How to Build The First-Customer Reference to Support the Growth of a Start-Up Software Technology Company: A Longitudinal Case Study in the Business-to-Business Market in Thailand

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Abstract

The market for complex software systems is sometimes called a 'reference business' because in this business, the need for references is emphasised by corporate customers. The first-customer references are especially important for start-up companies trying to enter a potential business-to-business market with complex products. This article helps explore this important and notably under-researched topic, for which a basic descriptive framework has been created. The purpose of this paper is to further study the framework, validating it by means of new insights reached via a longitudinal case study. The case company has repeatedly been forced to change its product and market focus and provides an excellent opportunity for analysing the meaning of first-customer references. The history of this software technology company has been studied from its inception in the mid-1980s until 2004. The results of the case study demonstrate various aspects of the working of the framework in practice. The present study results in a model on a correct business operations setup after each customer case. The study emphasises the holistic approach instead of concentrating on product features. The case study supports the need for social capital, but also proves that the need for it decreases after succeeding with the first-customer reference.

INTRODUCTION

The first-customer provides the first-customer reference for a start-up company. Without proof of functionality in the real world and a customer reference from a third party, it is hard or impossible to convince the next potential customer. The first-customer reference is especially important for companies, trying to enter the very competitive business-to-business market for complex products. Our case study company, T.J.S. Consultants Co., Ltd, is an example of such circumstances from the software industry.

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The importance of the first-customer reference is reflected in many aspects of business. The next potential customer can appreciate the credibility gained by the first-customer reference more than the innovativeness or the price of the new product. The importance of the first-customer reference is undeniable, especially to companies selling complex business-to-business products. However, being successful in delivering the first-customer reference is a significant challenge. When the product and the supplier are previously unknown to the seller, the chances of failure are even higher than in any other business.

T.J.S. Consultants Co., Ltd has needed first-customer references several times while they have been forced to change the focus of their products and customers during their twenty years of existence. Each new start with a new software product was targeted at a new industrial field and a new group of customers. Within each new customer group, a first-customer reference was needed in order to enter the market.

Topics relating to the use of a reference by start-up companies are notably under-researched. Salminen (1997) stated that using an industrial reference has not been studied in the scientific literature. Beard and Easingwood (1996) found that the commercialisation process is often neglected in the literature on new product development, innovation and high technology marketing. According to the Quarterly Bulletin of the Bank of England (2001), there are only a few, quite recent studies that have dwelled on the questions important for the success of technology start-up companies. Earlier research on start-up technology companies has mostly focused on the characteristics of the entrepreneur and his or her teams.

Objective of the study

The objective of this paper is to demonstrate the basic descriptive framework of the use of the first-customer reference and to gain insights into the effect of sequential customer cases. The framework is based on prior work by Ruokolainen and Igel (2004), Ruokolainen (2004), Ruokolainen (2003) and Ruokolainen et al. (2005), on which this paper often builds. This present work is an embedded case study (Yin 1994), with two levels of analysis units: the company and its customer cases. The three sequential customer cases two failed and one successful are presented from within the business. In the next section, the framework on the use of the first-customer reference and the related variables are presented. Then the history of the company is briefly introduced and the three customer cases are presented. In the next section, the lessons learned and the variable patterns are cross analysed over time and across the cases. Managerial implications are also discussed.

DESCRIPTIVE FRAMEWORK

The basic descriptive framework is planned to help start-up technology companies enter the market. The following three facts have been chosen to give special weight:

1. There has been much scepticism concerning the high technology market (Mortiaty and Kosnik 1989; Beard and Easingwood 1996), especially after the IT bubble burst in the beginning of the new millennium. High-technology products and companies are
appropriately considered as sources of high risk (Shanklin and Ryann 1987). Investments are made only when the start-up technology company is able to build sufficient credibility regardless of the expectations for fast growth and high returns. The value of the first-customer reference is essential in attaining the necessary credibility. This statement is also supported by the fact that the increasing complexity of products creates barriers for customer adaptation of the new technology (Sheth and Ram 1987).

2. The partnership theory emphasises the role of long-term cooperation, open and honest relationships and mutual commitment (Keough 1993; Spekman 1988; Asmus and Griffin 1993). If the seller is able to build and cultivate such partnership-based relationships with the customers, the seller can enhance the chances of success concerning the first-customer reference. If the existing cooperation is deeper and longer, it is more difficult to intervene in its arrangements. Thus, the tendency towards long-term cooperation, especially in high-technology industries can hinder competition. New players might find it hard to break the existing relationships.

3. Too many managers of start-up technology companies tend to concentrate on solving technological problems at the expense of the product commercialisation (Freel 1998). A successful first-customer reference requires well-balanced management in the company. Prospects may not be identified if the managers’ focus too much on technical issues. In addition, according to a recent research study, almost half of the start-up companies investigated report that they had problems with marketing (Huang and Brown 1999). It has been reported that the failure rate of the start-up companies often exceeds 50% in the first eight years of business (Bygrave 1997).

The phenomena concerning the use of the first-customer reference forms a multivariate system. In empirical research, these variables represent the operational measurement of the real-world systems concepts. Appropriate management of the different constructs at different times is required in order to build the first-customer reference from a customer case. The creation of the basic descriptive framework and testing of it with a limited number of samples were executed in previous studies. One of the research studies showed that the selected variables explained 70% of the growth in Thai software technology companies. The basic descriptive framework, which on the use of the first-customer reference consists of five constructs:

1. The role of social capital in finding the first-customer reference.
2. The role of commitment by the first-reference customer to the start-up technology company and in implementing the reference.
3. The opportunities and ability to learn sales-related aspects while implementing a complex product.
4. The role of the background of the entrepreneur.
5. The marketing value of the first-reference customer.

The sales process that leads to employment of the customer reference for the benefit of business can be divided into three periods: the first is in finding the first-customer reference, the second in implementing the start-up technology company’s product for the first-reference customer and the third is in using the first-customer reference for building the business.
The variable ‘background of the entrepreneur’, which refers to technical capability and experience, seems to help to implement the first-customer reference. The customer’s commitment to implementing the start-up technology company’s product is also important. The variable ‘social capital’ is used for finding the first-customer reference. The variables relating to the first-reference customer’s commitment, its marketing value and the start-up technology company’s sales are especially important when using the customer reference to build the business.

Overview of the variables of the basic descriptive framework

The role of social capital

One way for a start-up technology company to open customers’ doors is to use existing contacts and other associations between people and organisations – social capital. 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 researchers have identified the 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 get venture capital (Birley 1995; Eisenhardt and Schoonhoven 1996). However, the need for social capital along with the innovation process is still somewhat unclear for research.

Social capital, which includes the informal contacts of the new entrepreneur, seems to be an important asset when setting up a start-up technology company. First-customers are typically found through old friends, friends of friends, family ties, colleagues, ex-employers and other informal social channels (Ruokolainen 2004). Granovetter (1973) illustrates this in his work, in which he identified a similar role of informal contacts in the USA labour market calling it the “strength of weak ties.” The pre-existing social contacts seem to be essential also in building and preserving the success of the first-customer reference.

Almost half of the start-up companies investigated have reported that they have had problems with marketing (Huang and Brown 1999). Ruokolainen (2004) argues that start-up technology companies have problems in finding the first-customer’s reference from the open market. This statement is also supported by the fact that Shanklin and Ryann (1987) report scepticism in the technology market. This scepticism means that it is hard for new players to enter the market. Many of the Thai start-up software technology companies seem to overcome this problem by using their social capital: 70% of the start-up companies have had previous contacts with their first-reference customers.

Learning from the first-customer reference

A start-up technology company can learn many key things from the first-customer reference with regard to the development of the business. Start-up technology companies have reported that they use the first-customer reference to further develop the product, find arguments for sales and marketing, learn project skills and study the business logic in their industry (Ruokolainen and Igel 2004). Nearly half of the start-up software companies studied in Thailand had used the first-reference to test their technology. However, such companies have had a lower growth rate than other start-up...
software technology companies. Using the first-customer reference as a way to find sales arguments seems to be infrequent. However, if this strategy is used by Thai start-up software technology companies, it turned out to be a successful strategy in the Thai sample. Learning the project skills and learning the business logic, which is needed for building a software package, did not have a statistically significant correlation with growth. The first-reference is important not only for testing the product technology, but also for verifying the business case. Such a concept includes understanding the business case behind the product including sales arguments, support functions and the readiness to solve customer problems. This approach is supported by Gummesson’s (1987) multi-headed customer and seller concept, which emphasises multi-level contacts between sellers and buyers.

**Commitment of the first-reference customer**

Traditionally, it is believed that the competition and the arms-length distance in buyer-seller relationships helps achieve the lowest price, as well as the best delivery and quality terms for the buyer (Spekman 1988). However, in high technologies and complex product systems, long-term cooperation between the buyer and seller is necessary. Intensive cooperation and open knowledge sharing is often needed right from the research and development phase. The buyer needs the continuous cooperation of the seller in installing, operating and maintaining a complex high-technology product. The current form of partnership theory emphasises the importance of long-term cooperation, an open relationship and mutual commitment.

There are partly contradictory research results concerning the impact of customer involvement in the research and development process of the company. Companies can benefit from the lead-user methodology (Herstatt and von Hippel 1992), in which research and development is done in close cooperation with a lead-user. Lead-user means the pilot customer user for the new product or service. However, it has been noted that in research and development, heavy customer involvement imposes a danger that the innovativeness of research and development can suffer (Bidault and Cummings 1994). In some cases, a company developing a new product has ultimately lost its independence and ended up being a research and development subcontractor to its customer.

The anticipated benefits of a first-reference can be attained only if the customer is willing to invest in the cooperation and shows sufficiently strong commitment. It seems that, in practice, building the necessary commitment entails the customer paying part of the development costs. On the other hand, the need for clear contracts must be emphasised when the costs of product development are shared. An agreement on the ownership of the intellectual property rights should be drawn up by the partners in advance when a common understanding prevails – not when conflicting perceptions of the ownership rights have already started to emerge.

An essential precondition for a successful first-reference is that the intellectual property rights are properly managed. Disputes over intellectual property rights of the first-reference are not rare. Smaller companies have gone bankrupt when they have lost the intellectual property rights to their new products or new technologies. The financial resources of a small company can be drained when the company is forced to defend these rights in legal proceedings regardless of which party is legally right.
Background of the entrepreneur

The background of the start-up entrepreneur is a factor having a major effect on the fate of any company. The implications of various types of entrepreneurial backgrounds have been widely investigated in the literature. For example, Frese and Willard (1990) state that those start-up companies whose products are related to the last company an entrepreneur worked for before starting his or her present company, tend to grow faster.

In the case of start-up software technology companies in Thailand, most of the new entrepreneurs had a deep understanding of the technology of their company based on their previous work experience. They usually had less experience in management and marketing. Free (1998) states that technical entrepreneurs tend to concentrate on the technical aspects at the expense of commercialisation. It can be argued that the background of an entrepreneur helps implement the first-customer reference.

The findings from Thailand support the hypothesis that the better educated the entrepreneur is, the higher the growth of his or her start-up software technology company (Ruokolainen 2004). Contradictory results have also been reported in research studies (Maes 2001). The research result concerning the impact of previous international experience is not as clear. Many of the entrepreneurs in technology start-up companies have international experience.

The meaning of the market value of the first-reference customer

Beard and Easingwood (1996) prefer large companies to small companies as reference customers. They assume that large companies as reference customers’ better convince the next potential customers. Other features might also increase the market value of the reference customer such as age or business sector. It was assumed that if the first-reference customer operated in the key industrial cluster of the country, the start-up technology company providing the product would grow faster. According to recent research studies in Thai start-up software technology companies the marketing value of the first-reference customer does not correlate with the growth of a start-up software technology company (Ruokolainen 2004). According to the same study, together with the other variables, the key business sector explains nearly 70% (adjusted R square) of growth.

METHODOLOGY

Yin (1994) and Eisenhardt (1989) have described in detail the use of case study research in management inquiry. Our work is an embedded case study (Yin 1994), with two levels of analysis units: the company and its customer cases. Yin proposed the use of the suspense structure when a result should be revealed in the beginning and the rest of the article is then devoted to developing an explanation for this outcome. Gummesson (1993) argued that the case study methodology can be used for testing a theory, a statement or a model. Olkkonen (1993) recommended using longitudinal case studies for reaching better support for the resultant causal propositions. As far as we know, the basic descriptive framework, which was created for the use of the first-customer reference, has not yet been tested using a longitudinal case study.
Yin introduced three different dominant modes of analysis for case studies. In the present research, pattern-matching logic and time-series analyses were used. The idea is to compare the observed patterns with those introduced by the basic descriptive framework. Each case was analysed and then a cross-case analysis was carried out over the time horizon. The length of the period of the longitudinal case allows the real sequence of events to be followed in order to find out how the variables iterated from case-to-case and what were the consequences.

The case company was chosen because the company found it necessary to change its business direction three times before the business took off. At each new start, it needed a new first-customer reference. From the longitudinal case study point of view, the sequential changes of business direction provide an important opportunity to follow the evolution of the variables from case-to-case that makes the longitudinal study interesting. The collected information contributes to the present research study by giving an overview of the events relating to three different sequential first-customer cases and how the company had grown since.

The history of the case study company includes information since its birth in the mid-1980’s until 2004. Researchers from the Asian Institute of Technology and Helsinki University of Technology gathered the first information relating to the case study company, T.J.S. Consultants Co., Ltd. in the mid-1990’s as part of a large survey on the Thai technology companies. The follow-up study was conducted in the late 1990’s. The author of the present study interviewed the entrepreneur for the first time in 2000 in the premises of the Software Park. All the material collected was very helpful for tracking the events of the company and their sequence.

In order to complete the history of the events leading up to getting the first-customer reference, the entrepreneur was interviewed several times during 2003 and 2004. The entrepreneur also lectured on the history of her company in a course at the Asian Institute of Technology. Material was also collected for writing a teaching case study (Ruokolainen et al. 2005) of the case study company including recent balance sheets, status of current competition, interviewing the staff and a current customer. However, the present research study only focuses on getting the first-customer reference. Therefore, not all the collected material is relevant from this case study’s point of view.

CASE DATA

Background of the case study company

The case study company, T.J.S. Consultants Co., Ltd. was founded in the mid 1980’s in Thailand. The company has produced complex software systems for human resource management for companies operating in Thailand since the beginning of the 1990’s. In the start-up phase, the company was looking for a locus in its business by carrying out
three different ‘first-customer reference cases’ one after the other before the business took off. In other words, three cases of using the first-reference are studied in a single longitudinal case study. The case study company spent more than five years getting off the ground. These three cases are introduced in the following sections.

The entrepreneur has a doctoral degree in mechanical engineering from the USA. She worked as a programmer and a software designer for an international oil company and afterwards as the head of department in another company before setting up her own.

The first-customer case

The first-customer of the case study company was one of the largest pig farms in Thailand, owned by the entrepreneur’s good friend with whom she had often been in contact since school. This friend and customer had connections with major players in the pig rearing industry. From the entrepreneur’s point of view, the case looked to be a good opportunity to develop a software product for managing pig farms and for devising feeding plans for pigs.

The idea of the software package was conceived and developed together with the first-reference customer. The focus of the joint development was on determining the specifications and figuring out the business logic for the pig feeding system and implementing it. The first-customer was willing to act as a test site, thus helping verify the functionality of the new software. The entrepreneur contacted a professor at a local university to get a better understanding of the optimum feeding plans. The software package was finalised with contributions from all of the parties involved, without considering the ownership of intellectual property rights. The entrepreneur commented that her team learned much about how to build software systems.

The case study company, T.J.S. Consultants Co., Ltd, and the local university together arranged a seminar and an exhibition for pig farmers introducing the opportunities offered by the new technology. In the seminar, the new software package and the first-reference customer’s experiences with the new system were presented to the pig rearing industry as a success case. The price of the package was considered modest by a potential customer. The development cost of the software product was paid by the case study company.

It soon turned out that only large pig farms wanted to use the software product offered by the case study company. Small and medium-sized farms preferred to use software packages distributed free of charge by pharmaceutical companies. Pharmaceutical companies delivered their software products to farms to support their sales. However, large pig farms did not want to become dependent on one pharmaceutical supplier. Therefore, they were interested in using software products provided by an independent software company. Taking into account the modest pricing of the new software package and the low number of large pig farms in Thailand, it was clear that the anticipated business could not be profitable.

As the home market could not generate enough revenue, the case study company attempted to export the software product to a neighbouring country. An agent, a local
software company, was found to help in this endeavour. Six software packages were sold, and then the agent suddenly disappeared. All subsequent efforts to contact the agent firm failed.

Although the software product was developed and implemented successfully, the attempts to make revenue from selling the software to pig farms ended in failure. The entrepreneur feels afterwards that the work done at that time was valuable, although the project itself failed. During this initial business stage, the entrepreneur and her team gained valuable experience in markets.

The second case

After the first case, which failed to introduce a new product to the market, the business idea of the case study company, T.J.S. Consultants Co., Ltd., was to provide customised software development services for mainframe computers. One of the ideas of the entrepreneur was to become a subcontractor for a big company. The first contact with IBM was made through the entrepreneur’s student colleague, who asked her to make a presentation of the case study company for IBM in Thailand.

One of the main Thai car part manufacturers had contacted IBM to get a quote for a management information software system. IBM asked the case study company, among other potential providers, to give a quote for a Human Resource Management system, which was part of the total delivery package. IBM had found that the standard overseas software packages did not conform to the complicated Thai labour and tax legislation. Human Resource Management System is a large software package, including modules for managing the recruitment, payroll, appraisal and many other functions of the company.

The entrepreneur got invaluable help from her friend who joined her company to prepare the offer. This friend had experience in preparing proposals for large projects in an international accounting company. The case study company won the contract to produce the Human Resource Management System as a subcontractor to IBM at a fixed price.

Development of the software package turned out to be more difficult than anticipated. The entrepreneur did not have prior experience in managing software development and a project of this size. In addition, IBM required the case study company to use documentation and project management practices, which the entrepreneur and her team were not familiar with. The project was delayed about one year.

The end customer also introduced requirements, which had not been included in the original specification. According to the entrepreneur, another reason for the delay was that the project was over staffed and employees of the case study company were too inexperienced with the technology used in the project. The company had hired six new employees just before the project. The entrepreneur was busy managing the projects and teaching new employees and therefore did not have much time to spend on commercial aspects.
Despite the delays, the case study company was able to successfully develop the software product. The end customer applied the new software in its operations for four years and was satisfied with its performance. The entrepreneur commented: "You could say that the company was my first-reference in software development service for a large computer system."

Despite the customer’s satisfaction, T.J.S. Consultants Co., Ltd had lost about 5 million Baht on the project. This sum was more than twice the initial capital of the company. After intense negotiations with the entrepreneur, IBM agreed to cover part of the losses, which were caused by the implementation of the additional requirements demanded by the end customer. IBM paid 1.2 million Baht on top of the original contract. The case study company was saved from bankruptcy by M-Group Holding Company, which was coopted and invested 10 million Baht.

The third case

The M-Group investment enabled the case study company, T.J.S. Consultants Co., Ltd, to develop a new product. This was a commercial software package, based on the software delivered to the car part manufacturer as an outcome of the joint project with IBM.

When this first-customer found that the case study company was developing a commercial software package from the original software, it contacted the entrepreneur through IBM and accused it of violating its Intellectual Property Rights. However, the COBOL programming language that had been used in the original software was replaced by a newer software package, Progress, a 4th generation programming language. A different platform and a different database were used. Therefore, it was not easy to prove the accusations.

This first-reference customer, the car part manufacturer, stopped all cooperation with the case study company and started buying maintenance services from another company. The case study company ended up not only losing its first-customer, but also its first-customer reference even though the customer was successfully using the product. The case study company again needed a first-reference customer.

In the old files of researchers at the Asian Institute of Technology, there was the record of the entrepreneur’s interview made at the beginning of the 1990’s. In the record, the entrepreneur told of having major problems with marketing and finding customers. She had just lost her first-customer reference, the customer of the second case, and was searching for a new customer reference from the open market. Even in 2003, the entrepreneur can recall that it was very hard to find a new first-customer reference for the revised Human Resource Management System software package. She had a tough time convincing potential customers of the capability of her team to implement and to maintain the revised Human Resource Management System and the advantages of it. She also had to argue with the customers that the price of the Human Resource Management System she was offering was worth it.
A large, well-known Thai construction company, which was interested in the Human Resource Management System, was found after an extensive search. The price of the software package had to be cut by about 50% before the case study company was able to close the deal. The customer project went quite smoothly without major snags with the help of the knowledge gained from the previous customer project with the car part manufacturing company in the second case, and the time spent becoming familiar with the new technology. The construction company was ready to act as the first-reference customer. The entrepreneur said: “After we got the first-reference customer, we were able to sell our package to other customers easier.” She told how she felt the first-customer reference gave credibility to her company and how the potential customers’ trust in her team increased.

Since finalising the first real customer reference in 1993, the company has grown steadily as Figure 1 demonstrates.

![Number of customers](image)

**Figure 1: Number of customers of T.J.S. Consultants Co., Ltd since 1993**

The number of customers for the Human Resource Management System software product of the case study company steadily increased to 20 in 1996. In the beginning, customers required plenty of system modifications to fit their specific needs. Later, the system was developed as a set of standard modules to minimise the need for customer specific modifications. The company has since concentrated on providing software products and offering implementation services. The sales of the case study company, T.J.S. Consultants Co., Ltd, reached 30 million baht in 2004.

The rapid development in computers and software technology enabled the case study company to introduce new versions of its software product. The old version of the product, based on a character-based user interface, was reprogrammed in 1996 in order to implement a graphic user interface. The latest version, which was introduced in 2003, included a www support feature based on Oracle’s technology.
Currently, the case study company uses its customer references extensively. For example, customers’ comments are included in the company’s marketing material. The case study company has around fifty important reference customers according to its marketing material. The list includes companies that have been customers since the initial years of the company. The important thing about the references is that they add credibility to the company as a whole, not just to a specific product of the company.

LESSONS LEARNED

All three cases demonstrate the use of variables relating to the basic descriptive framework. The benefit of the longitudinal approach is that the convergence of variables can be followed over a long period. The development of the following variables, in particular, is followed from case-to-case: how social capital helps get the first-customer reference; what was the focus of learning in the customer cases; how did the entrepreneur’s experience and skills evolve; and how did the commitment of the customer change. The case-variable matrix in Table 1 gives the overview of the evolvement of the variables in the time horizon.

The meaning of social capital according to the longitudinal case study

The initial contacts with the customers were created through different social channels in the first two cases. In the first case, the contact was an old school friend. The contact was essential in getting this customer case. In the second case, a student colleague helped the entrepreneur establish the business contact. It can also be assumed that the contact was critical.

The meaning of social capital is also well demonstrated in the third case. The first-customer reference of the second case was lost and the first-reference had to be found again on the open market that turned out be difficult as it reported by a survey in the beginning of the 1990’s. The entrepreneur also confirmed that finding the new first-customer reference was difficult: she did not have the right contacts and she did not have the customer reference.
Table 1: Pattern matching-matrix

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<tr>
<td>Social capital: contact type</td>
<td>The customer’s company was owned by a friend</td>
<td>A student colleague</td>
<td>No contacts: major difficulties in finding the first-customer reference was reported</td>
<td>Need to use social capital for finding the next customers decreased</td>
<td>Finding the 1st customer reference without social capital was problematic</td>
</tr>
<tr>
<td>Learning focus on technical skills:</td>
<td>Learning how to develop technical systems</td>
<td>Learning to use technology was one of the major efforts of the team</td>
<td>Technical competence was already gained with help of Case 2</td>
<td>Case 3 proved that the basic competence existed; new technologies to be learnt</td>
<td>In failed cases focus on technology</td>
</tr>
<tr>
<td>Learning focus on sales arguments:</td>
<td>Insufficient focus on learning sales arguments</td>
<td>Focus not on sales arguments</td>
<td>Focus on sales arguments – the need for developing the sales arguments to get Case 3</td>
<td>Sales arguments and the references exist to support sales argumentation</td>
<td>In last successful case focus on developing sales arguments</td>
</tr>
<tr>
<td>Customer Commitment</td>
<td>Customer was committed due to friendship</td>
<td>Customer was not committed – fights over the IPRs</td>
<td>Customer committed – no issues raised over the IPRs</td>
<td>No major difficulties except in exporting</td>
<td>In one failed case no customer commitment</td>
</tr>
<tr>
<td>Background</td>
<td>PhD in Engineering, work experience in software engineering</td>
<td>PhD in Engineering, work experience in software engineering</td>
<td>Background upgraded with help of the second case major learning took place</td>
<td>Each case increased the experience and helped with the new cases</td>
<td>In all of the cases the implementations were successful</td>
</tr>
<tr>
<td>Cross variable pattern matching outcome:</td>
<td>Case 1 failed: 2 out of 4 practices not supported by the framework (italic font)</td>
<td>Case 2 failed: 3 out of 4 practices not supported by the framework (italic font)</td>
<td>Case 3 succeeded: 1 out of 4 practices not supported by the framework (italic font)</td>
<td>References, sales arguments and skills in place</td>
<td></td>
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After: 1994-...
After successful implementation of the third case, the next customers were more easily found. The entrepreneur also stated that customers' confidence in her team increased. The history of the case study company demonstrates well the meaning of social capital in getting customers in the initial phase of the start-up technology company, but it also clearly demonstrates the decrease in the need for social capital after getting the first-reference customer. Previous research also provides evidence of similar phenomena (Ruokolainen 2004).

The reason why social capital is not important for getting customers in the later phases could be that the work done for the first-customer reference starts to speak for itself. The potential customers can see the reference and can listen to the reference customer.

The background of the entrepreneur versus learning during carrying out the cases

None of the three first-customer reference cases include elements in which the entrepreneur could have used her primary knowledge in mechanical engineering. It can be argued that in this respect, none of the cases represented an optimal first-customer reference.

The entrepreneur had a product development background. She understood how to work systematically towards a complex objective. The knowledge and experience gained from working for an oil company as a programmer had helped her produce and implement the software packages in all three cases. The entrepreneur felt that the first case demonstrated that she knew least about marketing and selling. The second case showed her that she did not know enough about managing large projects and product management before the case. She learnt much about project management skills whilst carrying out the projects.

The entrepreneur also felt that the case company did not have enough technical knowledge. She had to hire new inexperienced staff for the second case. The two first cases were used by the company to learn major skills relating to technology, including system definition skills, and to educate the employees about the necessary technology. The project of the second case was delayed because of the lack of the skills mentioned. It can be assumed that if the case study company had few technical skills and the project was delayed, customer dissatisfaction increased because of that.

The first case demonstrated well that the entrepreneur did not know how to develop effective sales arguments. The arguments should have been tested early on in the development work in order to find the sales arguments, which could have made sense to the next potential customers. The company also learned sales arguments and how to use them to look for the new potential customer references after losing the first-customer reference in the second case.

The most remarkable thing from the case study company's point of view was that the entrepreneur learnt with the help of the first two cases to transform the case study company into a company which could develop and deliver human resource management systems. This longitudinal case study shows how the entrepreneur succeeded in accumulating knowledge from the cases over the follow-up period.
The framework states that the start-up companies should focus on developing sales arguments and avoid testing the technologies with the help of the first-customer reference. All three cases demonstrate the effect of the combination of these two variables. In the third case, the focus was on finding the sales arguments and the technology expertise was on a level not causing major problems. In the previous two cases, one or both of these were missing.

The commitment of the first-reference customer

The commitment of the customers varied from case-to-case. In the first and third cases, the customers were committed to the success of the case study company in different ways. In the first case, the commitment was through friendship and in the third, mutual commitment was achieved by sharing the costs. In the second case, the customer’s commitment was lacking; the development costs were paid by the customer and the customer might have felt that it owned the intellectual property rights of the product and that was surely not in the interest of the case study company. The case study company had no close contact working for the customer who would defend the interests of the case study company.

In the second case, the approach of the customer nearly caused the failure of the project and insolvency of the case study company. The customer approached the case study company in the traditional way in order to gain significant benefits. The customer had no interest in helping the case study company survive. This was proved when the customer stated that it owned the intellectual property rights.

DISCUSSION AND CONCLUSIONS

While the conclusions of any case study research may be and often are limited for their external validity due to the limited sample size, the cases introduced here do point out potentially contributory conclusions and future research topics. First, the company case and the three embedded cases demonstrate the use of the basic descriptive framework in practice. The successful use of the first-customer reference forms a multivariate system, the practices of which were described in the basic descriptive framework. Second, the longitudinal case study demonstrates how the variables iterated from case-to-case towards the correct setup until the business took off.

The selected variables of the basic descriptive framework seem to give an overview of the success of the growth: the owner had a doctoral background and previous work experience in the field of programming. The cost of the customer reference was shared in the third case – the case study company did not need to fight over the ownership of intellectual property rights. The entrepreneur said that she had to put much effort into the development of sales arguments to get the third case.

In failed cases, many of the difficulties were caused by inexperienced staff unfamiliar with the technology introduced by IBM – the customer cases were used for testing and learning the technologies.
In all three cases, the customers were large, established enterprises. In the first two cases, the customers belonged to the key business sector operating in Thailand. The customer reference of the third case did not come from the key business sector. The large enterprise as a first-reference customer did not necessarily enhance the success in getting further customers. On the contrary, large enterprises are capable of ruining the business of the start-up technology company if they so desire. One of the entrepreneurs in Thailand reported that it is enough if the first-reference customer is a small or medium sized company with a good reputation. The first real customer reference did not come from the key Thai business sector as the framework proposes. It was thought that those customers, which operate in key industrial sectors of the country, might have valuable and competitive business practices to teach the start-up technology company. Actually, the major business learning of the case study company happened in the second case where the customer operated in one of the main business sectors of Thailand, although the case study company could not use the case as a customer reference. The proposal is that instead of talking about the marketing value of the reference customer, one should talk about the learning value of the customer.

Potent avenues for future research include testing and further developing the basic descriptive framework towards how the first-customer reference cases should be designed and selected beforehand to achieve a successful outcome. Further development could aim at minimising the number of the iterations needed to find the right set-up of the constructs. The current framework has been developed and tested by the past cases.

In constructing software or other high technology business based on the use of first-reference customers, several aspects must be taken into account on top of the current framework. For example, the level of technology expertise can be easily verified afterwards, but the problem is how to measure adequacy beforehand. The key question for the entrepreneurs is how they can know if their social capital supports them well enough to start their own business, for example, does their social capital help them find potential first-customer references.

Finding even one potential first-customer reference can be quite a big effort and losing it can cause the insolvency of the start-up technology company. A start-up technology company should be able to evaluate the following facts beforehand: if the first-customer is committed both in the implementation project and in the start-up technology company; if the technology expertise of the start-up company has reached the level where they can start a project with the customer; if the problems of the customers relating to the product can be solved in a reasonable period; and how the start-up technology company will learn the sales arguments that can be useful in attracting the next potential customers. Hopefully, future research can find good guidelines for designing and developing a good case beforehand for the use of the first-customer references.

One proposal for start-up technology companies is that they update their business plans to include answers to the above questions. Thinking about and writing down the plans related to the questions might build an awareness that will help in using and building the relationships with the first-reference customer. A holistic approach is needed because, as the framework shows, the success of the use of the first-customer reference does not depend on just one variable.
Viewing the basic descriptive framework in the light of the network theory

The current network theory focuses on companies that have passed their initial phase. According to the theory (Anderson et al. 1994), companies operate in networks with other actors, perform activities and use the resources of actors. The outcomes of the networks (Ford et al. 2002) are classified into the following categories: (1) outcome for actors, (2) outcome for relationships and (3) outcome for networks. From the start-up technology company’s point of view, the ultimate outcome in the long run is the creation of a new network and gaining a position within the network. The first-customer references and next references can be the key tools in building the network.

Some of the categories of the present framework can be viewed from the perspective of the current network theory: the use of social capital, commitment and leaning in the relationship. The start-up technology companies challenge the current networks and create disturbances among the existing business relationships. In order to survive in this hostile environment and to find the first-customer reference, past contacts and social capital can be important.

One of the outcomes at the relationship level could be mutual commitment to each others’ businesses. At the actor level, the interest of the first-reference customer is to ensure the availability of support for their large scale system and to get the latest updates of the software released. Also the cost of the development can be too high for the first-reference customer to bear and therefore more customers are needed to support the business of the start-up technology company.

One of the major outcomes of building the first-customer reference is the knowledge upgrade of each actor’s resources. The development of the resources of the companies involved is also emphasised by Ford et al. (2002). Basically, the business knowledge is mainly transferred from the first-reference customer to the start-up technology company. On the other hand, new technology knowledge is transferred to the customer. For the start-up technology company, it is important to accumulate this business knowledge concerning the use of the introduced technology and test the sales arguments found on the potential network members. Those companies, which operate in the key industrial clusters, might own more key business knowledge than the other sectors. However, no clear correlation was found between the sales growth of start-up technology companies and those first-reference customers who operate in key industrial clusters (Ruokolainen 2004).

MANAGERIAL IMPLICATIONS

The first implication is that the awareness of the topics presented in this paper should be increased among software and other start-up technology companies and especially among those that can be identified as reference-driven start-up technology companies. The awareness of the topics can be built up, for example, with the help of education.
The practices the framework demonstrates imply a straightforward approach that this paper recommends.

Another key implication is that software and other start-up technology companies should focus on obtaining profound technology expertise before starting the first-customer reference in order to be able to respond to problems raised by the customer. Not all possible technology problems concerning the first commercial products can be predicted and problems are hard to avoid. The recommendation is that venture capital financing should be employed to increase the maturity of start-up technology companies instead of hurrying to design the product. The funding can be used for increasing the social capital and relationship-building capabilities of the entrepreneurs, enlarging the technology knowledge of start-up technology companies and improving the entrepreneurs’ knowledge of commercial and marketing skills.

The managerial implications of the present research can be concluded with how reference-driven start-up companies should spread out the learning process in order to avoid several customer case iterations (Figure 2). The turning point for the focus of knowledge development is located before the start of the activities concerning the first-customer reference. Before the turning point, the focus should be on increasing technology knowledge and after that, on increasing the sales and marketing knowledge. The recommendation is to assess the maturity of the technology knowledge, strength of the social capital and usability of the sales and marketing arguments from time-to-time. This and earlier research demonstrate the effect of forgetting the development of sales arguments and putting too much effort into learning and testing technology in customer cases.

One interesting observation was that in several cases the Thai entrepreneur emphasised the role of their software start-up company in developing and bringing technology related new business practices to their customers in the long run. At the beginning, small start-up companies learn business knowledge from their customers through the customer cases. The start-up company can be seen as a centre for gathering, developing and accumulating knowledge coming from different sources including customers and transferring the knowledge to sellable systems or products. In the long run, start-up companies can also disseminate new business knowledge back to the industry. This role change can be called ‘marketing and selling maturation of the start-up company’. The customer of the small start-up company should regard partnerships with small start-up companies as a long-term investment to guarantee its own business. Such an approach is supported by the partnership theory.
Acknowledgements

This case study would not have been possible without Dr Pimpa Kanarksunti, the managing director of T.J.S. Consultants Co., Ltd. Above all she openly gave access to information concerning her company. The authors are grateful for the assistance of Mr Phasit Kanjanasanpetch at the Asian Institute of Technology. He helped collect the information in many important ways. The authors gratefully acknowledge the help of the Software Park of Thailand and the Asian Institute of Technology. The author also gratefully acknowledges the financial support of the Finnish Foundation of Economic Education and the Jenny and Antti Wihuri Fund.

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