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SHAPING PROACTIVITY FOR FIRM PERFORMANCE: EVALUATING THE ROLE OF IT-ENABLED COLLABORATION IN SMALL AND MEDIUM ENTERPRISES

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Abstract

The emerging importance of small and medium-sized enterprises (SMEs), has led to increasing interest in recent years about how to improve their performance. Therefore, to improve SMEs' performance, we define proactivity as an essential factor that enables a company to anticipate change, to have the desire to make a change, and to create that change in our research framework. We also suppose that Information Technology (IT)-enabled collaboration has the potential to help firms achieve each dimension of proactivity. To verify the research framework, a service platform that was deployed in the Mt. Pillow Leisure Agricultural Area in Yilan County, located in the northeast of Taiwan, is introduced. We argue that SMEs can enhance their performance after they have gained proactivity through cooperation via the service platform. The study is expected to help SMEs improve their performance by realizing the importance of proactivity and the effect of IT-enabled collaboration on proactivity through a validated framework.

Keywords: Proactivity, IT-enabled collaboration, SME performance, value co-creation.

1 INTRODUCTION

The emerging importance of small and medium-sized enterprises (SMEs) has led to increasing interest in recent years about how to improve their performance. Scholars have taken various perspectives on SMEs' characteristics. For instance, Kantabutra and Avery (2003) used vision-based leadership to test these retailers, and Bell et al. (2004) viewed internationalization as the most important factor for SMEs. The European Commission (2010) released an annual report that discussed European SMEs as the cornerstone of the European economy (Knop, 2007).

To improve SMEs' performance, some scholars find that proactivity is an essential factor. In this study, we define proactivity as an organizational capability that enables a company to anticipate change, to have the desire to make a change, and to create that change. A proactive enterprise has a relatively stable behavioral tendency to alter its environment (Randmaa, 2011). For example, Camison (1997) has shown that small and medium-sized firms in Spain with proactive or innovative strategies are those that innovate most often and have better economic positions. Camison (1997) also found that proactive SMEs are more flexible in adopting innovative practices to address environmental changes and manage limited resources than their conservative counterparts. Aragón-Correa et al. (2008) have indicated that proactivity is a key dimension of entrepreneurial orientation that can help small firms gain new capabilities to manage environmental changes. Although the importance of proactivity to SMEs is recognized in the previous literature, there has been no discussion of how to achieve proactivity, and it is difficult for companies to measure.

Previous literature has posited that Information Technology (IT)-enabled collaboration may be a good solution to help firms achieve proactivity. Shrader (2001), for example, notes that some high-technology manufacturing firms have used IT-enabled collaboration to improve proactivity. IT-enabled collaboration, which changes the work process by changing the participants, the method of participation, and the nature of the work, has the potential to help firms achieve proactivity by supporting idea exchanges within groups and networks and interactions among suppliers and customers (McNurlin et al., 2008). Moreover, because SMEs are characterized by low numbers of employees and tight resources, their partnerships are trust-based (Hoffmann and Schlosser, 2001). IT-enabled collaboration systems may help complementary SMEs work together to obtain better performance through sufficient trust building than initially estimated. Nevertheless, recent research has included few discussions of this issue. Consequently, the main purpose of this paper is to discuss how SMEs can develop proactivity through IT-enabled collaboration.

Our framework will be validated using an empirical study of an innovative system implementation in the agricultural tourism industry. Specifically, our research questions are as follows:

- How can IT-enabled collaboration enhance SMEs' proactivity?
- What critical components of proactivity will impact SMEs' performance?

2 LITERATURE REVIEW

To determine how IT-enabled collaboration can enhance SMEs' proactivity as well as the components of proactivity that impact SMEs' performance, this section reviews two main topics. We introduce and discuss the concepts of IT-enabled collaboration in the context of SMEs, and we review past literature on proactivity to delineate important dimensions that should be examined.

2.1 IT-enabled Collaboration

2.1.1 *IT-enabled Collaboration with partners*

Over the past twenty years, many SMEs have turned to collaboration with one another, also called team working. Consequently, collaboration has become one of the most common SME practices

(Nadin et al., 1998). According to previous literature, by establishing and fostering efficient inter-firm cooperation, SMEs can achieve competitive advantages and facilitate growth and innovation (Street and Cameron, 2007; Hannah and Walsh, 2008). For example, these practices can complement SMEs' internal knowledge with external sources (Zeng et al., 2010; Malecki, 1991; Sorama et al., 2004), provide greater economies of scale (Lewis, 1990; Masurel and Janszen, 1998; Berry, 1997), produce new knowledge and enhance skills, improve product quality (Lewis, 1990), diversify corporate risks and reduce costs (Nolan, 2002), increase flexibility, and create possibilities to internationalize and identify new business opportunities (Casals, 2011). Alliances between SMEs are not merely a trend; they are necessary because of the advantages of collaboration.

However, helping various small business units work together is not an easy task due to business realities. Opportunistic behavior and overlap may destroy companies with fewer resources (Larsson and Malmberg, 1999), and the maintenance of trust relationships between SMEs is an issue (Brunetto and Farr-Wharton, 2007). The implementation of IT may address these problems and facilitate collaboration. Some academic studies have shown that the use of IT in a collaborative network can boost SMEs' performance (Temtime et al., 2003). For example, some researchers find that IT promotes flexible relationships (Ritchie and Brindley, 2000) and that IT-enabled collaboration may help SMEs in remote places work together (Findikoglu, 2011) to develop capabilities that a single SME would be unable to develop alone. Online collaboration, for instance, is now an important mode of operation for SMEs and can help SMEs and their partners learn individually or collectively with high levels of trust and commitment (Coopey, 1998; Allan and Lawless, 2005).

2.1.2 IT-enabled Collaboration with customers

Collaboration with customers can occur as value co-creation with customers. The strategy of value co-creation is to enable customers to actively participate in shaping a company's value proposition (Doligalski, 2011). In other words, it is an interactive process of learning between companies and their customers (Ballantyne, 2004). Furthermore, value co-creation can assist firms in considering customers' perspectives and can help companies identify customers' true needs (Lusch and Vargo, 2006).

Collaboration with customers has become popular among SMEs (Ngugi et al., 2010) and has been found to be a useful tool to maximize the overall utility of stakeholders and to increase organizational wealth by supporting innovation and enhancing an organization's position in its industry (Ngugi et al., 2010; Tantalo, 2011). Value co-creation can be easily conducted with the assistance of IT by storing customers' experiences in databases and linking customers and SMEs (Novani and Kijima, 2010; Wilby et al., 2010). SMEs can also use customer profiles and discussions with customers to understand the market or initiate the newest trends in the market.

2.2 Proactivity

As we mentioned below, some scholars have shown that proactivity is essential to SMEs if they want to survive and improve their position in the changing business environment. The word "proactivity" comes from the adjective "proactive," which is an antonym of "reactive". In the 1930s, the use of the term "proactive" was limited to the domain of experimental psychology, and the word was defined as "impairment or retardation of learning or of the remembering of what is learned by effects that remain active from conditions prior to the learning" (Oxford English Dictionary, 1930). In 1946, the Austrian psychiatrist Frankl introduced the word into a wider public domain to describe a person who takes responsibility for his or her life rather than following the typical life patterns of others (Frankl, 1959). According to Frankl's theory of proactivity, individuals can choose to be reactive or proactive in every life circumstance (Page and Page, 2002).

Currently, the term is defined in most dictionaries, such as the Merriam-Webster Online Dictionary (2012), as "acting in anticipation of future problem, needs, or changes". Another dictionary defines proactivity as "controlling a situation by causing something to happen rather than waiting to respond

to it after it happens.” (Miller, 1995). In sum, the attributes of proactivity, as it is currently defined, include “acting in advance” and “taking control to create changes”.

Prior academic literature has outlined some constructs related to proactivity. For example, Bateman and Crant (1993; 2000) define “proactive behavior” as the relatively stable action that takes initiative to improve current situations. Parker, William, and Turner (2006) defined proactive behavior as “self-initiated and future-oriented action that aims to change and improve the situation or oneself”. Griffin et al. (2007) contrast proactivity with adaptivity; they state that proactivity is behavior that focuses on initiating changes, whereas adaptivity involves simply coping with or supporting changes. Unsworth and Parker (2003) explain that proactivity is “a set of self-starting, action-oriented behaviors aimed at modifying the current situation or oneself to achieve greater personal or organizational effectiveness”.

Although most discussions on proactivity focus on the individual rather than the organizational perspective, the features of proactivity summarized in the literature can be used to examine companies because a company is composed of individuals. In other words, a company is highly likely to be proactive if it has enough proactive employees. Therefore, if an SME wants to be proactive, it must have three key characteristics (Parker and Collins, 2010):

- Anticipatory: SMEs must act in advance of a future situation rather than simply responding to the current reality.
- Change-oriented: SMEs must take full control of their environment and cause changes to happen rather than adapting or waiting for the situation to change.
- Self-initiated: SMEs do not need to be asked to create change, nor do they require detailed instructions.

The literature identifies additional features of proactivity, such as persistence (Frese and Fay, 2001). SMEs must maintain their proactivity rather than being content to satisfy short-term interests. Based on the work of Parker and Collins (2010) and other studies, we summarize 3 dimensions of proactivity that should be considered: foresight, desire for change, and ready to change:

- Foresight: A proactive SME can predict change in the environment and identify the best time to act in advance.
- Desire for change: This dimension describes the willingness to take charge of creating change. A proactive SME does not need to be asked to change.
- Ready to change: This dimension focuses on the initiation of change and the power of change. A proactive SME can create change independently and can affect the surrounding business environment through persistence.

		Fore-sight	Desire for change	Ready to change
Oxford Dictionary, 1930	prior to learning	✓	✓	
Frankl, 1959	took responsibility for lives		✓	
Bateman and Crant, 1993	takes initiative in improving			✓
Scott and Bruce, 1994	being proactive on individual innovation	✓	✓	
Miller, 1995	controlling rather than waiting			✓
Camison, 1997	more flexible on adopting innovative practices		✓	
Morrison and Phelps, 1999	taking charge to bring change			✓
Unsworth and Parker, 2003	action-oriented			✓
Parker, et al., 2006	self-initiated and future-oriented action	✓	✓	
Griffin, et al., 2007	focusing on initiating changes			✓
Aragón-Correa et al., 2008	gain new capabilities			✓
Parker and Collins, 2010	anticipatory, change oriented, & self-initiated	✓	✓	✓
Randmaa, 2011	create alteration			✓
Webster Dictionary	acting in anticipation of change	✓		✓

Table 1. The Literatures of Proactivity

3 DEVELOPMENT OF RESEARCH FRAMEWORK

Based on the discussion in the literature review, we posit that proactivity is essential to the growth of an SME and that IT-enabled collaboration among SMEs has the potential to create proactivity. Hence, we integrate information from previous studies to develop our research model, as shown in Figure 2.

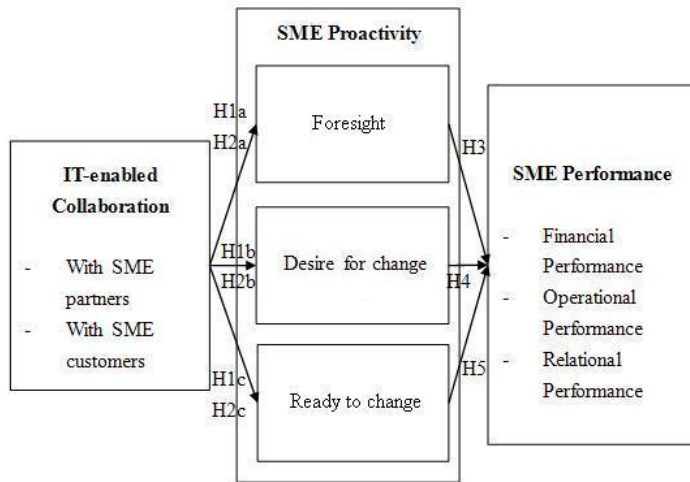


Figure 2. Research Framework

The research model illustrates two varieties of IT-enabled collaboration among SMEs: collaboration with business partners and collaboration with customers. In the last chapter, we defined proactivity as having three dimensions: foresight (focus on time in advance), desire for change (focus on willingness), and ready to change (focus on initiation and readiness). We propose that IT-enabled collaboration contributes to the development of proactivity. Furthermore, the three dimensions of proactivity also relate to SMEs' performance. Three types of SME performance are considered in this study: financial, operational, and relational. In most of the previous literature, scholars have proposed financial performance measures, such as cost and profitability, as dimensions of organizational performance (Sink, 1985; Peel and Bridge, 1998; Omerzel and Antoncic, 2008). In addition to the traditional financial perspective, we argue that operational performance is another essential type of SME performance that consists of time savings, labor savings, and error reduction. Time savings has been considered both a source of competitive advantage and a basic measure of performance (Neely et al., 1995). For labor savings, Sink and Tuttle (1989) proposed productivity and effectiveness as performance criteria. Moreover, the risk reduction strategies that SMEs adopt are important for business operations (Kotey and Meredith, 1997; Shepherd et al., 2000). We suggest relational performance as a third type of SME performance that measures a company's relationships with its cooperative partners (Vickery et al., 2004). Specifically, Stank, Goldsby, and Vickery (1999) found that creating strong relationships with important customers allows firms to achieve a sustainable advantage by tailoring offerings to the needs of their customers. Gwinner et al. (1998) further stressed that well-developed relationships can have beneficial confidential, social, or special treatment aspects. The details of this model will be described in the following sections.

3.1 IT-enabled Collaboration

3.1.1 IT-enabled Collaboration with SMEs' partners

For SMEs, IT-enabled collaboration with partners is a good way of gathering industrial information, scanning the business environment to identify new opportunities, and acquiring external knowledge resources (Laurie, 2001; Sawers et al., 2008). Wigand et al. (1997) noted that IT-enabled collaboration enhances networkability among partners so that companies can discover the most recent business

trends through information sharing (Huisman and Smits, 2007) and take action before their competitors. Thus, we develop hypothesis H1a as follows:

H1a: IT-enabled collaboration with SME partners has a positive effect on the 'foresight' capability of SMEs.

At the same time, IT-enabled collaboration provides a common platform for accessing information and thus increases the opportunities for open discussion among participating firms (Moch et al., 2011). The exchange of ideas, experiences and practices in the open discussion provide a means for SMEs to obtain new ideas and ensure sufficient interactions to achieve innovative changes (Aldea-Partanen, 2006). As a result, we present the following hypothesis:

H1b: IT-enabled collaboration with SME partners has a positive effect on the 'desire for change' capability of an SME.

When companies collaborate with each other, the social linkages between them are characterized as a set of relations based on an exchange of resources as well as a means of enhancing new opportunities (Ulrich and Barney, 1984; Lechner and Dowling, 2003). Complementary resource exchange through collaboration creates a good foundation for change and innovation (Wincent et al., 2010). Moreover, IT makes communication among partners much easier and more efficient. Companies can either create a friendly environment in which change can occur or resolve environmental barriers (Cairncross, 2001) that may impede changes. Therefore, we propose Hypothesis 1c, as follows:

H1c: IT-enabled collaboration with SME partners has a positive effect on the 'ready to change' capability of SMEs.

3.1.2 IT-enabled Collaboration with SMEs' customers

It has become increasingly difficult to meet the needs of diversified customers. Thus, it is important for companies to use strategic solutions, such as IT-enabled collaboration, to resolve this difficulty (Hammer and Champy, 1993; O'Neill and Sohal, 1999). By gathering customer profiles or through collaborative filtering, SMEs are capable of identifying the overwhelming number of existing and potential interests of their customers (Herlocker et al, 2004) so that they can predict business trends and innovate to achieve the best timing. Accordingly, Hypothesis 2a was developed, as follows:

H2a: IT-enabled collaboration with SME customers has a positive effect on the 'foresight' capability of SMEs.

Moreover, to obtain optimal results from IT-enabled collaboration with customers, SMEs must predict their future resources and competences and prepare in advance to interact with customers rather than simply responding to customers' requests. This foresight makes SMEs more willing to change. IT also creates an open communication channel that enables companies to exchange information with SMEs and customers so that new ideas are easily generated (Gibbert et al., 2002). Companies are therefore more willing to change to turn their ideas into realities. Hence, Hypothesis H2b is presented as follows:

H2b: IT-enabled collaboration with customers has a positive effect on the 'desire for change' capability of SMEs.

IT enables SMEs to accumulate and analyze customer data. When SMEs recognize customer shopping patterns, they may have a better idea of how to manage their brand and increase customer trust and loyalty (Feindt et al. 2002). Improved knowledge about customers guides firms in initiating change (Bates, 1991; Kenny and Fahy, 2011). During the process of collaborating with customers, firms can create additional relational resources and increase their competence in responding to customers' needs (Forsström and Törnroos, 2005). SMEs are thus better able to take control of their circumstances and initiate changes. Consequently, we develop Hypothesis 2c as follows:

H2c: IT-enabled collaboration with SME customers has a positive effect on the 'ready to change' capability of SMEs.

3.2 SME Proactivity

3.2.1 Foresight

For an SME to be innovative, the company needs to search for new opportunities by tracking changes or conducting research over time (Arnold and Thuriaux, 1997) to identify opportunities for innovation. With market foresight, SMEs can improve performance through innovation and resource integration (Abro et al., 2011). For example, companies can enter into a new market before competitors and gain the greatest market share (Kim and Mauborgne, 2005); companies can improve the efficiency of the work process and thus decrease operating time in comparison with their competitors; and companies can improve their relationships with customers and suppliers through better knowledge of how to serve them. For these reasons, we develop Hypothesis 3 as follows:

H3: SMEs' 'foresight' capability has a positive effect on their performance.

3.2.2 Desire for change

Because making changes is often costly and risky, SMEs are discouraged from initiating change by their limited resources and small number of external linkages (Bates, 1991; Coetsee and Visagie, 1995; Arnold and Thuriaux, 1997). For this reason, overcoming resistance to change and gaining a willingness to create change is usually an issue for SMEs (Coch and French, 1948; Vries, 2011). When SMEs' desire for change or innovation increases through the development of a sense of urgency and increasing confidence (Vries, 2011), employees in these companies will be more ambitious when they encounter business hazards. When companies have a positive orientation toward their work, their sales revenue and working efficiency can grow. Relationships on SMEs' supplier or customer side can also become stronger when open discussions are held among SMEs' active workers (Brennan, 1997). Hypothesis 4 is therefore proposed as follows:

H4: SMEs' 'desire for change' capability has a positive effect on their performance.

3.2.3 Ready to change

The 'ready to change' is necessary for companies to manage a dynamic business environment. When an SME prepares for a change or innovation, it needs to expand its resource and competence base with its partners. Collaborating with partners usually brings a firm more sales channels, more technological resources, and more brand images so that the company can influence its environment and easily initiate change. By initiating change, the company can create higher sales revenue by expanding channels, creating a more efficient operation with sufficient IT support, and strengthening linkages among customers and partners through loyalty building. Therefore, we suggest that SMEs will improve business performance by increasing their 'ready to change'. Consequently, the last hypothesis of our research model, Hypothesis 5, is as follows:

H5: SMEs' 'ready to change' capability has a positive effect on their performance.

4 RESEARCH METHODOLOGY

4.1 Case Background: uVoyage

The uVoyage platform, built by the Service Science Research Center (SSRC) at National Chengchi University, is an integrated service system developed to help SMEs deliver better service quality. It has two major features: (1) a business partner recommendation mechanism for SME network alliance formation and (2) a travel pattern recommendation mechanism to aid in customer tour planning. Through the uVoyage platform, SMEs are able to announce business operations information, organize their own resources, and analyze cooperative opportunities with potential SME partners. Customers are able to plan trips, share their comments with the public, and interact with SMEs by co-creating

their customized trips. In summary, the uVoyage platform is a typical example of IT-enabled collaboration for both SME partners and their customers.

The platform was first introduced to the Mt. Pillow Leisure Agricultural Area in Yilan County, located in the northeast of Taiwan. In our research, we aim to delineate the effects of IT-enabled collaboration with partners and customers on proactivity. We are also interested in understanding whether SMEs can enhance their performance after they have gained proactivity through cooperation via the uVoyage platform. A questionnaire or interview will be conducted in the field, and we will analyze these data to verify our research framework. We believe that the results of our research can help SMEs build better businesses.

4.2 Measurement

Independent Variables		
Components	Items	Measures of Proactivity
Foresight (adapted from Parker and Collins, 2010)	FO1	The degree of the firm to predict the trend of the environment.
	FO2	The degree of the firm to predict the characteristics of customers.
	FO3	The degree of the firm to predict its competitors' recent behavior.
Desire for change (adapted from Parker and Collins, 2010)	DC1	The degree of the firm to have willingness on adopting innovations.
	DC2	The degree of the firm to have willingness on being different than before.
	DC3	The degree of the firm to have willingness on accepting changes due to innovations.
Ready to change (adapted from Griffin, et al., 2007; Parker and Collins, 2010)	RC1	The degree of the firm to initiate the innovation.
	RC2	The degree of the firm to conceptualize the innovation.
	RC3	The degree of the firm to impact on the surrounding context.
Moderating Variables		
Components	Items	Measures of IT-enabled collaboration
IT-enabled collaboration with partners	CP1	The frequency of the firm to communicate with partners through IT-enabled collaboration.
	CP2	Number of partners who interact with the firm via IT-enabled collaboration.
IT-enabled collaboration with customers	CC1	The frequency of the firm to communicate with customers through IT-enabled collaboration.
	CC2	Number of customers who interact with the firm via the IT-enabled collaboration.
Dependent Variables		
Components	Items	Measures of SME performance
Performance (adapted from Dess and Robinson, 1984; Youndt et.al, 1996; Reinartz et.al, 2004)	PF1	Increase of sales growth rate.
	PF2	Increase of equipment efficiency.
	PF3	Increase of employee productivity.
	PF4,5	Increase of new relationships initiation with partners and customers.
	PF6,7	The maintenance of better and longer relationships with partners and customers.

Table 3. Measurement of constructs

5 EXPECTED CONTRIBUTION AND CONCLUSION

Because of their resource limitations, SMEs consistently have difficulties gaining a competitive advantage. It is important for SMEs to be proactive to survive in dynamic business circumstances. However, making SMEs proactive is a difficult endeavor. In this research, we argue that SMEs can develop proactivity with the help of IT-enabled collaboration. The results of our research are expected to help SMEs improve their performance by realizing the importance of proactivity and the effect of IT-enabled collaboration on proactivity.

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