A case study on entrepreneurship for sustained innovation

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Organizations are facing challenges of continuous innovation to stay competitive in the business landscape. The present paper investigates the inter-relationship among entrepreneurship, dynamic capabilities and innovation. Entrepreneur’s foresights and insights of ICT tend to affect their choices of resources and development of dynamic capabilities, leading to different results of innovation. Based on the literature of business innovation and dynamic capabilities, this study provides a model addressing the links between leadership, with insights and foresights for technology exploration and exploitation, and organizational capabilities of resource integration, learning and transformation to accelerate innovation. A comparative analysis of the evolution of two textile manufacturers in Taiwan, Everest and Central revealed a cyclical process between the leadership decisions and dynamic capabilities of leveraging ICT for sustained competitiveness in these two SMEs. The result suggests that to build strong capabilities for continuous innovation in today’s dynamic business environment, firms need to have leadership with both the attitude and behavior of entrepreneurship, combining the foresight to capture opportunities through ICT and the insight to guide and manage internal resources to achieve ICT-enabled innovation.

Key words: Continuous innovation, ICT adoption, SMEs, entrepreneurship, dynamic capabilities.

INTRODUCTION

With the increase in demands of customers and the rapid advancement of information and communication technologies (ICT), competition that business confronts in globalization, customization, and service transformation are intensified. Innovation becomes an essential factor in surviving the fierce competition, satisfying demanding customers, and leveraging technological advancement. The ability to learn and to recognize new opportunities is vital for innovation and entrepreneurship. Small and medium-sized enterprises (SMEs), with their organizational agility and adaptability, have often played a significant role in adopting ICT for building innovations in the dynamically changing business environments (Subrahmanya, 2005). On the other hand, the SMEs are usually equipped with only limited resources, therefore they need to exert more effort to support and respond to innovation opportunities. The ability to overcome the insufficient resources by managing internal ICT infrastructure and leveraging emerging ICT systems seems to be the most critical issue for SMEs in sustaining its competitive advantages. This paper analyses the role of entrepreneurship in SMEs in Taiwan. More specifically, our focus is on the aspects of entrepreneurship that enable the process of innovation in SMEs. Using the longitudinal case study approach on a comparative analysis of two textile manufacturers, the paper aims to illustrate how entrepreneurship affects organizational innovation through ICT management process and to track changes in management capabilities at both strategic and operational levels.

The paper is structured as follows. The next section discusses relevant literature on entrepreneurship, innovation, and management capabilities. This is followed by a discussion on the research methods used while the
results of the comparative analysis are presented in the findings section. Discussions on innovation process of the studied companies are provided before the concluding remarks.

THEORETICAL BACKGROUND

Entrepreneurship

Risk-taking, opportunity seeking, and speculation are usually considered as characteristics of entrepreneurship in earlier research (Lumpkin and Dess, 1996). With growing research interests in entrepreneurship, the meaning of entrepreneurship is broadened. For example, Zahra and Shaker (1991) define entrepreneurship as innovation, new business venturing, and strategy renewal. Lumpkin and Dess (1996) argue that entrepreneurship encompasses five dimensions, namely autonomy, innovativeness, risk taking, proactiveness and competitive aggressiveness. Others argue that entrepreneurship involves establishment of entrepreneurship and judgmental decision making. For instance, Casson (2005) defines entrepreneurs as those who exploit emerging opportunities to create new market. Shane (2003) indicates that the entrepreneurial process originates from the perception of the existence of opportunities, or situations in which resources are converted into profitable business, while Morris et al. (1993) define entrepreneurship as a step-wise process which is influenced by both exogenous and endogenous factors, such as business environment, the ability to acquire desired resources and the ability to implement and manage the business concept. This paper will examine entrepreneurship into relation to two dimensions: foresights and insights. Kunstler and Tita (2007) note that foresight practices can be referred to linking multiple sources of input and feedback, where integration of new knowledge with organizational and strategic resources is required to push thinking further into the future so as to maximize the effectiveness and creativity of knowledge network. Insight is referred to an understanding based on identification of relationships and behaviors within a model, context, or scenario.

Dynamic capabilities

In order to accept that the role of entrepreneurship has increasingly important role in corporate innovation, it becomes critical to identify the abilities which enable entrepreneurs to facilitate innovation. This is well in line with Penrose’s (1959) concept of dynamic capabilities. Dynamic capabilities create strategic advantages by integrating and recombining the external and internal resources (Teecce et al., 1997; Amit and Schoemaker, 1993). The capabilities of managing resources affect the performance of SME (Chandler and Hanks, 1994); they can reduce costs and improve product/service quality to fit the firms’ strategy and technology (Amit and Schoemaker, 1993) to accomplish the task of continuous innovation (Grant, 1991).

According to Teece (1997), dynamic capabilities are developed through three processes. The first process of dynamic capabilities is integrating and coordinating resources. Although the intangible capabilities have substantial effect, tangible capabilities like organization's structure, technology, processes, and intergroup relationship can also affect the organization (Lado and Wilson, 1994). In addition, organization has external parties like suppliers or distributors that should exchange information with them to capture the market trend and adjust their operation (Briance et al., 1998). Therefore, organization must integrate and coordinate its internal and external resources.

The second process of dynamic capabilities is learning and experimenting. As Prahalad and Hamel (1990) have argued, dynamic capabilities are based on the collective learning of the organization. They think the experience, knowledge and employee know-how can be deployed to reduce the cost and increase the flexibility (Barney, 1991). We can use R&D and learning activities to gain experience and competitiveness on technology and marketing (Gallon et al., 1995). Learning activity is one of the most important roots in dynamic capability which makes the SMEs innovative (Long and Vickers-Koch, 1995; Keeble et al., 1999).

The third process is reconfiguration and transformation. Environment changes so rapidly that it would not be enough to merely integrate the resource and coordinate the information. According to Covin and Covin (1990), the environmental context and competitive orientation affect the performance of SMEs. The structure of the company may have different size and architecture; organizations should adjust their architectural scope and dimension for best use of their dynamic capability (Henderson and Cockburn, 1994).

Innovation

Schumpeter (1943) first proposed five categories of “innovation,” including “new products,” “new methods of production,” “new source of supply,” “the exploitation of new markets,” and “new ways to organize business.” Many scholars followed Schumpeter’s concept of innovation and proceeded with their interpretation of the concept of innovation. Aija (2005) notes that continuous innovation is the synthesis of knowledge accumulation, leading to a corporation’s growth and financial performance. According to customer and employee’s feedback report (Tax and Stuart, 1997), continuous innovation changes the existing service system. Firms must improve their services and products dynamically to maintain their
maintain their competitive advantage (Smeds and Boer, 2004). Organizations plan to sustain business innovation with the emerging ICT need to have well-organized processes to build infrastructure for exploitation and capabilities for business exploration. This procedure requires strong leadership consisting of the necessary activities to identify opportunities, develop business processes, and manage resources (Morris et al., 1993). In relation to the leader’s drive for effective innovation execution, there is a need for firms’ dynamic capabilities in coordinating and integrating ICT with physical capital and organizational capital (Barney, 1991) to build adaptive infrastructure.

Continuous innovation activities make SMEs more competitive and yield higher levels of performance (Timothy and James, 2007). Researchers argue the process of these activities consists of identifying an opportunity, developing a business concept, assessing the resources, implementing the concept, and then maintaining the outcome (Morris et al., 1993). Therefore, business foresight and insight are required in order for leaders of SME to be able to maintain proper cycle of continuous innovation.

Scott and Venkataraman (2000) have highlighted the importance of identifying profitable opportunities and developing them into practice. Foresight is such a capability to identify the future opportunities or concerning future market changes, integrate all the views and then try to make strategies before the issues affect the results (Grant, 1989). Other similar concepts indicate that the foresight is the talent for entrepreneur to expand existing markets, explore new market, and overall, act under the coming opportunity (Sambamurthy et al., 2003). In addition to foresights, entrepreneurs need to be able to determine what resources are required to realize the business opportunity identified. This is referred to as the leader’s insight. It is the capability to integrate internal resources that respond to chances effectively and efficiently (Sambamurthy et al., 2003).

**METHODOLOGY**

This study is focused on gaining knowledge of reality through the study of social construction (Klein and Meyers, 1999) which gives us an interpretive and explorative view of the interaction and relationship among dynamic capability, continuous innovation, and entrepreneurship. For a complete view of the interrelationship of these three components, we have selected case organizations of a similar size and operating in the same industry to be able to clearly contrast their organizational capabilities and the linked innovative results. Based on theories of entrepreneurship and dynamic capability for continuous innovations, we construct our research model as shown in Figure 1.

In the model, business innovation is facilitated by the leader’s foresights and insights of the business opportunities as well as the internal and external resources. The dynamic capabilities in the model enable entrepreneurship and foster the process of innovation. The arrows indicate that any of the three components in the model are interlinked. Through the cyclical processes of entrepreneurship, dynamic capabilities and innovation, entrepreneurs can accumulate their capabilities to further capture opportunities and generate innovation continuously.

In order to examine the criticality of the components proposed in the model, a case study analysis was conducted on two major textile enterprises in Taiwan. While making a significant contribution to Taiwan’s economy, the textile industry is constantly struggling under intensified global market competition as well as pressures from its increasingly demanding customers. These two studied enterprises operate in traditional and labor intensive industry. In order to observe how the model affects the organizations, Everest and Central, the two case companies competing under the same environment were selected.

Apart from the data gathered from annual reports and published articles on the two companies, interviews were also conducted with business managers of the two companies. 8 managers from each company were interviewed. Several interview guidelines were developed for the interview, such as what is the most critical challenge the company faces in the textile industry? How does the company decide its expansion strategy? What are the most distinctive features in company’s management of human resources, products and external resources? How does company facilitate organization learning and how does company manage knowledge? What is the relationship between company’s decision making process and leadership? How does company manage its brand and innovation? How does company capture innovation and new investment opportunities?

The interview data were transcribed and consolidated with secondary data into analysis tables. Iterative verifications and finding analysis were performed until several key points were developed.

**Case studies**

**Everest**

Everest is a textile manufacturing company which focuses on high-technology products. It produces products with general material, high-function materials, special material, and knitting goods. By vertically integrating all upstream and downstream production processes, like throwster, weaving, dying, printing, and other special post-processing procedures, Everest combined high-tech and fashion information to form an interwoven textile company in 1988. In 1996, Everest saw the importance of building the management capability of resource planning. It introduced an ERP system to integrate internal information for its resources allocation and operation management efficiency. The company also established a subsidiary in China to reduce its operation costs and at

![Figure 1. Research model.](image-url)
the same, put more effort in the management of research and development center in Taiwan. With its effort in the product transformation, the company became a major supplier of Puma, Nike, and Adidas in 1997. When the global competition intensifies, the company sensed a trend of innovation in textile industry. In 2002, Everest expanded its productive capability through the establishment of IT infrastructure such as, dynamic color simulation communication system, fabric design simulation communication system, product data management system, co-design system, and e-learning system. In 2003, the company established an advanced research center to strengthen innovation range in order to speed up its production and market transformation. In 2005 and 2006, Everest created its own brand “Ever Tek”. At the same time, Everest advocated Southern Taiwan Textile Research Alliance, which attracted 51 textile companies, to promote cooperation of innovation in textile industry. In 2007, the company began to address the green issues and focus more on monitoring environment, health and safety.

Central

Central is a textile manufacturing company focusing on producing cotton under-ware. It was established in 1949 with two machines and 30 employees. In 1969, the company sensed an opportunity in the global garment market and began to expand its production by acquiring two textile manufacturing firms. After the acquisition, the company was able to establish synthesized fiber and dyeing facilities for the preparation of exporting products to the global market.

During the years of 1970-1985, Central sensed the increased demand in the domestic market, and opened a department store. At the same time, the company built up management capabilities of profit control. It established five business units with management by objective strategy to achieve its profit-oriented strategy.

Till 1992-1993, the company began to focus on product innovation, and launched full colored fabric. However, the economic situation was in the downstream, the demand decreased dramatically. The company had to stop expansion and reduce costs. To achieve this goal, Central integrated its dyeing unit and textile unit into on new business unit. At the same time, the company began to focus on learning through quality improvement.

During the years 1997 to 2000, the company sensed the opportunity of increased demand in young people and the demand in functional garments. It launched its new brand named JR to attract young people in 2000. Central built up management capability of manufacturing diversified products, and integrated inter-firm resources through moving the management unit to a place near the manufactory. Central also sought the cooperation with Chinese textile research center, and established a fabric research center.

However, in the following year, Central suffered from the economic recession. The loss of its profit was significant and the company had to close down to factories in order to improve its financial structural with 40% of capital reduced. Until 2006, the bad financial situation in Central was not improved. As a result, Central closed down.

Having described the two cases, we will draw on the research model to analyze the key events unfolded within each organization. We extract events and compare the two companies, Everest and Central, in Table 1. This can help us review clearly how each company reacted to the same changes in similar environment and what kind of organizational capabilities were leveraged. This table is divided into two dimensions. The X axis represents the year key events took place. The Y axis represents the analyzed results of our model. It includes the foresight, insight, integration/coordination, learning, and transformation/reconfiguration. The results of the two cases are depicted in Table 1.

RESULTS

In accordance to the model, research results have been classified into three categories, namely innovation, entrepreneurship and dynamic capabilities. Innovation ideas are often triggered by market demands or technology push (Freeman and Soete, 1999). Identifying these two factors requires entrepreneurs to hold both insights and foresights. As Table 1 clarifies, our results support the proposed research model. The sense of market changes and the customer demand changes are clearly the most significant foresights, which acts as an initiator in the innovation process in both case study companies. Everest seemed to utilize the market opportunities by creating its own brand and cooperating with customers to design new products in favor of customers’ personal needs. Entrepreneur’s insights also play an important role in initiating innovation. As presented in Table 1, Everest began with building up information sharing platform for its suppliers and customers, followed by increasing its IT infrastructure and improving dyeing skills through IT technology so as to enhance the customer value. On the other hand, Central also invested in garment technology to advance its manufacturing efficiency, followed by the establishment of a chemical fiber research center and a financial restructuring through profit management. The adoption of ERP system, the implementation of an e-learning system, the forming of a global alliance research center to advance textile technology, and the creation of its own brand are identified as innovative behaviors in Everest. While Central had its attention on introducing automatic operation processes, creating its own sale channels through investing in its own department stores, and establishing fiber research center to focus on young people’s market. In the two studied companies, innovation ideas were driven by technology push and market demands. However, the management capabilities differentiate companies’ competitiveness in long term. Although both companies had integrated external and internal resources, the focus of learning varied in the two companies. Everest appeared to have paid more attention to organizational learning, such as establishing collaborative and e-learning system for employees and suppliers to share knowledge. Everest also sought to add customer values through continuous quality improvement programs, develop new textile materials and also advance production technologies to cut off production waste and use recyclable materials. By contrast, Central also had quality improvement programs, but more attention was placed on each business unit’s cost control rather than knowledge sharing within the company.

From the comparison of the two cases listed in Table 1, two points can be made. First, the leader-ship’s foresights to capture ICT opportunities and insights to develop dynamic capabilities with ICT infrastructure are critical in the process of innovation. In Everest’s case, we can observe foresight and insight linked closely. When the
Table 1. Comparison between two cases based on the research model.

<table>
<thead>
<tr>
<th>Year</th>
<th>Innovation</th>
<th>Entrepreneurship</th>
<th>Dynamic capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Integration/ coordination</strong></td>
</tr>
<tr>
<td>1996</td>
<td>The first company introduced ERP system</td>
<td>Resources allocation efficiency can be improved</td>
<td>Integration internal resources with market information through ERP system</td>
</tr>
<tr>
<td></td>
<td><strong>Year</strong></td>
<td><strong>Foresight</strong></td>
<td><strong>Insight</strong></td>
</tr>
<tr>
<td>2002</td>
<td>Drew several IT related projects and changed its strategy to innovation</td>
<td>Innovation is the trend</td>
<td>To build capabilities of manufacturing textile products with strong IT infrastructure</td>
</tr>
<tr>
<td>2003</td>
<td>Launched function and fashion program</td>
<td>Growing eco-awareness</td>
<td>To build capabilities of manufacturing textile and dyeing skills with strong IT infrastructure</td>
</tr>
<tr>
<td>2005</td>
<td>Increasing brand exposure Cooperate with customers to design new products</td>
<td>Created customer value through increasing brands</td>
<td>Begin to build the brand management capabilities on its knowledge management system</td>
</tr>
<tr>
<td>2006</td>
<td>Build up Southern Taiwan Textile Research Alliance (STTRA) group innovate textile technology</td>
<td>Changing management methods to focus on both quality and cost</td>
<td>Need to build focused business practice and to strengthen relating capabilities</td>
</tr>
<tr>
<td>2007</td>
<td>Everest Sustainability Model</td>
<td>Understanding global trend in the textile industry is critical</td>
<td>Build up Premiere Vision to strengthen knowledge management</td>
</tr>
</tbody>
</table>
ICT trend emerged, Everest captured it (foresight) then used the most applicable technology and capabilities (insight) to accomplish what it plans to do. The clearest time frame is in the 2002, an innovation trend was sensed (foresight). The firm built up its management capability of manufacturing textile products with IT infrastructure. At the same time, the company integrated internal resources with external resources through customer relationship management, supply chain management and knowledge management (insight). Also, an e-learning system was implemented to enhance the employees’ skills and knowledge. Moreover, Everest recombined its internal departments and connected tightly with its suppliers for better information flow. In contrast, Central also sensed the increased market demand (foresight), but it expanded its productivity (insight) through acquisition rather than developing its innovation capabilities.

Secondly, environmental factors play an important role in the process of continuous innovation. Pressure is the accelerator for changes. From the interviews conducted at the two companies,
Central operated very smoothly. It was because Central had financial support from banks. There was no motivation for Central to innovate. However, Everest had a tough time for the first few years after they established themselves. It suffered from the pressure and the intensity of competition with those companies established much earlier in the industry. These environmental conditions left Everest with no other choices but to invest all of its resources to innovate, evolve and build a strong backbone of dynamic capabilities.

DISCUSSION AND CONCLUSION

The central theme of this paper is to explore the interrelationship among entrepreneurship, innovation and dynamic capabilities. We examine the relevant literature to pave the theoretical background for the research framework. Based on the proposed research framework, we used longitudinal approach to collect data and verify our research framework. There are certain limitations to this research report that need to be factored into the discussion about the managerial and generalizability of the findings.

First, the current study examined two cases that are in the textile industry in Taiwan, which provides a ground for comparisons, however, it would be beneficial to examine firms in other different industries. Such research would help managers to understand where the interrelationship holds and where it may not hold. Second, the measures we employed reflect the objective of this study; however, the measures are not all-inclusive of various conceptualizations in the entrepreneurship and innovation literature. Alternative conceptualization may yield very different outcomes from what we have found in this study. All of these issues remain to be addressed by future studies.

As we presented in the finding section above, the outcome of this research project generally support the proposed model (Figure 1). The most significant contribution of this research is the interlinked relationship that is theoretically derived and empirically supported. Our results suggest that entrepreneurial leadership’s foresight and insight of ICT affect organization’s innovation capability. Innovation enables organizations to perform better in the market. In addition, the dynamic capabilities of a firm could also affect both entrepreneur’s foresights and insight and organization’s innovation capacity. From the results of the comparative analysis of two textile manufacturers, we argue that the critical initiators of innovation are entrepreneurs’ foresights and insights of ICT, and the ability to create dynamic capabilities. The leaders’ eyesight must be broad to capture the opportunities with advanced technology and build required capabilities which can support and sustain innovative moves. The cyclical processes of resource integration, learning, and reconfiguration with the ICT underlie the building and accumulation of organizational capabilities for continuous innovations.

Our findings support Ireland and Webb (2007)’s view that effective entrepreneurship helps a firm to properly respond to significant environmental changes. As can be seen from the studied case company Everest, entrepreneur’s foresights and insights of ICT facilitate the integration of organizational resources and building up information sharing platform for both suppliers and customers. On the other hand, although Central recognized the need to develop new products for young people, it did not pay much attention to investment in ICT.

Our research findings also support Zahra et al. (2006)’s view that established companies benefit from dynamic capabilities in crafting new business strategies, learning new skills, leveraging resources and introducing innovative programs. Everest’s capabilities were presented in learning waste control, developing recyclable materials and managing suppliers, and building e-learning systems for employees. In contrast, Central’s capabilities were derived from launching quality improvement program, buying-in four companies to enhance its manufacturing skills and focusing on profit centered strategies. This indicates that dynamic capabilities affect firm’s selection of resources and skills and promoting organization learning processes to capture knowledge and to introduce innovative programs. Moreover, our research findings also indicate that entrepreneurship’s foresights and insights of ICT shape the combination of dynamic capabilities and increase firm’s ability to implement innovative programs to challenges it faces.

Everest also shows stronger attitude and commitment to innovation than Central. As Ettlie and Bridge (1983) note, firms that proactively acquire new production technologies are more innovative, as they can develop new products with these new technologies. Additionally, Everest developed close links with its customers. It developed a better understanding of customer needs by introducing a collaborative program for customer involvement in cloth design than Central. On the whole, our results provide evidence in support of entrepreneurship as an important contributor to firm’s innovation. Entrepreneur’s foresights and insights of ICT affect the selection of resources and the development of innovation programs. Although there are undoubtedly other factors that may affect firm’s innovation, this study finds that entrepreneur’s foresights and insights of information communication technology have brought benefits on firm’s innovation.

REFERENCES


