use the first reference to learn sales arguments, business logic of the product, how to run projects and to use the necessary technology.

With the survey, it was possible to study the meaning of the subvariables found by the multiple case study. The survey indicates that 'learning the right technology with the

first reference customer' does not indicate sales growth – actually it correlates negatively with it (-0.515*). However, nearly half of the companies use the first reference to verify the technology - the maturity of it. Instead, learning the sales arguments seems to indicate growth (0.585*) - the benefits that the software system could bring to the customer. Only some of the start-up companies have used the first reference to develop sales arguments. It can be assumed that developing selling arguments means a profound involvement in considering the business model of the customer.

The research of the company in the longitudinal case study indicates that the key lesson learnt by the start-up was to gain the systems definition knowledge (technical skill). The company also learned to use expert knowledge (a professor from a local university). However, the company did not realize that the size of the market for such software was very limited. And exports failed. The owner commented that she learned a lot about the market. The longitudinal case study indicates that the company put much effort into the technical side and lacked business knowledge at this point.

The meaning of the commitment of the first customer

The lack of the commitment of the customer to the business of the start-up company is one of the reasons for failure according the multiple case study. The multiple case study also indicates that the first customer's interest may not meet the need of the start-up company. The customer might use a small supplier just to verify the technology and to gain Industrial Property Rights (IPR), for example, to prevent the development of the technology. According to the multiple case study, the first reference customers can commit to the start-up company by paying for the development, sharing the cost, allocating resources and giving advice.

The survey research indicates that the best commitment seems to be that the first customer pays part of the development. It correlates well with sales growth (0.597*). This result might also reflect the problems that relate to IPRs. If the costs are shared, the ownership of the IPRs of the start-ups might be clearer. The other types of customer commitment according the survey do not indicate growth.

The longitudinal case study also seems to support that. After failing with the very first business trial, the company took a new direction and started to develop a Human Resources Management (HRM) System as an IBM subcontractor. Later on the company developed their own version based on the previous work. However, the company was accused by the first reference of using the knowledge belonging to the customer for commercial purposes. The accusations were proved groundless. The consequence was that the longitudinal case study company could not use this case for a reference. They had to find a new first reference customer. According to the owner, it was difficult and she had to give significant discounts.

The meaning of the background of the entrepreneur

Based on the multiple case study, the work experience of the owner in an international enterprise might indicate better success than a domestic background in implementing the system for the first customer. The survey did not support this finding. There were no statistically remarkable differences between the international and the local work experience among the successful implementation cases. This might be because only a few of the companies operate internationally. Those, who have work experience in an international company, might not have had the chance to utilise the knowledge in international businesses.

All the entrepreneurs had previous work experience before starting their own company according the multiple case study. The survey indicates that 87 % of the entrepreneurs had working life experience before starting their own company. The result can be generalised to a large population (binominal contingency less than 0.01). Many of the entrepreneurs have been working before in international companies like Siemens, Microsoft, IBM etc.

The multiple case study indicates also that many of the software entrepreneurs have a university education. IT technology is taught widely at the universities in Thailand. That might partly explain the high number with a university education. Quite many of entrepreneurs have an MBA and some of them even have a PhD according the survey. The survey indicates that the education correlates positively with the sales growth (0.687**). The international working experience correlates also quite strongly with sales growth (0.207), but the result is not statistically significant.

Based on the multiple case study, it was thought that the background in international business might help especially in implementing the system for the customer. International companies have usually put an effort into developing business processes, which includes the knowledge of how the companies deal with the customer. The survey indicates that the effect of the background, both working and educational, is more complicated. Actually, the educational and international background might, for example, indicate a better readiness to look for marketing arguments with the first reference customer: that is, to make an effort to help the customer develop better business models.

The owner of the case study company has a PhD degree from the USA. She worked as a programmer for an international company and later as the head of department in another company before setting up her own company.

The meaning of the market value of the first reference customer

In the multiple case study, it was assumed that if the first reference customer operates in the key industrial sector of the country then more valuable information might be gained through the first customer. Those Thai companies, which had their first references from the garment and agriculture sector, seem to grow faster than the others. The other options, which were indicated to be valuable from a marketing point of view, were the size and age of the reference.

According to the survey research, the market value of the first reference does not indicate the growth of the start-up company. No relationships were found between the different variables (age, size) of the customer and the growth of the business of the start-up. Neither does the possible valuable knowledge of the first reference indicate sales growth. Although it has the highest correlation 0.156 among the subvariables studied (age, size, knowledge), it is not statistically significant.

There are some indications that the big companies might use their reputation to squeeze out small start-ups, which, in hopes of getting the reference, are ready to do everything they are asked to do. Start-ups might not know how to deal with complicated big accounts. This might be the reason that the big companies are not necessarily optimal references.

It was reported earlier that the case study company had problems with the first customer for whom the first Human Resource Management System was developed. The customer could not be used for the reference. It can be easily noted that in this case the first customer did not commit to the business of the start-up software company. Therefore, entering the market was harder than expected. It can be asked if a better relationship management could have helped.

Results of regression analysis

The most important result of the regression analysis is 'R square' which tells how well the subvariables can explain the sales growth. 'Adjusted R square' takes into account the number of observations and adjusts the R square accordingly (Metsämuuronen, 2001). A set of the variables and subvariables could be identified by the multiple case study research (see Table 2). For most of the subvariables, it was possible to calculate the liner correlation with the sales growth based on information collected through the survey. According to Mestämuuronen (2001), those independent variables, which correlate most with the dependent variable, are best suited to regression analysis. Therefore, from each variable group those subvariables were selected that correlate most with the sales growth.

The following five variables seem to explain nearly 70 % (0.686) (adjusted R square) of the growth of the start-up companies: (1) sharing the costs between the supplier and the first customer, (2) using the first reference to develop sales arguments, (3) not using the

first reference for testing the technology, (4) the first reference belongs to the key industrial area of Thailand and (5) the educational background. Multi-colinearity seems not to be a problem in regression analysis: Condition Indexes stay well below 15 (Belsley *et al*., 1980). Eigenvalues do not indicate problems, either.

The above variables seem to some extent to explain the sales growth among the target population. The longitudinal research also seems to support this finding: the owner has a PhD background, her own capital and income from the first customer was used for development, and the first reference belongs to a key business area of the country. The owner indicates that she also used the first reference in some extent to find the sales arguments. Many of the difficulties were caused by inexperienced staff that were unfamiliar with the technology.

Variables:	Subvariables:	Key correlations with sales growth:
Social Capital:	Previous contact exists or not: family, work, college etc	67 % of owners / founders have had previous contact; binominal contingency < 0.05
Background of the owner:	Type of education: B.Sc., M.Sc., MBA, PhD Type of past work experience: international, local, no experience	Education: 0.687** 87% of the owners / founders have had previous work experiences; binominal contingency < 0.01
Commitment of the first reference customer:	Types of commitments: advice, finance, resources, sharing costs	Sharing costs: 0.597*
Lessons from the first reference customer:	Types of lessons: correct technology, run projects, business logic, sales arguments, profitable business	Correct technology: - 0.515* Sales arguments: 0.585*
Market value of the first reference customer:	Types of values: sales, age, time in the business, key industry area	Key industry area: 0.156

Table 2: The variables, subvariables and correlations

5. LESSONS LEARNT

The critical points to get business out of the first reference are as follows (compare with Figure 3): The first critical point is to find the first customer for the start-up company and its first product (passing phase 1). The second critical point is to exit from the first customer without causing the customer to take legal action (passing phase 2). The ownership of Intellectual Property Rights should be clearly agreed beforehand. The third critical point is the expansion of the customer base with help of the first reference (passing phase 3). The local market size can be too small for a technology company. Therefore, skills to expand abroad are needed as the example of the longitudinal case study indicates. This idea is also shared by Slatter (1992)

It looks like the first reference has a remarkable role in the development of the business of the high technology start-up company producing complex software: sales arguments can be learned, the first reference can be used to gain credibility, with help of the first customer the business concept can be tested and developed and some income can be earned to convince, for example, venture capitalists.   The start-up companies were asked why they were able to expand the business. The answer 'credibility gained through the first reference' seems to correlate statistically with the sales growth (0.538*) (Ruokolainen, 2003).

It looks like learning sales arguments might indicate sales growth based on the results. Only a few companies were able to utilise the first reference to develop sales arguments. The literature indicates that the owners of the technology companies tend to be technically oriented at the expense of the commercialisation. Therefore, some actions are needed to emphasise the sales orientations of the owners. One of them could be refunding VAT (22% in Finland) in the first four years. Such a proposal focuses on the selling and commercialising of products.

It is also important to realise that the start-up company can guarantee the development of the technology and services in the long run for the first reference customer. Small start-ups gain business knowledge from their customers. The company learns and accumulates the knowledge of the business sector in which it operates. In the long run, the roles can change: start-ups also begin to disseminate the business knowledge to the industry. Therefore, the customer should regard the small start-ups as a long-term investment to guarantee its business. Such an approach is supported by the partnership theory (see Chapter 2).

The education seems to correlate strongly with sales growth. Nearly 40 % of the entrepreneurs have an MBA. The large number of MBA graduates might explain the high correlation. However, education alone could not explain the sales growth in the regression analysis. The explanation rate (adjust R square) did not reach 45 %. Together with the other variables, the rate reached nearly 70 %. It means that education alone might not help achieve the high sales growth. But it definitely looks like a great help.

The recommendation for the start-up companies is to concentrate on getting the marketing and sales arguments through the first reference customer. This can happen through developing the business concept of the customer. It is also important to check the commitment of the first customer to the business of the start-up company. The risks relating the IPRs should be checked beforehand and agreed upon, for example, by sharing the costs of the implementation. A good education seems to help the business success but the other elements mentioned above are needed.

6. DISCUSSIONS

Several issues based on the research need to be discussed. One of them is whether the results can be generalised from the scope of the original target – the software industry in Thailand producing complex solutions. The validity of the results in the target population can also be discussed. Future research topics will be given some attention.

Achieving the objective of the research

However, the first topic is to look at is if the objectives of the research have been achieved. The first objective was to find variables, which affect the success or failure of the usage of the first reference. Much effort has been expended in finding the variables. The literature was studied and the multiple case study research carried out. The variables have been listed in Table 2. The second objective was to evaluate the meaning of them. The linear correlation and the regression analysis have been carried out to study the meaning of the subvariables in regard to the sales growth. The results could be verified through the longitudinal case study. The key correlations are listed in Table 2. It was found that these variables explain nearly 70 % of the sales growth. In addition, how the variables affect the success or failure of the first reference usage –process was evaluated (Figure 3). The objectives, which were set at the beginning, seem to have been reached. A bigger sample size might have produced more reliable figures.

The interview is regarded generally as a better source of obtaining information than a survey sent by the post. In this research, all the representatives of the sample companies were interviewed even when the questionnaires were used. However, it is not always possible to eliminate distortion when people are used as the primary source of information. The motives of the respondents might often not be well articulated even to themselves (Autio, 1995b).

The research did not rely on just one methodology. The methodologies chosen for this research seem to complement each other quite well. The multiple case study gave a good foundation of information about the process of the usage of the first reference and about variables relating to the phenomenon. The survey helped in studying the variables and in profoundly understanding them. The longitudinal case study enabled the result to be verified. This makes the research well grounded and interesting to execute from the researcher point of view.

Although the literature research was not able to give a solid foundation for normative research, it definitely increased the understanding of the phenomena close to the research subject. Also the author's previous research helps him understand some of the issues relating to this research (Ruokolainen, 1997).

Generalising the results beyond the target population

The research was carried out among Thai Software companies, which produce complex software systems. Although there are only a few such companies in Thailand, it can be assumed the number of them will increase as the economy grows. It can be stated that the growth path of them will follow that of the previous ones if there is no changes in technology policy or in the business landscape (Porter, 1990). It can be assumed that the aim of the technology policy of Thailand is to produce competitive software companies, which can bring well being to Thai society. This paper tries to give some policy recommendations.

It can be argued that there is a possibility that the findings might not be able to be generalised in the business sectors and/or another cultural environment dealing with complex software systems. The observation, found in this research, might be to some extent country specific. Or the phenomena can be easily observed in this cultural environment and actually exist in other cultures. For example, using relationships might be an open and accepted practice in the Far East but hidden in Western culture although still existing.

The need of the first reference is not just a business sector or a country specific issue. The first references are needed generally in complex technology business to convince the next customers. One Finnish company, selling windmills, reported that it was not possible to convince customers without having a reference. In order to get the reference they have to get their own electricity supply company to use their own windmills to get further sales.

Future research topics

From society's point of view it is important to adopt inventions to benefit society and increase wellbeing. New technology start-up companies can be the tool for this. According to this research, entrepreneurs have had difficulty in finding the first customers and dealing with them. The sceptical, uncertain and volatile high-tech market can be considered quite challenging for the technology start-ups. Actually, several authors have considered high-tech marketing as a special case (Beard and Easignwood, 1996; Moriarty and Kosnik, 1989). It can be argued that the same marketing tools cannot be used for a high-tech start-up company as are used for a large enterprise. For example, the sales bonus systems, which work in a large company, might not be appropriate in start-ups. The conclusion is that it looks like there is a need for more general research into how the start-up high technology companies should market their products. Not much research has been done into high-technology marketing of start-ups.

The other side of the coin is to look at how society can help the start-ups. There are several institutions, which are involved in helping the high-tech start-ups: government agencies, venture capitalists, universities, technology parks and start-ups themselves. It might be that the current solutions are not yet optimal to produce effective and innovative new technology companies. One of the things to be researched is to find a model that can guarantee that the innovations will be at least properly tested or evaluated and their market opportunities are researched well. It is important that the start-up companies and often inexperienced entrepreneurs need to be afraid of unfair exploitation.

One of the interesting aspects in this study was that the relationship network was more important at the beginning to a start-up company than later on. The first successful reference case seems to reduce the need to use the "strength of weak ties" type of relationships. This might be an interesting observation for further study of the relationship management (Olkkonen *et al,* 2000; Tikkanen *et al,* 2000). A better understanding of this phenomenon might reduce partly the pain of the growth, which the start-up companies have to face.

POLICY RECOMMENDATIONS

One of the problems mentioned in the literature relates to the fact that the managements of start-up software companies seem to be overly focused on the technology at the expense of marketing. This was supported by the finding that the first reference in many cases was used to test the technology instead of developing the marketing arguments. In order to improve the situation it is proposed as follows:

1. The recommendation is to refund Value Added Taxes (VAT) to start-up companies during the first four years. Such a benefit puts the focus on selling and developing products ready for the market in the given time limit to get the most out of the benefit. The proposal stresses the refunding, that is, at the end of a fiscal year the company can apply to get VAT back. This ensures that the money flows to the start-ups and not as discounts to the customer.

Start-up companies often run into problems with the first customers because of the IPRs. In addition, it looks like the start-up companies have some problems in finding their first reference. It seems to be that the small start-ups might face the situation that the first customer wants to exploit a vulnerable start-up company. The high tech market has been reported to be volatile and sceptical. These problems relate basically to the trust between seller and buyer. To overcome such problems it is proposed as follows:

2. The recommendation is to create a database for those companies, which want to act as the first reference for start-up companies. Certain ethical rules can be applied to companies belonging to this group in order to avoid problems with IPRs and similar obstacles. The members could gain some benefits from belonging to such a group.

3. The recommendation is to focus on the research into marketing by the start-up technology companies. The purpose is to produce useful information about how to do marketing for education and consultation purposes. The research, education and consultation will smooth the way of the start-ups in entering the market.

Venture capital companies have done good work in financing the start-up companies. However, their revenue expectations might conflict with the need of society. It can be argued that venture capital markets depend too much on the economical situation. For example, it has been argued in Finland that the investments by venture capital companies have dropped over 90 % since year 2000. Alternative and more stable paths should be available for start-up companies

4. The recommendation is to activate research to find the means to help start-up companies enter the market. One way to get funding is to get it from the sales. It would be worthwhile to study how to make this option more attractive.

The cultural issues make some of the phenomena visible, which otherwise would be difficult to observe. One of the interesting viewpoints in this research is that the development and research of the IT industry has not been subsidised by the government as, for example, in Finland. Therefore, it is easier to observe what might be the problems of the companies that try to grow without subsidies.

I believe that this research surely benefits Western society although the research has been done in a lately industrialised country in a different cultural environment. The analogy can be found from geology, which benefits from the research into other planets to understand our own planet better. Therefore, my recommendation is to study the other societies and the problems in less developed countries and help them in order to learn to help our own society.

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Jari Ruokolainen obtained his Master of Science from Helsinki University of Technology (HUT). After that he completed a Licentiate in Technology, predoctoral degree, in the Department of Industrial Engineering and Management in HUT. He worked in Nokia Research Center for 6 years and then in Nokia Networks for 6 years. He then joined a technology start-up company as VP of R&D. He has participated in

several European information technology research programmes, Esprit and Eureka. He now has his own consulting company. During the last year, he has researched Thai software companies.