Entrepreneurial Leadership in Japanese High Technology Start-ups

A Question of Effectuation?

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Abstract

: This paper is concerned with how managers, either operating as independent entrepreneurs or as intrapreneurs in an established company, view the risks involved in starting up a new project in a high technology industry. It presents the findings of interviews that were conducted over a two-year period. This study focuses on the universality of the perception of risk. Sources of risk are seen as primarily related to factors that can cause the project or business to fail or go bankrupt. The sources of risk are intricately linked to the institutional context and the leadership characteristics of the entrepreneur/intrapreneur, especially in new ventures. We apply various concepts from effectuation in understanding these interactions. We find some support for the effectuation approach, but also some indication that elements of the causal approach are also used. Consequently, we see a mix or hybrid approach used by entrepreneurs when confronting uncertainty.

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Introduction

Our study begins with a straightforward research question concerning how managers acting in an entrepreneurial/intrapreneurial capacity in various types of organizations perceive the risks inherent in their activities? While progress has been made in understanding various aspects of risk, in spite of March and Shapria's (1987) call for more empirical work on how managers actually perceive risk, little empirical work has been done. In our study we examined how mangers involved with new business activities defined risk. As such we are looking at the simple empirical question of "how do managers[1] view risk[2]?"

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[1] In our study we will interchange the use of the terms manager, entrepreneur and

The process of new venture generation is fraught with uncertainty and understanding how entrepreneurs confront this risk/uncertainty in the configuring of their ventures is critical (Reymen, Andries, Berends, Mauer, Stephan, Van Burg, 2015). Our study focused on determining how entrepreneurs and intrapreners perceived risk/uncertainty, and what they viewed as the sources of that risk. Broadly, we anticipate that managers in Japan will have more in common with practicing managers located elsewhere in their perception of risk then with the classical definition of risk.

We also explore the applicability of the emerging conceptual framework of effectuation (Sarasvathy, 2001; Sarasvathy, 2003; Sarasvathy and Dew, 2005; Wiltbank, Dew, Read, Sarasvathy, 2006). Effectuation is a recent[3] (Sarasvathy, 2001) and rising in importance (Read, Song, Smit, 2009; Perry, Chandler, Markova, 2011; Fisher, 2012) conceptual framework for understanding the entrepreneurial process of confronting uncertainty. As a third research objective we explore the applicability of the effectuation framework within the institutional setting of Japan. Since much of the effectuation research has been done in the US or European setting, we are exploring whether it is applicable in a non-Western institutional setting. We next turn our attention to the main elements of the effectuation framework.

Effectuation and Causation Approaches to Uncertainty

The effectuation framework is composed of five basic elements that differentiate it from other approaches (Sarasvathy, 2001, 2003; Fisher, 2012; Perry, Chandler, Markova, 2011; Chandler, De Tienne, McKelvie, Mumford, 2011; Welter, Mauer, Wuebker, 2016). Sarasvathy (2001) contrasts the effectuation approach with what she terms the casual approach to uncertainty. In the causal approach the entrepreneur begins with a set of ends/goals whereas in the effectual approach, an entrepreneur begins with a set of idiosyncratic means involving who they are or their character and personality, what they know or their experience and knowledge and who they know or their network of contacts. Second, rather than making decisions around an unpredictable set of potential returns/gains as in the causal approach, entrepreneurs focus in the effectual approach is on affordable loss; that is, what they

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intrapreneur as anyone who is engaged in developing an innovation.

[2] As indicated by these managers, their venture activities were new to them and the process of starting up a new venture (especially a start up, but also launching new products) shared many of the characteristics of a transformative event (Jackson, 1986; Paul 2015). The comments from the mangers in our study indicated that the type of "risk" they confronted in beginning their new ventures appeared to share characteristics closer to "ambiguity" and "uncertainty" (Knight, 1921; Mosakowski, 1997; Murmann and Sardana, 2013). In this paper, we use the term risk to mean Knghtian uncertainty.

[3] Although the development of effectuation in the study of entrepreneurship is recent, effectuation builds on a set of concepts that have a long history (March and Simon, 1958; Lindblom, 1959; Burns and Stalker, 1961). It is beyond the scope of this paper to review this extensive literature however it has been reviewed elsewhere (Methé, Wilson, Perry, 2000; Augier and March, 2008; Augier, 2013).

believe they can lose and still keep the venture solvent. Third, entrepreneurs form alliances with various stakeholders, such as venture capitalist or others who can provide funding, customers, and people or organizations who can supply essential employees. These alliances evolve into pre-commitments that co-evolve the shape the path that forms the venture and in turn defines the market in which the venture exists (Sarasvathy and Dew, 2005). This requires a cooperative mindset rather than the competitive mindset exhibited in the causal approach. Fourth, while developing the venture, entrepreneurs look for or are open to contingencies to exploit and tend to be open and flexible to opportunities that arise through experimentation. This places emphasis on flexibility over implementing a plan as exhibited in the causal approach. Finally, entrepreneurs tend not to attempt to predict an uncertain and unknowable future, but instead through their actions, attempt to control it (Sarasvathy, 2001, 2003; Perry, et. al., 2011, Fisher 2012.)

Sample and Methods in a Multiple Case Study

The research project was conducted over a three-year period from 2005 to 2007. An open-ended questionnaire was developed in 2005 drawing on previous research in the area of risk, risk perception, risk attitude, risk tolerance, and risk capacity (see for example, Sitkin and Pablo, 1992; Weber et. al., 1998; March and Shapria, 1987). The final version of the questionnaire in English and Japanese was used to conduct semi-structured interviews that ranged from one and a half hours to three hours in length. Twenty-one interviews were conducted over a two-year period from 2006 to 2007.

In this descriptive multiple case study (Yin, 2003; Baxter and Jack, 2008), we examined multiple sites using our questionnaire in order to describe how managers viewed risk and how they coped with that risk. In this paper our focus is on the individual manager as the unit of analysis concerning risk perceptions and risk management. It is useful, however, to understand the company sites that each of our entrepreneurial managers is connected. The sites for our study included eight venture businesses (VB), seven small/medium sized established companies (SME/EC) engaged in product launches involving new technology, two foreign subsidiaries of non-Japanese venture businesses (FS) and four venture angel companies (VA) which were also newly established ventures in their own right, were examined for this study. Since the focus of the study was on managerial perceptions of risk in entrepreneurial/intrapreneurial business activities, balance between start-up and SME established enterprises was deemed essential. All these companies were involved in the semiconductor industry, an industry characterized by successive waves of technological innovation in both products and processes (Methé, 2006; Methé, 1992; Methé, 1991). The inclusion of the two foreign subsidiaries was deemed useful for the study for two reasons. First, both were entrepreneurial start-ups in the semiconductor industry in their respective countries. Second, Japanese country managers managed both these companies. These companies fit the overall profile for inclusion, and added additional insight into the perceptions of risk through the cross-cultural element of their management. The Venture Angel companies were not originally included in the profile, but grew out of the recognition that the ecology of entrepreneurial environment is still nascent, and the emergence of angel investors is an important part of that ecology (Wiltbank, Read, Dew, Sarasvathy, 2009). Since these organizations were also start-ups, and were involved with funding

semiconductor start-ups, there inclusion was a logical extension.

Each of the managers interviewed had considerable business experience that ranged from about 10 years to about 30 years. Most of the managers acquired their business experience as engineers and managers in Japan's large established companies. This study uses the qualitative data collected during the interviews, supplemented where possible with data collected from other archival sources.

On Definitions of Risk, Classical and Empirical

We examine how the various mangers involved with new business activities in Japan, defined risk. In this section we will examine how Japanese managers involved in new business activities defined risk and how their definition differs from the classical definition of risk often used by researchers who are studying decision-making under uncertainty.

> Many of the comments were as follows:
> Risk is not having enough money to cover your costs and going bankrupt. As stated by a president but not founder of a venture business (VB).
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> Another comment was as follows:
> Real risk is not at the starting point, but gradually risk gets higher and higher. In the seed phase if bankruptcy occurs there is very little money and people involved, but as we grow the level of risk increases. The level of risk is now higher than at founding. As stated by a founder of a VB.
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> Further, we have this comment:
> Generally people say investing in ventures holds high risk, but I do not think so. I think the risk is not as high as that, rather there might be only a little risk. The reason is the scale for the investment is not that big since we invest in venture companies at a very early stage. Even if they fail, the loss does not damage us badly. As stated by the founder of a venture capital company.
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> Finally we have these two comments:
> Initiating a project or not initiating one, or taking an action or not taking an action in business involves risk. As stated by a founder of a VB.
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> In terms of the perception of failure, in the US the idea is that if you fail you should learn from it and become a better businessperson…In Japan, the failure stays with you as a negative and it is hard to get the money to start up another business. One failure basically stops you from doing anything else. As stated by a founder of a VB

Overall, our study supports the notion that there is a difference between 'risk' as a measure of the distribution of possible outcomes from a choice as is often the case in the classical literature on decision-making under uncertainty and 'risk' as a problem or hazard as perceived by practicing managers. Risk is also perceived as an inherent part of business activities and intricately intertwined in management decision-making. Finally, risk in Japan has aspects related to the institutional environment in which managers must make decisions.

In these comments the concept of risk as being related to bankruptcy or failure is evident. This perception was common among the respondents in this study. Unlike the classical definition of risk in decision theory, were risk is concerned with the variance of the probabilities of various gains and losses generated from an alternative (Pratt, 1964; Arrow, 1971), in our study managers' defined risk as the chance of loss. Other studies have noted that managers involved in new business activity tend to consider the negative consequences of the activities as risk; that is failure or bankruptcy (March and Shapira, 1987). There is a difference then, between 'risk' as a measure on the distribution of possible outcomes from a choice and 'risk' as a problem or hazard. Our findings follow from what appears to be a universal perception among mangers that risk is perceived failure. The implications or depth of that failure in an institutional context we return to in our fifth comment below.

Second these comments highlight how managers consider the chance or uncertainties that are an important part of how managers define risk changing over time (Conrath, 1967; Miller, 2009). In essence, risk could be adjusted, but it could only be done by influencing contingencies that arise our of a variety of processes that in turn generate some saleable product and develop some kind of reputation for the company, which then make it easier to acquire the resources needed to prevent going bankrupt. Risk was not reducable to some simple formula, let alone a single quantifiable concept and the entrepreneurs saw risk more as Knight (1921) referred to uncertainty. This process of taking advantage of contingencies to adjust for risk is an important element of the effectuation framework.

Third these comments also hold that as the size of the investment, both in terms of people and money increases, the level of risk is seen as increasing. Again, this is consistent with other research in other institutional contexts that has found that the amount at stake often has a greater impact on the decision, than simply the probabilities related to the loss. This has been called loss aversion (Tversky and Kahneman, 1991) or regret aversion (Bell, 1983). In establishing their respective venture start-ups, these Japanese entrepreneurs perception of risk, or more the consequences of risk, closely resemble the concept of affordable loss; that is, each entrepreneur "…strives to invest only what he or she can afford to lose…" (Wiltbank, Dew, Read, Sarasvathy, 2006, p.993). This is also an important element in the effectuation framework, as noted earlier.

Fourth, the penultimate statement was quite common among those interviewed and is an important aspect of the leadership qualities of being an entrepreneur/intrapreneur. Risk is an inherent part of the managerial function, whether that manager is in a larger established company or a newly founded start-up but they were not seeking out risk, or thrills just for the sake of the risk itself. They saw risk as built into the very nature of their jobs, especially in those tasks that related to decision making and guiding the company. We examine these leadership aspects in some detail in a later section.

Perceptions of the Sources of Risk

These entrepreneurs identified a number of sources for risk. As one founder of a VB that had been in business for about fifteen years noted:

> I have three major problems to contend with, especially at the initial founding stage. The first was money, the second was customer relationships and the third was hiring good engineers. All three are important and the third one is very important now, because this is a high technology business.

This comment was echoed by most of the participants in the study and is consistent with other studies that have cited the acquisition of business resources as a major source of risk for managers involved in new business development activities (Alverez and Busenitz, 2001).

Entrepreneur as a Leadership Resource

Since the focus of our paper is on the individual entrepreneur we follow on research which has shown that the form of the personal characteristics of the entrepreneur, the entrepreneur's experience and knowledge and the network of relationships of the entrepreneurs (Hayton, 2005) are key elements in establishing the new venture's intellectual capital. Further it has been noted that even within an entrepreneurial team, one person often emerges as the lead entrepreneur (Ensley, Carland, Carland, 2000; Hmieleski and Corbett, 2008). As noted, Sarasvathy (2001) indicates as a central part of the effectuation framework, that entrepreneurs when confronted with uncertainty often effectuate or generate responses to that uncertainty by starting from a given set of means or resources related to "who they are", "what they know" and "whom they know". We will explore whether this aspect of the effectuation approach in applicable in the Japanese setting because we believe the entrepreneur plays a critical leadership role as the first source for "legitimating" the venture business as a real company and that this role is universal across institutional settings. Hence, we expect to observe that in Japan knowing the character of the entrepreneur, that is, knowing who they are and assessing the entrepreneur's knowledge, that is, knowing what they know is crucial in the process of establishing a new venture's legitimacy. These two means are exhibited as leadership characteristics of the entrepreneur, especially in the attitude, experience and skills needed to cope with risk and to inspire others to join what are objectively uncertain and speculative endeavors. Without this legitimating capability the entrepreneur/intrapreneur would be unable to attract the funds necessary to start the business, the human resources necessary to develop the business or the customers necessary to grow the business. The final means, "whom they know", is explored in a later section.

Who they are

We found that these managers interviewed in our study rarely operated as single individuals. They usually worked with someone else, who made up the "founding team" for the entrepreneurial venture whether it was a start up or a new activity in an SME. Because of the limitation of time and resources we focused on the founder or CEO of the company. In the discussion that follows, the characteristics of the founder or CEO are described. Our interviews with the venture angels provided insight into the whether and what type of character was important in legitimating the venture.

When asked what did the managers in charge of the Angel capital companies look for in the people who were running the venture businesses, the following

comment was typical:

> The character of the entrepreneur is important. Having a positive outlook and clear thinking and having a "hot atmosphere" are critical. After that the person's specialty and human network. So in evaluating a venture we look to see if they have a good idea, the entrepreneur has a good character and good support. Those are the keys to success.

This notion of a "hot atmosphere" finds support in studies that indicate that entrepreneurs who have hope, optimism and resiliency are better able to generate intellectual capital (Peterson, et. al, 2009). This Angel capital manager went on to say that he would try to make adjustments if any of the above were lacking from the entrepreneur running the venture business. He noted that:

> If the idea is good but the entrepreneur's character is not good then we try to replace him with someone who has a good character; that is, someone who has a positive outlook and an outgoing personality and good management and personal skills and the person with the good ideas should be put into another area, say research and development. Ideally we like if we have a pair of people, one who is outgoing and one with technical creativity.

From our interviews, it was apparent that the character of the entrepreneur was an important element in legitimating the venture to others who might assist or ally with the entrepreneur in providing initial resources or means for the venture. This is one of the elements of the effectuation framework. The perspective of angel investors is critical in the early stages of a new venture. Angel investors have been shown to use effectual approaches to investing (Wiltbank, Read, Dew, Sarasvathy, 2009). However, one result from our interviews with the Angel investors is that they did view the initial idea or goal of the entrepreneur as important. This result is somewhat at odds with the effectuation framework. We turn our attention to gains and returns.

Gains and returns as initial goals

We found that entrepreneurs were also concerned about the returns that they would receive from successfully carrying out their new business development activities. They usually phrased their ideas about returns either in technological or in market share terms, and only occasionally in terms of profits or returns on investment. These following comments were typical of many discussed during the interviews.

> I really have to stress the potential of this technology. In 10-20 years this will be make up 60 percent of the market. As stated by a founder of a venture business.

> Products based on our technology have become the standard in the industry. As stated by the general manager of a foreign subsidiary of a venture business.

> We are pioneering a new materials technology and are the only company in Japan actively working on commercializing this technology. As stated by a founder of a venture business.

> This company is a high-risk high return business. There is risk, but return is if you can make the products you can make billions so it is also high return. As stated by a founder of a venture business.

There is an asymmetry between the risk and the returns. The entrepreneurs and mangers intuitively differentiate between the domain of loss and the domain of gain. The domain of gain appears to come from an underlying faith in the product or technology to conquer the market. The technology and the products that were embodied in it were a goal towards which the entrepreneur was moving. Returns will flow from this goal directed movement, however, this flow was not perceived as directly connected to the sources of risk.

The risks are related to the potential failure of the business, which one can minimize, but doing so does not guarantee the success of the business. It appears that in the mind of these entrepreneurs, overcoming the risks is necessary for the survival of the business, but not sufficient for success in business. The extent to which this bifurcation between the domain of loss/risk and the domain of gain/return may play into the sense of confidence, perhaps overconfidence either in the decisions to enter in the first place or to continue even when most of the results are negative, that some entrepreneurs appear to exhibit. This goal-seeking element is less in line with the effectuation framework as outlined by Sarasvathy.

What they know

It was evident that the managers we talked with were all articulate and outgoing. They clearly appeared to have good people skills, at least during the interviews. Most of the entrepreneurs/intrapreneurs also had engineering and technological knowledge about the fields they were engaging in business. All had previous experience working in companies; again, most were working in electronic companies before starting up their venture business.

On the surface the level of experience, which ranged from about 10 years to about 30 years, should have been adequate to prepare these managers to take on the role of entrepreneur. However, many of the managers interviewed indicated that running your own business was an experience in and of itself.

First, as was discussed above, many noted that failure of the entrepreneurial enterprise often meant not only bankruptcy of the venture business, but also personal bankruptcy as well. The process of early stage funding often required that the entrepreneur put his personal assets up as collateral to secure funding. It is important to note this here, because this was not something that was encountered in working for an already established company.

As one venture business founder noted:

> In Japan you lose everything if the business fails. You lose the business and you also lose your personal assets if the business fails.

Second, the training and experiences that were encountered in an established

company prepared these managers for handling some of the strategic elements of their jobs as entrepreneurs, such as developing a business plan, however most noted that they felt ill-prepared for issues related to finding people or money. As one Angel capitalist noted:

> Especially in the high technology companies the managers are engineers and have no sense of finance and other business matters and often fail.

As one venture business founder with many years of experience in a large established electronics company put it:

> Through my experiences at the company I feel I learned a lot and that gave me the initial confidence that I could manage a start-up business. In addition to my engineering experiences I spent one and half years in the Strategic Planning department of the company and learned about the importance of the developing business strategy. However, I did not anticipate that there would be so many problems in getting the company going and I almost went bankrupt. I am in the red now, at least in terms of my personal financial return, but since my children are grown and my wife is OK with my taking this venture, I am sure it will work out.

Another entrepreneur noted that he had a lot of experience in a foreign subsidiary of an electronics company in Japan. This foreign electronics company expected that its senior managers would be able to develop business models for the new business areas they were moving into. As stated by a founder of a VB:

> My experience helped me with dealing with the venture capitalists, since I had to develop business models and work with many of the other management and business issues, but I still was not prepared enough with the financial aspects of running a business. Nowadays, I have hired a financial expert to help me with this is critical skill.

This is why many of the venture business mangers and the Angel managers interviewed for this study noted that the actual experience of running a venture business is vital to understanding how to evaluate and guide potential entrepreneurs in founding their venture businesses. As a resource, what an entrepreneur knows is also seen as an important aspect of legitimizing a new venture in Japan. This cognitive or knowledge based resource or means is also part of the effectuation framework. From the interviews, it was apparent that the entrepreneurs often had adequate knowledge concerning the technological aspects of their product or process but lacked the experience of running a business where resource requests for budgets and personnel were not handled by a corporate headquarters department. The institutional environment may play an important role in shaping the knowledge aspects of entrepreneurs within the effectuation framework.

Whom they know; Finding Good People and Engineers

As noted above entrepreneurs/intrapreneusrs coping with uncertainty often start from three means. We have noted the “who they are” and “what they know” means of entrepreneurial leadership. We now turn our attention to the third critical means or

resource in coping with uncertainty, "whom they know". Having access to a network of people who understand the technology, and can interact with customers is critical for the survival of the company. Being able to hire the right people from that network for the company is difficult, particularly in Japan.

> Other things vary, but human resources are important all the way through. As stated by the founder of a VB.

> Ten years ago when I graduated from university, people did not really think being in a venture business was good. It was better to enter an established big company. People do not respect the entrepreneur and do not see the importance of ventures. The United States has a different view which puts more value on entrepreneurs and ventures. Parents, families, friends, will support and give money to a venture business in the United States, but to do this in Japan is very difficult. You need to change these cultural beliefs and norms. As stated by the founder/CEO of a VB.

Part of the reason for the lack of support for venture businesses comes from the uncertainty about their ultimate fate. Given the harshness of bankruptcy, failure reflects on all who work for the company, not just the leader of the company. Success is more assured in an established company and noting that your graduates work for such a company reflects well on the university and the particular professor.

> Also in the university with the professors at the labs and such, the professor knows about how many students get into big name companies, but not how many start their own business. So the prestige and reputation of working in a big company is evident and supported and the feeling is that the not so smart students cannot get in and start their own business. This ends up being a self-fulfilling prophecy because smart students are encouraged to go into big name company and the not so smart ones go into venture businesses so the failure rate of ventures is high. This has to change and professors have to support smart people going into venture businesses. As stated by the founder/CEO of a VB.

Leadership decisions concerning what at first glance would appear to be related financial resources had to take into consideration their impact on the company's ability to attract new personnel. One company which had been listed on one regional stock exchange, decided to go through the effort to get listed on the Tokyo Stock Exchange. When asked for the reason why the CEO responded as follows:

> The most important advantage we think is to acquire good quality human resources. We think that human resources support a company, so we need good quality ones.

Being listed on the Tokyo exchange increased the visibility and prestige of the firm and made it amore attractive place to work. This in turn allowed it to pursue higher quality job candidates. We find in these comments that the personal network of contacts that an entrepreneur has developed is important in securing potential employees for the venture, so the effectual means of "who they know" is seen as extant with Japanese entrepreneurs.

Whom they know: Finding Customers

The ability to develop a steady and stable source of sales revenue is critical for moving the venture out of its earliest stage of development and into a stage where it can develop into a fully functioning company. Finding that first customer, especially if it is a large established company does a lot to legitimize the venture business and allow it to overcome its "liability of newness" (Aldridge and Fiol, 1994). Finding the first customer also plays a critical developing the pre-commitments that can evolve into commitments of resources that ultimately define the venture and market (Sarasvathy and Dew, 2005). Sometimes the first major customer is also a major investor. As one venture business founder noted:

> We visited many large companies asking for funding but could not get anything. Venture capitalists were also not putting money into our company. FJH company (a large established electronics company) originally came in as a co-research partner and then about six months later invested a lot of money in us. After that we could money easily because we had the chip and a strategic partner and we had gotten good press.

This strategy of using a major company as both a customer and an investor, however, has its own pitfalls, that can in turn increase risk for the venture business manager. This relates to another aspect of the effectuation framework, the continent aspect of the pre-commitment. This requires that an entrepreneur be flexible and take advantage of opportunities as these arise through experimentation (Sarasvathy, 2001). In working through these pre-commitments, the entrepreneur and various stakeholders co-evolve the market and the firm by strengthening some and pruning others (Sarasvathy and Dew, 2005). As one venture business founder noted:

> Our first partnership was with RST company. They were looking for technology our company was working on. The managing director of that company convinced his company to not only tie up with us as suppliers, but also to investing us through a capital tie up. We became a production subsidiary. This relationship lasted three years and lead to our finding MNO as a customer. We had to terminate the capital tie up with RST company because staying with them makes it difficult to develop other customers. At that time a venture capitalist offered us an investment that would allow us to buy out RST and become independent.

Venture business managers often noted that they would trade on their unique capabilities in high technology research, especially before their own product was launched. However, they noted that they had to be very careful in selecting research partners. Usually they would select some company that was a potential customer, and therefore less likely to be an immediate direct competitor, especially if that company lacks some of the capabilities to do work in the technological area that the venture company is pioneering. As one venture business manager noted:

> One of my main customers is STU company. I do not sell to MNO company even though they are in the same business. STU is not as comprehensive as MNO so it cannot or at least does not copy my technology, but MNO can.

Even when a customer is found, who is willing to take a chance on an unknown company selling a product that has not been tested for a long time in the market, using some novel technology, there are difficulties in the way large companies treat smaller companies here in Japan. Again, it must be emphasized that one of the fundamental issues that venture companies have to contend with, is maintaining a positive cash balance, or they go bankrupt. Any delays in the payment for a product can be catastrophic for a fledgling company starting out. One venture business founder/CEO related how he had difficulty even after he had confirmed orders for his product, which was a specialized piece of semiconductor manufacturing equipment. After they had developed the prototype and had demonstrated it, they received an order for five units. He went on to note that:

> We received an order for five sets from a large Japanese semiconductor materials company. We had the factory building, but we did not have enough money to start production. Because we had the order we could get money from a venture capitalist and we began our production and sent the five completed sets to the company. But the custom in this business is to give an oral order for equipment, so nothing is written down. The big company did not pay us for the equipment we delivered.

This venture business went bankrupt and part of it was sold to another more successful venture business, which eventually did get paid by the large company. The use of alliances and pre-commitments and the taking advantage of contingencies and experimentation to co-evolve the firm in a market can be observed in the statements above.

Whom they know: Developing and Maintaining Customer Relationships

The knowledge needed to cultivate relationships with customers was fine grained in that it was very specific to the technology, products and customers involved. The importance of the idiosyncratic nature of this knowledge was especially important in maintaining relationships with customers once these had been formed. Further, some of this could be taught in training sessions but because of the idiosyncratic nature of the knowledge it was not easily learned except through direct experience. As stated by a founder of a venture business:

> This human relations form of contracting is particular to the business and even the geographical region in Japan. This same manager went on to say that: It is strict to the local culture. *Chiki micchaku gatta* or the 'local way of doing things', are important to entering and maintaining the relationship.

These relationships can become institutionalized to such a degree that they affect all aspects of customer development. This is a common problem for both the indigenous Japanese venture business company and for the foreign subsidiary setting up in Japan. Neither company has a history or reputation that is well known. Information concerning who is doing what kind of work in the customer companies and who would be the specific person to pitch your new product to is unknown and access is also guarded unless an introduction is granted. Persistence is required, but time and lack of cash are working against any new entrant. The importance of maintaining customer relationships is so great, that many large companies will have

sections within their sales department devoted to each major customer. In these cases a sales person does not specialize in selling memory or logic chips, but specializes in selling memory or logic chips to a specific customer.

Another source of risk originating out of maintaining customer relations comes from the necessity to complete projects on the basis of the customer's stringent QDP criteria. Although meeting stringent quality, delivery time and price requirements may seem obvious on the face of it, when confronted with the uncertainties inherent in any high technology innovation, the actual accomplishment is less obvious. All interviewed managers noted that finishing a project is critical for survival here in Japan, because trust and credibility is an important factor in doing business here. One manager of a foreign subsidiary summarized this factor succinctly when he noted that:

> Once you fail with a customer, even one or two years later it is almost impossible to come back. In the United States even if you fail once, if you have a good product and price you can come back, but in Japan there is less of a second chance so if you fail once your reputation is hurt and it is almost impossible to come back.

He offered the following example:

> One Japanese company that did have relationships with other big Japanese companies began to shift its business over to Nokia because it was growing and the Japanese companies were not. After a couple of years this company tried to re-establish its relationships with the big Japanese companies and these companies said "no", because a couple of years ago you did not support us so you are untrustworthy.

Many of the managers at venture businesses found it easier to go to the United States or overseas, even with concern for their lack of English language skills and their lack of knowledge about the market situation and customer relations' etiquette. However, those that did go were able to get some results in spite of the difficulties. As stated by a venture business founder:

> I made a decision to go to the United States (to find potential customers) and After finding a company, within four days I had a contract. It took up to one year for me to do the same thing here in Japan.

Knowledge of how to conduct customer relations in Japan is important in moving from pre-commitments to the full commitments that define the relevant market for the new venture. Interaction with the normative dimension is also evident in the impact that failure to complete a project on time can have on an already established relationship with a customer. We also note that the conducive dimension may also interact in that the relative ease of finding customers in the US compared to Japan most likely is from the lack of facilitating supplier and customer markets.

Whom they know: Funding, Cash Flow, Money

As noted above, getting funding for the venture business is a major element of

ensuring the success of the venture. In the early stages of venture business development, as was noted, the company many not have a product or reputation to offer as a concrete track record to entice investors to provide funds for the company. The chances are very high that the company will not have enough money to fund the development activities needed to move the technology out of the research laboratory and into a saleable product.

A fundamental question for a venture business founder is how do you cover the costs of developing a product when you do not have any revenue? This is why early stage funding in the United States and other market-based models of capitalism, through Angels and venture capitalists is so vital to the survival of the venture business. These funds can cover the costs until a product is developed and begins to generate sales revenue. However, these funds rarely come without conditions, and are not a form of charity. The Angels and venture capitalists are investing their funds with the expectation of a return on that investment. So for the venture business manger one source of risk, lack of enough funds to cover current costs, is reduced through the use of venture capitalist, but another form of risk, loss of control over the venture business resulting from miscommunication or incompatible expectations between the venture capitalist and the venture business manager can result.

The following comments from the founder/CEO of a venture business help to illustrate how the risk is perceived and how it is minimized.

> So the former president of this company wanted to get some money from venture capital companies, but I disagreed with him. I feel that venture capital companies in Japan do not use proper criteria for evaluating high technology venture businesses. They (the venture capital companies) only want to get profits from the venture business as soon as possible, even if only a small profit, so they do not really evaluate the technology potential. Venture capital companies in Japan have been destroying venture businesses, especially the high technology/high risk/high return types. Angel investors do evaluate the technology potential and are useful.

Now it may seem that the obvious way to minimize the risk of getting money from venture capital companies that do not understand your technology would be to go to Angel investors who do. However, in Japan there are further problems as noted by this same founder/CEO.

> Funding risk in Japan is high because there are not many Angels.

This founder/CEO did have a mechanism for dealing with the need for early stage funding that understood the technological potential of his venture business. This particular founder/CEO had been working in a large established Japanese electronics company for about 30 years before taking on his current new business development project of starting his company. As he stated:

> I have my own network and I use it. They (the people he knows) understand technology. Even though they are still employed in established companies and do not want to start their own venture business, they have money that they would be willing to invest. I talk with them

> and get them to invest in my company.
>
> These people, in my network, are technology pros and understand how to evaluate the potential of the technology. They are also risk tolerant because they have steady incomes from their jobs and can wait for the technology to develop.

Angels are usually people who have been successful entrepreneurs themselves and have made enough money that they move away from founding their won start-ups to helping other people found start-ups. Usually Angels will stick close to the technology/product/market combinations they understand best. So if you founded a successful venture in integrated circuits or biotechnology you will most likely end up being an Angel for other integrated circuits or biotechnology companies respectively. In the United States there are many Angels, while in Japan there are few. This institutional void in the early funding stages of venture business development also presented a business opportunity for one of the companies interviewed for our study. This company developed a system for evaluating other start-ups technology and providing that information to various early stage funding organizations. As the founder of the company noted:

> We are the only one doing this type of rating in Japan, maybe even in the world. It is limited because evaluating technological potential is difficult. We have 500 people working for us. These 500 are retired from technology companies about 2 to 3 years ago. They do on site evaluations of venture businesses that take from two weeks to one month to complete. This evaluation can be used by a venture capital company or bank to determine the credit worthiness of the venture business.

In order to gain access to revenue, some of the managers of the venture businesses interviewed did contract research with larger companies. This strategy was used but more by venture businesses that were developing new technologies, which were still closer to their science knowledge base and less likely to immediately yield a commercial product. These relationships, did linger, however, even when products had been commercialized. As one venture business founder noted:

> About 20 percent to 30 percent of our revenue comes from co-research and development with large companies.

Other sources of money to cover expenses were used as well. These included grants from the government and public research institutes and universities. While the work with these various organizations were seen as useful, both in terms of the technological knowledge the activities yielded and for the funds they provided, the ultimate outcomes of the government/public research institute/university and the venture business are not the same. As stated by a founder of an Angel capital company:

> Getting a patent or solving some technological problem in itself is not doing a business. This is where our company comes in evaluating if the patent has potential for being a business and how much potential.

Another issue with public funding in Japan is that "one size does not fit all". As one venture business founder noted:

> Compared to bioventures that require very little money to invest this business (IC related ventures) requires much more and so these are very different types of ventures. Part of the problem is that the government funding is limited and using the wrong criteria to evaluate the venture business. …The government is using the wrong criteria and is too tight with the money once it is invested….The government system right now is focused too much on research …they are really strict on documentation and that increases the length of time for decision-making and this is really hurting the development of venture businesses, especially high technology venture businesses in Japan.

Conclusions

The data presented above is preliminary and should be seen only as a starting point for further research. This study focuses on the perception of risk and the mechanism that managers and entrepreneurs in Japan use to compensate for risk. Risk is seen as primarily related to factors that can cause the project or business to fail or go bankrupt. Risk is inherent in the management process and all the managers believed that they had to deal with risk. Risk was perceived as manageable and could be manipulated in ways that would minimize it.

In applying the effectuation concepts of Sarasvathy (2001) we found that most of the entrepreneurs began with a set of goals or objectives concerning the commercialization of a technological product or process. Contrary to the effectual approach they did not begin with a set of idiosyncratic means and proceed from there. They did start with the goal of commercializing a technology and reaping the gains from that, but to do so they needed to organize a business venture. In doing so they were presented with a set of risks that needed to be countered. In doing this, the entrepreneurs did utilize their own idiosyncratic resources or means. We found these did fall in line with the effectual approach in that the entrepreneurs used who they are or their character and personality, what they know or their experience and knowledge and whom they know or their network of contacts to establish the initial legitimacy of the venture.

Second, we found that the entrepreneurs made decisions around both an unpredictable set of potential returns/gains as in the causal approach, and using the effectual approach in terms of affordable loss. The gains/returns were a motivator and as a necessary element to attract finances, while the effectual affordable loss approach was used in organizing the venture business.

Third, we found that entrepreneurs did form alliances with various stakeholders, such as venture capitalist or others who can provide funding, customers, and people or organizations who could supply essential employees. These alliances did evolve into pre-commitments and that these alliances did co-evolve and thus shaped the path that forms the venture and in turn defines the market in which the venture existed. While these alliances required a cooperative mindset rather than the competitive mindset, we found that not all of these alliances continued to be

cooperative and useful to the venture.

Fourth, we found that in developing the venture, entrepreneurs did look for or were open to contingencies to exploit and had to be open and flexible to opportunities or challenges that arose. This placed emphasis on flexibility as indicated by the effectual approach over implementing a plan as exhibited in the causal approach.

Finally, while we did not directly determine if entrepreneurs tended not to attempt to predict the uncertain future, but we did find that through their actions, the entrepreneurs attempted to exert control over their environment.

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