

## Strategic innovation capability and firm sustainability: Evidence from auto parts businesses in Thailand

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### Keywords

Strategic Innovation Capability (SIC), New Product Establishment (NPE), Business Operational Excellence (BOE), Stakeholder Involvement Exaltation (SIE), Firm Sustainability (FSU).

### Abstract

*Innovation capability has been recognized as one of the key capabilities which influence organizational success and survival. The aim of this study is to investigate the relationship among strategic innovation capability's dimensions, its antecedents and consequences. The results were derived from a survey of 126 auto parts businesses in Thailand. The regression analyses suggested that strategic innovation capability dimensions consist of new idea enhancement, proactive activity support, market-driving encouragement, risk-taking circumstance acceptance, and dynamic adaptation commitment which have an important positive effect on firm sustainability. Likewise, the finding has shed light on the mediating role of stakeholder involvement exaltation. Moreover, the antecedents show positive influences on the strategic innovation capability dimension. Finally, theoretical and managerial contributions, conclusion, and suggestions for future research are also interesting to be discussed.*

### 1. Introduction

In an era of radical change, firms face strong pressures to renew and update their business strategies and core competencies. The source of these pressures has been the arrival of new competitors, the emerging of new technology, and the variety and wariness in customer preferences and demands (Wang, 2011). In trying to respond, firms need to develop and improve their innovative capability. The dynamic capability theory explains the firm's abilities to create, reconfigure, and integrate firm resources and capability in order to generate new value for the firm (Teece, Pisano & Shuen, 1997). Managing these capabilities (especially strategic innovation capability) efficiently, one can effectively provide firms with a source of sustainable competitive advantage and firm sustainability. Hence, the key research question in this study is, "How does strategic innovation capability influence firm sustainability?" with the key objective to explore and highlight the relationships between strategic innovation capability and firm sustainability.

Since the concept of innovation capability has moved from a traditional role to strategic role, the term "Strategic Innovation Capability" is the perfect combination of innovation capability and strategy. It refers to the fundamental re-conceptualization of the business model and the reshaping of existing markets by breaking the old rules and changing the nature of existing competition, to achieve dramatic value improvements for customers and high growth for companies (Schlegelmilch, Diamantopoulos & Kreuz, 2003). Its primary concern is not only a limit to innovative creations, but also extends to the increase in revenues, productivity, customer satisfaction, and better strategic position.

This study is outlined as follows. The first part reviews the relevant literature in the area and streams of the five dimensions of strategic innovation capability, its consequence and antecedents, links between the concepts of the aforementioned variables, and develops the key research hypotheses of those relationships. The second section explicitly details research methods, including data collection, measurements, and statistics. The results of the study derived from 126 auto parts businesses in Thailand are indicated, and their reasonable discussions with existing literature support are shown. The third section gives the results of the analysis and the corresponding discussion. The final section summarizes the findings of the study, points out both theoretical and managerial contributions, and presents suggestions for further research and the limitations of the study

## 2. Literature reviews and hypotheses development

Based on the extensive literature reviewed, there is little empirical research on strategic innovation capability integrating theory to describe the complete phenomena. To clearly understand the relationships among strategic innovation capability, its antecedents and consequences; the dynamic capability and contingency theory elaborated to explain the aforementioned relationships.

In this study, strategic innovation capability is the main variable and the center of this study. As described earlier, this study purposes that strategic innovation capability is positively and directly associated with firm sustainability. In addition, the mediating effects of new product establishment, stakeholder involvement exaltation, and business operation excellence are tested. New product establishment, stakeholder involvement exaltation, and business operation excellence are supposed to have a positive relationship with firm sustainability. Moreover, the five antecedents of strategic innovation capability (modern transformational leadership, organizational creativity orientation, business learning competency, firm resource availability and complementary technology growth), are investigated, and expected to yield positive relationships. Figure 1 illustrates the relationships among strategic innovation capability, antecedents and consequences.

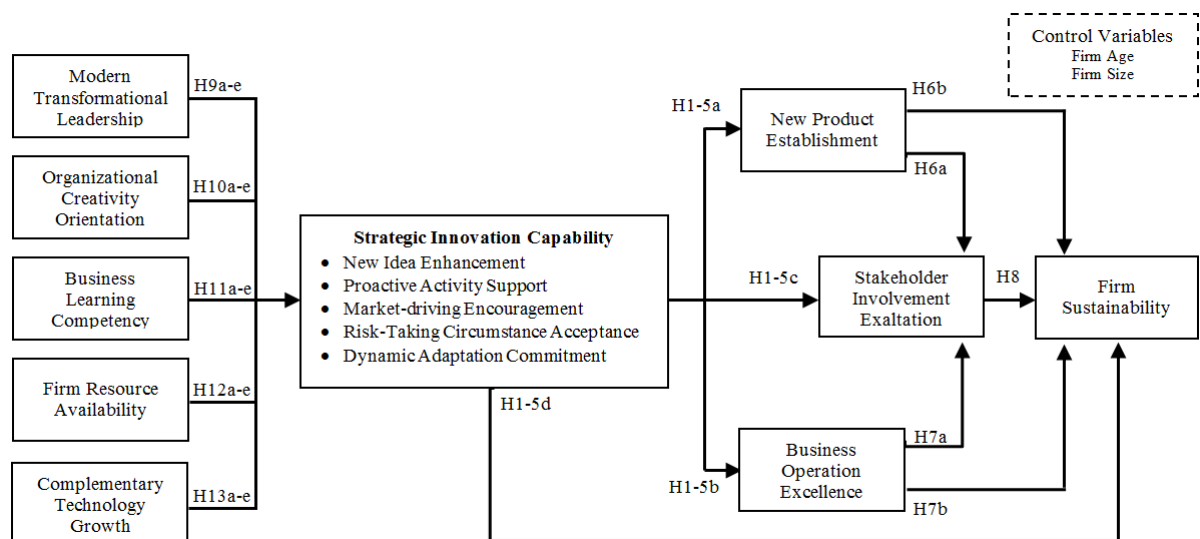


Figure 1: A Research Model of Strategic Innovation Capability

### 2.1. Strategic innovation capability

The field of innovation is very broad, and it has been defined in several ways (Chen, 2011). In the Schumpeterian tradition, innovation can be defined as something new

(Schumpeter, 1934). It also refers to an adoption of an internally-generated or purchased device, system, policy, program, process, product, or service that is new to the adopting organization (Damanpour & Evan, 1984; Damanpour, 1991). In addition, there has been much research and literature that illustrates the positive consequences of innovation. For instance, some syntheses of previous studies have noted that firm innovations are positively linked to market orientation, organizational learning, and performance (Calantone, Cavusgil & Zhao, 2002).

Beside, strategic innovation capability is defined as the combination of innovation capability and strategy. Strategy is the creation of a unique and valuable position, involving a different set of activities (Porter, 1990). It is viewed as a firm's conscious move to leverage its idiosyncratic endowment of firm-specific resources, and can bring a firm superior performance (Hamel & Prahalad, 1994; Lado et al., 2006). Strategic innovation capability is a philosophy of continuous improvement. It is the dynamic creation of creative strategic positioning from new products, services, and business models; and emphasizes that this framework was a dynamic view of strategy by which a company establishes sustained competitive excellence (Markides, 1997). More recently, strategic innovation capability refers to the degree to which the firm has the capability to redefine its business, to identify the implications of a business redefinition, to identify new business strategies, to identify core competencies, to enable the implementation of new strategies, to create new market segments, and to identify and use basic skills necessary to create a new business model (Preda, 2012; 2013). It involves achieving strategy transformation to establish competitive superiority over competitors (Kodama & Shibata, 2014).

According to the discussion above and the fundamentals of the dynamic capability theory, this study classifies strategic innovation capability into five distinctive dimensions comprising new idea enhancement, proactive activity support, market-driving encouragement, risk-taking circumstance acceptance, and dynamic adaptation commitment.

### 2.1.1. New idea enhancement

Many researchers have mentioned that new idea establishment is the important source for innovation creation (Newell, Swan & Robertson, 1998), companies' revenue growth (McAdam & McClelland, 2002), and business effectiveness (Foo, Wong & Ong, 2005). According to Teece (2009), new idea generation is the ideation dimension of strategic innovation capability. It is the capacity to sense and shape opportunities and threats. A new idea can emerge in different ways and many are created by employees within existing firms (Nikolowa, 2014). However, in this study, the concept of new idea enhancement is not only limited to the generation of the new idea. It is defined as the firm's openness to the generation, creation, selection, implementation, and support of novel business initiatives, views, concepts and creations (Grimaldi & Grandi, 2005). Thus, the hypothesis is offered as follows:

*H1: New idea enhancement is positively related to, a) new product establishment, b) business operation excellence, c) stakeholder involvement exaltation, and d) firm sustainability.*

### 2.1.2. Proactive activity support

Responsiveness refers to the discovering, understanding and satisfying of expressed customer needs; whereas proactiveness is discovering, understanding and satisfying latent customer needs. Being proactive is not only reacting to change when it happens, but in taking action by causing change toward a state (Dencker et al., 2009). Thus, proactive activity support refers to the firm's commitment in promoting corporate mindsets that emphasize opportunity-seeking, has perspective foresight, and first-moving initiative to aggressively enhance competitive positioning, and the capability of the firm (Bhatnagar & Viswanathan, 2000; Dencker et al., 2009). As, previous literature has shown that proactive activity increases

customer loyalty, market share (Deepen et al., 2008), stakeholder relationships (Li & Barnes, 2008), competitive positioning (Bhatnagar & Viswanathan, 2000), and business performance (Bodlaj, 2010), therefore the hypothesis is assigned as follows:

*H2: Proactive activity support is positively related to, a) new product establishment, b) business operation excellence, c) stakeholder involvement exaltation, and d) firm sustainability.*

### **2.1.3. Market-driving encouragement**

Prior literature illustrated that market-driving has been proposed as a key to firm success in creating new market opportunities (Hills & Sarin 2003). Market-driving organizations aim to achieve greater performance, reshaping the structure of the market and exploiting the competitors' weaknesses in order to become the market leader. By the assumption that customers do not know their own preferences, marketers can act to develop and form them (Gebhardt, Carpenter & Sherry, 2006). Market-driving encouragement is a market leader's perspective in supporting business activities that can create, shape, and accelerates potential markets to exploit opportunities which competitors cannot (Kumar, Scheer & Kotler, 2000). Therefore, the hypothesis is given as follows:

*H3: Market-driving encouragement is positively related to, a) new product establishment, b) business operation excellence, c) stakeholder involvement exaltation, and d) firm sustainability.*

### **2.1.4. Risk-taking circumstance acceptance**

The relationship between risk-taking and innovation performance is particularly fruitful. Taking risks in organizations is important in explaining innovation performance (Garcia-Granero et al., 2014). Several streams of research propose that risk-taking propensity can make a difference in defining the ability of firms to innovate. Therefore, firms with more propensities and capability to take more tolerance and acceptance toward risks are more likely to perform better.

Risk-taking circumstance acceptance in this study is defined as the firm capability and attitude toward engaging in uncertain situations, and admitting to the results and consequences without regret (Gibb, 2010). It is involved in opportunity-seeking, decision-making (Busenitz, 1999), and the overall propensity to continually enter into risk-taking situations (Gibb, 2010). Thus, the hypothesis is elaborated as follows:

*H4: Risk-taking circumstance acceptance is positively related to, a) new product establishment, b) business operation excellence, c) stakeholder involvement exaltation, and d) firm sustainability.*

### **2.1.5. Dynamic adaptation commitment**

The concept of dynamic adaptation encompasses the routines of resource exploitation and deployment, which are supported by acquisition, internalization and dissemination of extant knowledge; as well as resource reconfiguration, divestment and integration (Dixon, Meyer, & Day, 2014). This specific capability enables firms to adjust and respond successfully to environmental change (Lee, 2001). Therefore, dynamic adaptation commitment refers to organizational orientation in the continuous process of adjustment to environmental change and uncertainty, and of maintaining an effective alignment with the environment (Firth, 2010).

Previous literature shows that there is a theoretical link among dynamic adaptation, innovation, business competitiveness (Tuominen, Rajala & Moller, 2004), and firm performance (Jundt, 2008).

*H5: Dynamic adaptation commitment is positively related to a) new product establishment, b) business operation excellence, c) stakeholder involvement exaltation, and d) firm sustainability.*

## 2.2. The relationships among the consequences of strategic innovation capability

This section examines the relationships among the consequences of strategic innovation capability consisting of new product establishment, business operational excellence, stakeholder involvement exaltation and firm sustainability. The critical literature review on the definition of each construct and purposed hypothesis are discussed below.

### 2.2.1. New product establishment

New product development (NPD) refers to the process of thinking of, and creating a new product/service and outcomes for achieving a corporate goal (Nakata & Sivakumar, 1996). Continuously, introducing new products into the market has become a key factor for a company to succeed in the market (Tsai & Chuang, 2006). However, many new products failed, and instead, generated significant financial and strategic losses to the firms. Therefore, the concept of new product establishment in this study refers to the firm's ability to successfully develop and launch its new product/service to the market with significant financial outcomes and strategic advantage for those firms (Nakata & Sivakumar, 1996; Ledwith & O'Dwyer, 2009). As a consequence, the hypothesis is set out as follows:

*H6: New product establishment is positively related to, a) stakeholder involvement exaltation and b) firm sustainability.*

### 2.2.2. Business operation excellence

The term "operational excellence" is referred to the ability of an organization to attain its absolute level of operational goals and objectives of activities (Kumar & Gulati, 2010). Excellence in organizational operations has resulted in cost reduction (Rabinovich, Dresner & Evers, 2003), organizational objectives, goal achievement (Gordon, Loeb & Tseng, 2009), and business survival (Kumar & Gulati, 2010). Moreover, business operational excellence, in this study, is defined as the supreme ability of the firm in operating its production process to achieve its operational goals and competitive advantage (Kumar & Gulati, 2010). Therefore, the hypothesis is given as below:

*H7: Business operation excellence is positively related to, a) stakeholder involvement exaltation and b) firm sustainability.*

### 2.2.3. Stakeholder involvement exaltation

The stakeholder is any group or individual that can affect or be affected by the activity of an organization engaging in accomplishing its mission and goals (Freeman, 1984). The prior literature suggested that stakeholder positively influences the firm image and reputation, business decision quality, efficiency (Clercq, Dimov & Thongpanl, 2010), organizational success (Todt, 2011), and corporate sustainability (Jonge, 2006). While stakeholder involvement refers to business vision that emphasizes and focuses on the enhancement of its stakeholder participation, collaboration and relationship (Prunell, 2012), therefore stakeholder involvement exaltation is defined as the escalation in corporate collaborations, participation and relationships with any group or individual that can affect or be affected by the activity for which an organization is engaging to accomplish its missions and goals (Freeman, 1984; Myllykangas, Kujala & Lehtimaki, 2010). Hence, the hypothesis is assigned as below:

*H8: Stakeholder involvement exaltation is positively related to firm sustainability.*

### 2.2.4. Firm sustainability



Firm sustainability refers to the firm's ability to meet and satisfy the direct and indirect stakeholder demands, without compromising its ability to meet the need of future stakeholders (Dyllick & Hockerts, 2002). It involves sustaining and expanding economic growth, shareholder value, prestige, reputation, customer relationships, and the quality of products and services (Szekely & Knirsch, 2005). Therefore, with respect to the literature reviews, this study defines firm sustainability as the continuous increase and maintainability of business income, profitability, product and service quality, market share, business growth, and reputation over competitors (Dyllick & Hockerts, 2002; Szekely & Knirsch, 2005).

### 2.3. The relationships among strategic innovation capability and its antecedents

This section describes the relationships among strategic innovation capability and its antecedents, including modern transformational leadership, organizational creativity orientation, business learning competency, firm resource availability and complementary technology growth. The extensive literature review on the definition of each construct and purposed hypothesis are discussed below.

#### 2.3.1. Modern transformational leadership

Leadership style is one of the most important individual influences on corporate innovation. Transformational leadership constitutes a set of behaviors that motivate followers to achieve performance beyond expectations by changing followers' attitudes, beliefs, and values (Bass, 1985; Yukl, 1999). It can enhance positive business proactive activities (Testa & Sipe 2012), and corporate sustainability (Shin & Zhou, 2003). Likewise, a modern leadership role is also directed to followers and their interests in many cases (Daft, 2008). Thus, in this study, modern transformational leadership refers to a proactive managerial ability in motivating organizational employees to achieve performance beyond expectation by compromising with and utilizing the interests of owners and followers (Bass, 1985; Daft, 2008). Therefore, the hypothesis is proposed as below:

*H9: Modern transformational leadership is positively related to, a) new idea enhancement, b) proactive activity support, c) market-driving encouragement, d) risk-taking circumstance acceptance and e) dynamic adaptation commitment.*

#### 2.3.2. Organizational creativity orientation

In this study, organizational creativity orientation refers to the organizational vision that emphasizes the generation of new products, services, ideas, processes and procedures to gain continuous improvement and competitive advantage (Liu, Bai & Zhang, 2011). It could enhance the firm's ability to create or develop new methods of knowledge management and service innovation superior to their competitors (Isaksen & Ekvall, 2010). Hence, the hypotheses are proposed as below:

*H10: Organizational creativity orientation is positively related to, a) new idea enhancement, b) proactive activity support, c) market-driving encouragement, d) risk-taking circumstance acceptance and e) dynamic adaptation commitment.*

#### 2.3.3. Business learning competency

Originally, learning is defined as the process of improving actions through better knowledge and understanding (Fiol & Lyles, 1985). It is a dynamic process facilitating performance and innovation. It is focusing on the development of knowledge and a knowledge base of the organization to support the development of organizational efficiency (Madsen & Desai, 2010). In addition, competence is an ability to sustain and to coordinate the deployment of resources in ways that promise to help the organization achieve its goal (Sanchez, 1995).

Hence, business learning competency refers to firm proficiency in acquiring, assimilating, transforming and exploiting existing knowledge to generate new knowledge in a dynamic business environment (Camison & Fores, 2011).

Previous researchers found that organizational learning plays a significant role in improving firm performance (Camison & Fores, 2011) and firm innovations are likely to happen when the firm has the ability of learning through new knowledge which is developed, transferred, and utilized (Alegre & Chiva, 2008). Therefore, the hypotheses are proposed below:

*H11: Business learning competency is positively related to, a) new idea enhancement, b) proactive activity support, c) market-driving encouragement, d) risk-taking circumstance acceptance and e) dynamic adaptation commitment.*

#### **2.3.4. Firm Resource Availability**

In this study, firm resource availability refers to the fruitfulness of firm-specific assets, including both tangible and intangible, for accommodating the core business processes to be achieved (Pansuppawatt & Ussawanitchakit, 2011). The absence of given resources could limit the growth of that firm while the presence of given resources could promote growth in such firms (Bruton & Rubanik, 2002). The sufficient levels of time, workforce, and other required specific resources are needed for businesses. Therefore, resource availability can be viewed as a green or red light indicator that represents the tendency of a firm's success toward desirable production (Contino, 2005). Therefore, the hypotheses are proposed as follows:

*H12: Firm resource availability is positively related to a) new idea enhancement, b) proactive activity support, c) market-driving encouragement, d) risk-taking circumstance acceptance and e) dynamic adaptation commitment.*

#### **2.3.5. Complementary technology growth**

Technology is one of the key forces in achieving business goals. The generation of technology growth can, overall, enhance the efficiency of production functions (Schoute, 2011), and offer new benefits and values to customers (Prasnikar, et al., 2008). Since complementary resources is defined as unique resources that jointly result in superior financial outcomes more than the sum of those acquired from individual endowments (Gulati, Nohria & Zaheer, 2000), then complementary technology growth is defined as the progress and forward change of technology that jointly create superior results and outcomes (Mirbagheri & Hejazinia, 2010). Hence, the hypotheses are proposed as follows:

*H13: Complementary technology growth is positively related to a) new idea enhancement, b) proactive activity support, c) market-driving encouragement, d) risk-taking circumstance acceptance and e) dynamic adaptation commitment.*

### **3. Research methods**

#### **3.1. Sample selection and data collection procedure**

The Thai auto parts industry is selected as the population of this study. In order to illustrate the research phenomenon, a list of 582 Thai auto parts firms in Thailand were provided by the Thai Auto Parts Manufacturers Association ([www.thaiautoparts.or.th/](http://www.thaiautoparts.or.th/), accessed January 15, 2015). This chosen industry represents a highly competitive and innovative business environment. Especially, the Thai auto parts businesses have played a significant role in helping to increase and expand the Thai economy in terms of economic growth and stability (Sriboonlue & Ussahawanitchakit, 2014). The supports from government in the first-car policy raise both customer demand and competitive intensity in the auto parts industry. Meanwhile, in the Thai coup d'état of 2014, the Thai auto parts industry faced an economic downturn which

directly affected the market and customer demand. Moreover, with regard to globalization, the auto parts businesses in Thailand face the challenge of competition among numerous competitors, both local and international.

A mail survey procedure via the constructive questionnaire was employed for data collection. The participants in this study were managing directors and managing partners. With regard to the questionnaire mailing, only 18 surveys were undeliverable because some were no longer in business or had moved to an unknown location. Deducting the undeliverable from the original 582 mailed, the valid mailing was 564 surveys. The follow-up electronic mails of non-responses were conducted after three weeks. Finally, 159 responses were collected. However, only 126 complete questionnaires were usable. The effective response rate was approximately 22.34%. Moreover, the comparison between early and late respondents implied that a non-response bias was not a problem in this study.

### 3.2. Variables

#### 3.2.1. Dependent variable

Firm sustainability is measured by a five-item scale. It illustrates business outcomes in the form of income, profitability, product and service quality, market share, business growth, and reputation over competitors in the long-run.

#### 3.2.2. Independent variables

Strategic innovation capability is the main variable in this study which is classified into five distinctive dimensions: new idea enhancement, proactive activity support, market-driving encouragement, risk-taking circumstance acceptance, dynamic adaptation commitment.

New idea enhancement is measured by a four-item scale based on its definition that covers the process of generation, creation, selection, implementation and promotion of novel business ideas through new business ideas of products and services, new ideas of administration, new ideas of technology, and the new idea of the potential market.

Proactive activity support is the intention of a firm's behaviors that promote opportunity-seeking, foresight perspective, and forecasted future customer expectation to achieve the first-moving initiative. This variable was measured by a five-item scale.

Market-driving encouragement is defined as "realized behaviors of a firm that are focused on changing the structure, behavior and/or beliefs of four market entities—customers, competitors, channels and regulators—in order to gain advantage" (Hills, Sarin&Kohil, 2006: p.10). Five items were used to measure this variable.

Risk-taking circumstance acceptance is referred to as the reflection and thought about corporate risk-taking styles, beliefs and capability, to evaluate the firm's risk-taking circumstance acceptance construct. Therefore, this variable is assessed using four items revised from Gene Calvert's Risk Attitudes Inventory (Calvert, 1993).

Dynamic adaptation commitment is assessed by an organization's perception toward norms and obligations in the continuous reclamation to change and uncertainty. There are four items employed to estimate this dimension.

#### 3.2.3. Mediating variables

New product establishment is the firm ability to successfully develop and launch its new product/service to the market with significant financial outcomes and strategic advantage for the firms (Ledwith & O'Dwyer, 2009). This mediator was measured by a four-item scale.

Business operation excellence is the business perception toward their ability in organizing and managing business operations compared to competitors. It consists of five items used to measure this variable.



Stakeholder involvement exaltation is the escalation in corporate collaborations, participation and relationships with any group or individual that can affect or be affected by the activity for which an organization is engaged to accomplish its missions and goals. A four-item scale was used to assess this variable.

### 3.2.4. Antecedent variable

Modern transformational leadership is the managerial perception and awareness in creating job motivation, and stimulating their employees' involvement and creativity (Rui, Emerson & Luis, 2010). This antecedent was measured by a four-item scale.

Organization creativity orientation is the intentional creation, introduction and application of new ideas within a work role, group or organization, in order to benefit the organization. This variable is assessed using four items revised from Janssen's (2000) idea generation scale. Business learning competency refers to business proficiency in acquiring, assimilating, transforming, and exploiting existing knowledge to generate new knowledge in a dynamic business environment (Eisenhardt & Martin, 2000). It consists of four items used to measure this variable. Firm resource availability is the levels of sufficient and available resources supporting strategy implementation, and the effective and efficient application of resources for the performer. The measurement scale of this variable includes four items.

Complementary technology growth is referred to the managerial perception toward the change of technology within an industry that facilitates business operations and processes. A four-item scale was used to assess this variable.

### 3.2.5. Control variables

Two control variables; firm age and firm size, that may influence the hypothesized relationships, are included. Previous research suggested that larger and older firms may face organizational inertia, while smaller and younger firms are more likely to encounter resource constraints (Patel, Terjesen & Li, 2012).

### 3.3. Reliability and validity

To assess the measurement reliability and validity, factor analysis was firstly utilized during the pre-test. The confirmatory factor analyses were conducted separately on each set of the items representing a particular scale due to limited observations. All factor loadings are greater than the 0.40 cut-off (Nunnally & Bernstein, 1994) and are statistically significant. In the scale reliability, Cronbach's alpha coefficients are greater than 0.70 (Nunnally & Bernstein, 1994). Thus, the scales of all measures appear to produce internally consistent results. Table 1 below presents the results for both factor loadings and Cronbach's alpha for multiple-item scales used in this study.

Items	Factor Loading	Cronbach's Alpha
New Idea Enhancement (NIE)	.790 - .934	.905
Proactive Activity Support (POS)	.679 - .897	.874
Market-Driving Encouragement (MDE)	.867 - .895	.917
Risk-Taking Circumstance Acceptance (RCA)	.839 - .871	.864
Dynamic Adaptation Commitment (DAC)	.803 - .913	.777
New Product Establishment (NPE)	.838 - .934	.913
Business Operation Excellence (BOE)	.742 - .898	.883
Stakeholder Involvement Exaltation (SIE)	.714 - .885	.833
Firm Sustainability (FSU)	.746 - .905	.889
Modern Transformational Leadership (MTL)	.799 - .867	.895
Organizational Creation Orientation (OCO)	.689 - .871	.813
Business Learning Competency (BLC)	.810 - .891	.859
Firm Resource Availability (FRA)	.738 - .814	.797
Complementary Technology Growth (CTG)	.709 - .852	.804

<sup>a</sup> n = 30

Table 1: Result of Measure Validation in Pre-Test<sup>a</sup>

### 3.4. Statistical Techniques

Hierarchical regression analysis is used to test and examine the relationships among the dimensions of strategic innovation capability, its antecedents and consequences. With the need to understand the relationships in this study, eleven statistical equations of the aforementioned relationships are depicted as shown below.

$$\text{Equation 1: } NPE = \alpha_{01} + \beta_{01}NIE + \beta_{02}PAS + \beta_{03}MDE + \beta_{04}RCA + \beta_{05}DAC + \beta_{06}FA + \beta_{07}FS + \epsilon_{01}$$

$$\text{Equation 2: } BOE = \alpha_{02} + \beta_{08}NIE + \beta_{09}PAS + \beta_{10}MDE + \beta_{11}RCA + \beta_{12}DAC + \beta_{13}FA + \beta_{14}FS + \epsilon_{02}$$

$$\text{Equation 3: } SIE = \alpha_{03} + \beta_{15}NIE + \beta_{16}PAS + \beta_{17}MDE + \beta_{18}RCA + \beta_{19}DAC + \beta_{20}FA + \beta_{21}FS + \epsilon_{03}$$

$$\text{Equation 4: } FSU = \alpha_{04} + \beta_{22}NIE + \beta_{23}PAS + \beta_{24}MDE + \beta_{25}RCA + \beta_{26}DAC + \beta_{27}FA + \beta_{28}FS + \epsilon_{04}$$

$$\text{Equation 5: } SIE = \alpha_{05} + \beta_{29}NPE + \beta_{30}BOE + \beta_{31}FA + \beta_{32}FS + \epsilon_{05}$$

$$\text{Equation 6: } FSU = \alpha_{06} + \beta_{33}NPE + \beta_{34}BOE + \beta_{35}SIE + \beta_{36}FA + \beta_{37}FS + \epsilon_{06}$$

$$\text{Equation 7: } NIE = \alpha_{07} + \beta_{38}MTL + \beta_{39}OCO + \beta_{40}BLC + \beta_{41}FRA + \beta_{42}CTG + \beta_{43}FA + \beta_{44}FS + \epsilon_{07}$$

$$\text{Equation 8: } PAS = \alpha_{08} + \beta_{45}MTL + \beta_{46}OCO + \beta_{47}BLC + \beta_{48}FRA + \beta_{49}CTG + \beta_{50}FA + \beta_{51}FS + \epsilon_{08}$$

$$\text{Equation 9: } MDE = \alpha_{09} + \beta_{52}MTL + \beta_{53}OCO + \beta_{54}BLC + \beta_{55}FRA + \beta_{56}CTG + \beta_{57}FA + \beta_{58}FS + \epsilon_{09}$$

$$\text{Equation 10: } RCA = \alpha_{10} + \beta_{59}MTL + \beta_{60}OCO + \beta_{61}BLC + \beta_{62}FRA + \beta_{63}CTG + \beta_{64}FA + \beta_{65}FS + \epsilon_{10}$$

$$\text{Equation 11: } DAC = \alpha_{11} + \beta_{66}MTL + \beta_{67}OCO + \beta_{68}BLC + \beta_{69}FRA + \beta_{70}CTG + \beta_{71}FA + \beta_{72}FS + \epsilon_{11}$$

## 4. Results and discussion

### 4.1. The relationships among strategic innovation capability and its consequences

Table 2 represents the descriptive statistics and correlation matrix of all variables. With respect to the potential problem relating to multicollinearity, none of the correlation coefficients exceed 0.80. Moreover, the variance inflation factors (VIF) in equation 1-11 (table 3 and table 4) ranged from 1.271 to 2.012, which were below the cut-off value of 10 (Hair, et al., 2006). Hence, it can be concluded that multicollinearity is not a serious problem in this study.

Table 3 represents the results of hierarchical regression analysis of the relationships among strategic innovation capability dimensions and its consequences. Models 1 to 6 illustrate that strategic innovation capability dimensions, namely, new idea enhancement, has significant positive effects on new product establishment ( $\beta_{01}=0.239$ ,  $p<0.05$ ), business operation excellence ( $\beta_{08}=0.297$ ,  $p<0.01$ ), stakeholder involvement exaltation ( $\beta_{15}=0.237$ ,  $p<0.01$ ), and firm sustainability ( $\beta_{22}=0.368$ ,  $p<0.01$ ). The finding is consistent with the idea that new idea enhancement is an important source for innovation creation (Newell, Swan & Robertson, 1998). Generating new ideas is a significant factor for increasing companies' revenue growth (McAdam & McClelland, 2002) business effectiveness and organizational sustainment (Foo, Wong & Ong, 2005). **Therefore, hypothesis 1 is fully supported.**

	NIE	PAS	MDE	RCA	DAC	NPE	BOE	SIE	FSU	MTL	OCO	BLC	FRA	CTG
Mean	4.132	3.988	4.081	3.873	4.161	4.119	3.974	4.116	4.128	4.171	4.018	4.178	4.103	4.163
S.D.	.534	.527	.528	.701	.574	.591	.679	.522	.583	.517	.582	.547	.561	.544
PAS	.592***													
MDE	.413**	.778***												
RCA	.408***	.684***	.587***											
DAC	.559***	.421***	.392***	.378***										
NPE	.525***	.469***	.592***	.422***	.337***									
BOE	.378***	.408***	.279***	.335***	.496***	.414***								
SIE	.472***	.391***	.579***	.621***	.583***	.552***	.520***							
FSU	.643***	.541***	.543***	.429***	.611***	.576***	.201**	.635***						
MLT	.672***	.739***	.683***	.421***	.696***	.432***	.437***	.458***	.480***					
OCO	.741***	.594***	.579***	.411***	.474***	.563***	.499***	.429***	.411***	.644***				
BLC	.453***	.431***	.489***	.463***	.639***	.496***	.597***	.392***	.439***	.564***	.486***			
FRA	.447***	.595***	.639***	.758***	.583***	.318***	.682***	.451***	.502***	.478***	.572***	.732***		
CTG	.482***	.514***	.543***	.535***	.457***	.233**	.519***	.342***	.390***	.559***	.395***	.641***	.303***	
FA	-.079	.091	.118	.087	.075	.503	.124	.128	.085	.090	.082	.112	.088	.099
FS	-.045	.067	.121	.093	.034	.108	.102	.185**	.094	.084	.101	.089	.054	.078

\*\*\* $p<0.01$ , \*\* $p<0.05$

Table 2: Descriptive Statistics and Correlation Matrix

In hypothesis 2a-e, the analysis revealed that business proactive activity support has significant positive relationships with new product establishment ( $\beta_{02}=0.198$ ,  $p<0.05$ ), business operation excellence ( $\beta_{09}=0.228$ ,  $p<0.05$ ), stakeholder involvement exaltation ( $\beta_{16}=0.246$ ,  $p<0.01$ ), and firm sustainability ( $\beta_{23}=0.288$ ,  $p<0.01$ ). Proactive business activities could increase customer loyalty, market share (Deepen et al., 2008), stakeholder relationships (Li & Barnes, 2008), innovation capability, and business performance (Bodlaj, 2010). **Hence, hypothesis 2 is fully supported.**

In line with hypotheses 3, the results show that a firm's market-driving encouragement has significant positive effects with new product establishment ( $\beta_{03}=0.306$ ,  $p<0.01$ ) stakeholder involvement exaltation ( $\beta_{17}=0.275$ ,  $p<0.01$ ), and firm sustainability ( $\beta_{24}=0.393$ ,  $p<0.01$ ); hypotheses 3a, 3c and 3d. These flavors the market-driving literature related to a wide variety of innovative possibilities (Sebastiao, 2007). **Thus, hypothesis 3 is partially supported.**

Independent Variables	Dependent Variables					
	NPE	BOE	SIE	FS	SIE	FS
	H1-5a	H1-5b	H1-5c	H1-5d	H6-7a	H6-7b, 8
	Equation 1	Equation 2	Equation 3	Equation 4	Equation 5	Equation 6
New Idea Enhancement (NIE)	.239** (.085)	.297*** (.094)	.237*** (.076)	.368*** (.095)		
Proactive Activity Support (PAS)	.198** (.076)	.228** (.082)	.246*** (.082)	.288*** (.088)		
Market-Driving Encouragement (MDE)	.306*** (.079)	.109 (.097)	.275*** (.078)	.393*** (.098)		
Risk-Taking Circumstance Acceptance (RCA)	.100 (.082)	.107 (.086)	.081 (.069)	.192** (.071)		
Dynamic Adaptation Commitment (DAC)	.233** (.080)	.314*** (.080)	.224** (.077)	.266*** (.082)		
New Product Establishment (NPE)					.375*** (.091)	.311*** (.086)
Business Operation Excellence (BOE)					.360*** (.093)	.107 (.095)
Stakeholder Involvement Exaltation (SIE)						.425*** (.094)
Firm age (FA)	.112 (.127)	.131 (.148)	.109 (.121)	.066 (.137)	.124 (.109)	.118 (.125)
Firm size (FS)	.097 (.102)	.076 (.128)	.094 (.104)	.098 (.118)	.126 (.099)	.090 (.095)
Adjusted R <sup>2</sup>	.489	.491	.512	.412	.351	.427
Maximum VIF	1.954	1.954	1.954	1.954	1.271	1.390

Beta coefficients with standard errors in parenthesis, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

Table 3: Result of Regression Analysis of Strategic Innovation Capability and Its Consequences

Next, the finding exhibited that business risk-taking circumstance acceptance has a significant positive relationships with firm sustainability ( $\beta_{24}=0.192$ ,  $p<0.05$ ); hypothesis 4d. This coincides with the business perspective that there are positive relationships among managers' risk-taking, innovation (Garcia-Granero et al., 2014), competitiveness (Gibb, 2010), and heightened performance (Madsen, 2007). **Therefore, hypothesis 4 is partially supported.**

Dynamic adaptation capability, the last dimension of strategic innovation capability, also illustrated significant positive relationships with new product establishment ( $\beta_{05}=0.233$ ,  $p<0.05$ ), business operation excellence ( $\beta_{12}=0.314$ ,  $p<0.01$ ), stakeholder involvement exaltation ( $\beta_{18}=0.224$ ,  $p<0.05$ ), and firm sustainability ( $\beta_{25}=0.266$ ,  $p<0.01$ ). This is consistent with the view that dynamic adaptation capability associates with stakeholder relationship quality (Woo & Ennew, 2004), innovation performance (Grant, 2005), and business long-term relationships (Holm & Eriksson, 2000). **For this reason, hypothesis 5 is fully supported.**

In hypothesis 6, the regression analysis illustrated that new product establishment has significant positive relationships with stakeholder involvement exaltation ( $\beta_{29}=0.375$ ,  $p<0.01$ ), and firm sustainability ( $\beta_{33}=0.311$ ,  $p<0.01$ ). It confirms the idea that new product establishment is related to business competency, strategic choice (Howell, Shea & Higgings, 2005), marketing

position advantage and business performance (Ledwith & O'Dwyer, 2009). **Therefore, hypothesis 6 is fully supported.**

The regression result of business operation excellence in hypothesis 7 revealed that while there is a significant positive relationship with stakeholder involvement exaltation ( $\beta_{30}=0.375$   $p<0.01$ ), there was no significant positive impact on firm sustainability ( $\beta_{34}=0.107$   $p>0.10$ ). This ensures the perception that business operation excellence is an adherent to stakeholder satisfaction (Bandyopadhyay, 2011). However, the insignificant result of the relationship between business operation excellence and firm sustainability highlight the important role of stakeholder involvement exaltation as a mediator. **In sum, hypothesis 7 is partially supported.**

Finally, stakeholder involvement exaltation illustrates a significant positive relationship with firm sustainability ( $\beta_{35}=0.425$   $p<0.01$ ). The result assures that stakeholder involvement positively influences organizational success (Todt, 2011), and corporate sustainability (Jonge, 2006). **Therefore, hypothesis 8 is fully supported.**

#### 4.2. The relationships among strategic innovation capability and its antecedents

Firstly, the regression analysis in table 4 illustrates the relationships among strategic innovation capability's dimensions and its antecedents. Models 7 to 11 illustrate that strategic innovation capability's antecedent, namely, modern transformation leadership, has significant positive effects with new idea enhancement ( $\beta_{38}=0.341$ ,  $p<0.01$ ), proactive activity support ( $\beta_{45}=0.421$ ,  $p<0.01$ ), market-driving encouragement ( $\beta_{52}=0.316$ ,  $p<0.01$ ), and dynamic adaptability commitment ( $\beta_{66}=0.376$ ,  $p<0.01$ ), hypotheses 9a, 9b 9c, and 9e. The finding is consistent with the view that modern transformational leadership is associated with organizational proactiveness activities and organizational innovation (Testa & Sipe 2012). **Therefore, hypothesis 9 is partially supported.**

Secondly, the regression analysis of organizational creativity orientation revealed significant positive relationships with all of strategic innovation capability's dimensions: new idea enhancement ( $\beta_{39}=0.371$ ,  $p<0.01$ ), proactive activity support ( $\beta_{46}=0.328$ ,  $p<0.01$ ), market-driving encouragement ( $\beta_{53}=0.284$ ,  $p<0.01$ ), and dynamic adaptability commitment ( $\beta_{67}=0.231$ ,  $p<0.05$ ); hypotheses 10a, 10b 10c, and 10e. This is aligned with the concept that organizational creativity orientation is collaborated with superior innovation performance (Rasulzada & Dackert, 2009). **Hence, hypothesis 10 is partially supported.**

Independent Variables	Dependent Variables				
	NIE	PAS	MDE	RCA	DAC
	H9-13a	H9-13b	H9-13c	H9-13d	H9-13e
	Equation 7	Equation 8	Equation 9	Equation 10	Equation 11
Modern Transformational Leadership (MTL)	.341*** (.087)	.421*** (.091)	.316*** (.089)	.078 (.077)	.376*** (.095)
Organizational Creativity Orientation (OCO)	.371*** (.099)	.328*** (.086)	.284*** (.083)	.083 (.074)	.231** (.078)
Business Learning Competency (BLC)	.273*** (.080)	.210** (.078)	.228** (.077)	.097 (.080)	.321*** (.091)
Firm Resource Availability (FRA)	.218** (.076)	.277*** (.088)	.273*** (.088)	.371*** (.089)	.278*** (.089)
Complementary Technology Growth (CTG)	.241** (.082)	.245** (.082)	.210** (.078)	.342*** (.086)	.205** (.075)
Firm age (FA)	.108 (.099)	.079 (.101)	.103 (.091)	.076 (.095)	.099 (.104)
Firm size (FS)	.094 (.083)	.086 (.092)	.098 (.082)	.069 (.088)	.84 (.096)
Adjusted R <sup>2</sup>	.574	.458	.495	.431	.447
Maximum VIF	2.012	2.012	2.012	2.012	2.012

Beta coefficients with standard errors in parenthesis, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

Table 4: Result of Regression Analysis of Strategic Innovation Capability and Its Antecedents



Thirdly, hypothesis 11 shows that business learning competency has positive significant relationships with new idea enhancement ( $\beta_{40}=0.273$ ,  $p<0.01$ ), proactive activity support ( $\beta_{47}=0.210$ ,  $p<0.05$ ), market-driving encouragement ( $\beta_{54}=0.228$ ,  $p<0.05$ ), and dynamic adaptability commitment ( $\beta_{67}=0.321$ ,  $p<0.01$ ); hypotheses 11a, 11b 11c, and 11e. The result is similar to the thought that business learning competency participates with innovation (Alegre & Chiva, 2008), goal achievement (Sanchez, 1995), business risk reduction (Calantone, Cavusgil & Zhao, 2002), superior business performance (Camison & Fores, 2011), long-term growth and survival (Wu & Cavusgil, 2006). **Thus, hypothesis 11 is partially supported.**

Fourth, firm resource availability presents a positive significant relationship with new idea enhancement ( $\beta_{41}=0.218$ ,  $p<0.05$ ), proactive activity support ( $\beta_{48}=0.277$ ,  $p<0.01$ ), market-driving encouragement ( $\beta_{55}=0.273$ ,  $p<0.01$ ), risk-taking circumstance acceptance ( $\beta_{62}=0.371$ ,  $p<0.01$ ), and dynamic adaptability commitment ( $\beta_{68}=0.278$ ,  $p<0.01$ ). This finding facilitates the notion that firm resource availability is associated with innovation outcome and technology capability (Son & Han, 2011). **Consequently, hypothesis 12 is fully supported.**

Lastly, the result in table 4 also illustrates the positive significant relationships among industry complementary technology growth and strategic innovation capability's dimensions: new idea enhancement ( $\beta_{42}=0.241$ ,  $p<0.05$ ), proactive activity support ( $\beta_{49}=0.245$ ,  $p<0.05$ ), market-driving encouragement ( $\beta_{56}=0.210$ ,  $p<0.05$ ), risk-taking circumstance acceptance ( $\beta_{63}=0.342$ ,  $p<0.01$ ), and dynamic adaptability commitment ( $\beta_{69}=0.205$ ,  $p<0.01$ ). This result confirms the view that complementary technology growth is related to innovation success, innovative opportunities (King, Covin & Hegarty, 2003), business growth, and sustainable competitive advantages (Harrison et al., 2001). **Therefore, hypothesis 13 is fully supported.**

In summary, the result in table 3-4 illustrates the consistent result of the significant positive relationship of the firm's strategic innovation capability, its purposed consequences, and antecedents. It highlights the importance of strategic innovation capability as one of effective business tools to achieve sustainability in a rapidly changing environment. However the insignificant relationship between business operation excellence and firm sustainability (Hypothesis 7b) has shed light on the mediating role of stakeholder involvement exaltation. Moreover, this study also highlights five substantial antecedents of strategic innovation capability.

## 5. Contributions

This study aims to offer some theoretical contributions as well as managerial implications. The core theoretical contribution relates to conceptualizing the comprehensive view of strategic innovation capability as a multidimensional construct, which are newly developed constructs and dimensions, differentiating from prior strategic management and innovation capability literature. This empirical study sensitizes and explains theories associated with how a business firm achieves and fulfills its goals and, at the same time, maintains its sustained competitive advantage and superior performance in a radical business environment. It clarifies the nature of strategic innovation capability for future investigation.

This study also attempts to incorporate several theories to propose logical links in a conceptual model, including the dynamic capability theory and contingency theory. Relying on these theories, businesses survivability and successes are subjected to business capability in generating novel innovations for industry. Vice versa, this study demonstrated that strategic innovation capability is required to enhance business performance and sustainability. It also provides a crystal-clear understanding of the relationships among five dimensions of strategic innovation capability and firm sustainability through new product establishment, business



operation excellence, and stakeholder involvement exaltation. Moreover, the primal mediating role of stakeholder involvement exaltation has been highlighted.

Furthermore, the discussions of this study also contribute to managerial practices concentrating on strategic innovation capability implementation and the usefulness of strategic innovation capability that stimulate and enhance the success and sustainability of innovative and high-tech businesses. It highlights the importance of business's strategic innovation capability that accommodates and facilitates managerial executive decision-making and resource allocation strategy. Managerial executives must be aware and realize that strategic innovation capability allows the business sector to attain long-lasting profitability and competitiveness. Moreover, organizational creativity, business learning competency, firm resource availability, technology and leadership are mandatory factors in promoting strategic innovation capability.

## 6. Conclusion

This study aims to investigate the consequences and antecedents of strategic innovation capability in the Thai auto parts industry. Auto parts businesses in Thailand are faced with a highly competitive business environment. Customers are always demanding new innovative products at a lower cost. In trying to respond, businesses need to develop and improve their strategic innovation capability to establish substantial organizational innovative outcomes and sustain their business success. Therefore, to clearly understand the relationships among strategic innovation capability, its antecedents and consequences; the dynamic capability and contingency theory elaborated to explain the aforementioned relationships.

This study illustrates the influence of strategic innovation capability on business sustainability and, at the same time, exploring the antecedents of strategic innovation capability. The data from 126 participants from auto parts businesses in Thailand highlight that strategic innovation capability dimensions are positively related to business sustainability. In more detail, the results reveal that new idea enhancement, proactivity support, and dynamic adaptation commitment (dimensions 1, 2, and 3 successively) are essential determinants to yield superior new product establishment, business operation excellence, stakeholder involvement exaltation, and firm sustainability. Interestingly, the firm's risk-taking capability on the outcomes is only meaningful to firm sustainably. On the other hand, market-driving encouragement has no relativity with business operations. Business operation excellence shows no significant result on firm sustainability while other does. However, the relationships of excellent business operations yielded non-significant relationships. This implied that stakeholder involvement exaltation may play a mediator role on the aforementioned relationship.

For the antecedents, firm resource availability and complementary technology growth are the top two most influential determinant of strategic innovation capability. Modern transformational leadership, organizational creativity orientation, and business learning competency failed to promote business risk-taking circumstance acceptance.

In summary, strategic innovation capability definitely benefits business success and sustainability. Therefore, in order to gain the generalizability and reliability of the result, future research direction may shed more light on employing alternative research methods, garnering research samples from other industries to compare the results, and examining potential moderators of strategic innovation capability relationships.

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