ปัจจัยที่มีผลกระทบต่อการจัดการนวัตกรรมที่มีประสิทธิผลขององค์กรในอุตสาหกรรมธนาคารไทย

The Determinants of Organizational Innovation Management Effectiveness in The Thai Banking Industry

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บทคัดย่อ

การศึกษามุ่งเน้นในปัจจัยที่มีผลกระทบต่อการจัดการนวัตกรรมที่มีประสิทธิผลขององค์กรในอุตสาหกรรมธนาคารไทยโดยมีการอธิบาย 7 ปัจจัยตัวแปรที่ใช้ในการพยากรณ์นวัตกรรมประสิทธิผลคือ กลยุทธ์นวัตกรรม (Innovation Strategy) โครงสร้างขององค์กร (Organization Structure) วัฒนธรรมขององค์กร (Organization Culture) การบริหารโครงการ (Project Management) ความเป็นหนึ่งเดียวของทีมงาน (Team Cohesiveness) กลยุทธ์ความเป็นผู้นำ (Strategic Leadership) และการประสานงานและการสื่อสาร (Coordination and Communication) ทั้งนี้อาศัยการอธิบายโดยใช้หลักการทางทฤษฎี คือ Organizational Contingency Theory และ Resource-Based View Theory ในการอธิบายปัจจัยทั้ง 7 ตัวแปร ผลลัพธ์ (Output) และ ทดสอบโมเดลที่เกิดขึ้นจากการผลกระทบของความสัมพันธ์ในเชิงบวกที่มีผลต่อการจัดการที่มีประสิทธิผล โดยในระเบียบวิธีวิจัย (Research Methodology) ได้มีการศึกษา ค้นคว้าจากแหล่งข้อมูลหลากหลาย เพื่อใช้ในการพัฒนา กรอบแนวคิดโครงร่างทางวิจัย (Conceptual Framework) และรูปแบบการทดสอบสมมติฐาน (The Hypotheses Model) โดยใช้หลักการออกแบบสอบถาม (Questionnaire design) สำหรับข้อมูลสุ่มตัวอย่าง (Sampling data) และ เทคนิคการวิเคราะห์ (Data Analysis Technique) ในเชิงปริมาณ(Quantitative) ด้วยหลักการวิเคราะห์ทางสถิติแบบ Structural Equation Model หรือ SEM และใช้โปรแกรม SPSS-AMOS ทั้งนี้โมเดลทางทฤษฎี (Theoretical Model) และ โมเดลการบริหารจัดการ (Managerial Model) ถูกพัฒนาเพื่อสนับสนุนและอธิบายผลลัพธ์ของการวิจัย ซึ่งได้ผลลัพธ์คือตัวแปรหลัก กลยุทธ์นวัตกรรมที่มีผลกระทบต่อการจัดการที่มีประสิทธิผล ขณะที่วัฒนธรรมขององค์กร การบริหารโครงการ กลยุทธความเป็นผู้นำ ความเป็นหนึ่งเดียวของทีมงานและการประสานงานและการสื่อสารที่มีอิทธิพลที่สำคัญต่อการจัดการประสิทธิผลทางนวัตกรรม รวมทั้งข้อจำกัดในการศึกษาผลลัพธ์ ขอบเขตของการศึกษาและข้อเสนอแนะ ความสำคัญกลยุทธ์ความเป็นผู้นำที่มีต่อการนำการเปลี่ยนแปลงและข้อเสนอแนะที่ในการทำวิจัยต่อไปในอนาคตสำหรับที่มาของปัจจัยต่าง ๆที่มีผลต่อการจัดการนวัตกรรมที่มีประสิทธิผล

คำสำคัญ : การจัดการนวัตกรรมที่มีประสิทธิผล กลยุทธ์นวัตกรรม โครงสร้างขององค์กร วัฒนธรรมขององค์กร การบริหารโครงการ ความเป็นหนึ่งเดียวของทีมงาน กลยุทธ์ความเป็นผู้นำ การประสานงานและการสื่อสาร

Abstract

This study aimed to focus on the determinants of the seven contingency prediction factors behind innovation management effectiveness in an organization, namely Innovation Strategy, Organizational Structure, Organization Culture, Project Management, Team Cohesiveness, Strategic Leadership and Coordination and Communication.

In addition, the research study attempted to employ the concept of organizational contingency theory and resource-based view theory to explain the determinants of the seven contingency prediction factors, The research examined whether the outputs of all these positive correlations impact innovation effectiveness and to test the model of the seven contingency prediction factors of innovation management effectiveness.

In the research methodology, the researcher provided a literature review of documents from several sources and used the review to derive the conceptual framework and the hypotheses model. The primary data was collected through questionnaires from the non-probability sampling population and data analysis technique. The research employed quantitative methods and the quantitative data was also analyzed using SPSS and Structural Equation Model-AMOS program.

The proposed theoretical and managerial models were developed to support and interpret the result of the research study. The construct of innovation strategy was found to have the main impact on conceptual innovation management effectiveness while organization culture, project management and team cohesiveness, strategic leadership as well as coordination and communication had a significant positive influence on innovation management effectiveness. Finally, the article also provided the limitations of the study in both the results and the area of study as well as recommendations of the critical importance of strategic leadership in leading change and the future directions of the causal variables on innovation management effectiveness.

Key word (s): Innovation Management effectiveness, Innovation Strategy, Organizational Structure and Culture, Project Management, Team Cohesiveness, Strategic Leadership and Coordination and Communication.

1. Introduction

In general, organizations are not successful at attending to the non-technical aspects of changing technology. It is widely felt that there is little consideration of these issues, that they are not well understood, that their importance is underestimated and that action in this area is under-resourced. In particular, not enough attention is paid to the impact of organizational structures and processes on the implementation and use of strategic innovation management in the empowerment of individuals in an organization for higher productivity while enhancing operational effectiveness and sustaining competitive advantage.

This study employs the integrated approach of well-known organizational theories (contingency approach) and the resource-based view to gain further understanding of the determinants of the contingency prediction factors of innovation management effectiveness and its context. This integrated approach will offer both a new perspective into the learning and innovation of management and how it can be transferred to manpower as well as a new way to conceptualize the impact of each prediction factors of innovation management effectiveness. Furthermore, the study provides a conceptual framework that can be used in future studies in other non-academic environments.

2. Research Objectives

1. To study the determinants of organizational innovation management effectiveness as organizational improvement.

2. To explain the outputs of the factorsof the determinants of organizational innovation effectiveness (Innovation Strategy, Organization Structure, Organization Culture, Project Management, Team Cohesiveness, Strategic Leadership and Coordination and Communication).

3. To test a model of the seven contingency prediction factors of innovation management effectiveness.

3. Literature Review

Innovation management (Nermien Al-Ali, 2003: 1-288) emerged as a discipline in the 1890s with Edison's innovation factory. Edison changed the image of the sole inventor by converting innovation into a process with recognized steps practiced by a team of inventors working together – laying the foundations for the basic design of the R&D department. These steps are streamlined to a major extent in all industries and include idea generation, concept development, feasibility studies, product development, market testing and launch. Innovation management thus corresponds to the development of new products, processes

and services. In cases where the organization does not make or offer products (goods or services), innovation lies in improving the way jobs are done to meet the organization's mission (i.e. process innovation).

From the perspective of Mphahlele (2006), effective innovation management requires the implementation of a number of processes and the employ of a number of tools. At the outset it is important that the culture of the organization empowers employees and encourages them to submit their ideas. Most importantly, management should adopt an appropriate innovation strategy to lead the innovation process and manage the innovation portfolio. Organizational structures are broadly divided into two categories: Mechanistic and Organic (Russel, 1999, Afuah, 2003; Russel and Russel, 1992). The mechanistic structure which is found in organizations operating under stable conditions, and the organic structure which is found, or rather is best suited, to organizations operating under unstable conditions. As the innovation process moves on from the generation of ideas to implementation, the organizational structure should become less organic and more mechanistic.

Another point made by Martins and Martins (2002) about organization culture is that for most organizations change is inevitable. Organizational cultural issues are becoming increasingly important and a source of a strategic competitive advantage. Organizational changes usually promote and intensify competitiveness, as they require dramatic changes in strategy, technology, working systems and management style, among others. These changes require in-depth analysis of values, beliefs and behavior patterns that guide day-to-day organizational performance. Creativity and innovation have roles to play in this change process. Project management by Adams, Bessant and Phelps (2006) is concerned with the processes that turn the inputs into a marketable innovation. The innovation process is complex, comprising a myriad of events and activities - some of which can be identified as a sequence and some of which occur concurrently - and it is clearly possible that innovation processes will differ to some degree, across organizations and even within organizations on a project-by-project basis. Having an efficient process that is able to manage the ambiguity of the innovation is universally agreed to be critical to innovation (Globe, Levy and Schwartz, 1973 : 8-15).

It has long been recognized that the relationship between cohesion and team innovation is inconsistent, in that cohesion can be associated with both high and low team innovation. Mullen

and Copper (1994: 210-227) asserted that it is chiefly the commitment to the task (as an indicator of cohesion) that shows a significant impact on team innovation. The study of the determining factors of overall team innovativeness can certainly benefit the understanding of teams in the context of organizations. The various dynamics of team interaction, such as the cultural composition (Hopkins and Hopkins, 2002; Balkundi et al., 2007) the existence of creativity (Kurtzberg and Amabile, 2001), trust (Leung, 2008) and shared leadership (Carson, Tesluk and Marrone, 2007: 1217-1234) are just some of the current variables being examined with regards to teams. The role of leadership in enabling innovation in organizations is also acknowledged by a lot of researchers (Foster and Pryor, 1986; Rothwell, 1994; Kanter, 1985). Generally, the consensus is that the most significant role that the leadership should play is that of developing the culture that supports innovation. Leadership in innovation should, however, not be limited to the top but should rather be present at all levels of the organization (Roach and Sager, 2000). The role that innovation leadership at other levels plays includes picking the right teams for innovation activities, using the right facilitators and distributing ideas throughout the organization for future use.

Studying routines alone should already be beneficial for better understanding of coordination and communication in innovation projects. Mintzberg, (1979) categorizes previous research into three main coordination strategies: mutual adjustment is based on close collaboration suitable especially in simple and very complex situations; direct supervision assumes that managers guide and coordinate the activities of their subordinates, while the standardization of processes, output, or training employs experts that develop rules and policies, but who do not directly coordinate operative work. Grant, (1996: 109-122) builds on Mintzberg and others but proposes a somewhat different categorization, in which routines are themselves coordination mechanisms, emergent from the mode of mutual adjustment towards an implicit standardization of activities.

4. Theoretical Base and Conceptual Framework

Firstly, according to core assumptions and statements of contingency theory, Wiio (1979) and Goldhaber (1993) concluded that differences in innovation effectiveness are a function both of type of organization and composition of work force (age, sex, education, tenure). The innovation process is influenced by many internal and external constraints from the organization and its subsystems. The constraints determine the status of the organization of

the environmental supra system and the state of each subsystem. The innovation process is thus contingent upon external and internal stimuli and upon the degree of freedom of states within the system allowed by the organizational constraints. Some internal contingencies are: structural contingencies, output, and demographic, spatiotemporal and traditional contingencies. External contingencies are: economic, technological, legal, sociopolitical cultural and environmental contingencies. Persons interested in organizational innovation should consider such questions as the following. What are the contingencies under which organizations' innovative ability is best when confronting their environment? Specifically, do different types of organizations have different absorptive capacity needs? Do organizational internal contingencies (demographics such as age, sex, education, seniority, management level, and amount of communication training) affect innovation effectiveness? Are functional diversity and corporate culture better predictors of innovation effectiveness?

Secondly, according to Kostopoulos, Spanos and Prastacos (2001), a resource-based view theory, one of the most important research questions in management literature, traditionally, has been the relationships among innovation, firm structural characteristics (e.g., formalization, centralization, specialization) and industrial environment. Hereafter, when we use the term 'innovation' we are referring to organizational (or firm-level) innovation. Organizational innovation is generally defined as an internally generated or externally purchased device, system, policy, process, product or service that is new to the adopting organization (Damanpour, 1991). From this traditional perspective, innovation represents a means of transforming an organization, whether as a response to changes in its internal or external environment or as a proactive action taken to influence its environment. It is supposed that differences in the firm's innovative activities are basically explained by industry and organizational structure characteristics (Kimberly and Evanisko, 1981; Damanpour, 1991; Wolfe, 1994; Duncan, 1976; Daft, 1992). In contrast, more behaviorally oriented research streams, and especially evolutionary economics (Nelson and Winter, 1982). have studied innovation activities and performance not only in terms of organizational structure or industry characteristics but also in terms of resources and capabilities (Dosi, 1988). With the same line of reasoning, a growing body of literature that embraces the resource-based view of the firm (Brown and Eisenhardt, 1997; Henderson and

Cockburn, 1994; Clark, 1994; Leonard-Barton, 1995) offers new insights into innovation management. According to this influential perspective, the presence of different organizational resources and capabilities positively affects the outcome of the innovation process and, thus, can be used to extend the findings - gained by past research - on the firm's capacity to innovate.

Therefore, the overall conceptual framework is explained by the influential theories of both the resources-based view and the contingency approach to the investigation, with a hypotheses model of the determinant factors of innovation management effectiveness and the assumption of the seven contingency prediction factors. Below is the Conceptual Framework Model.

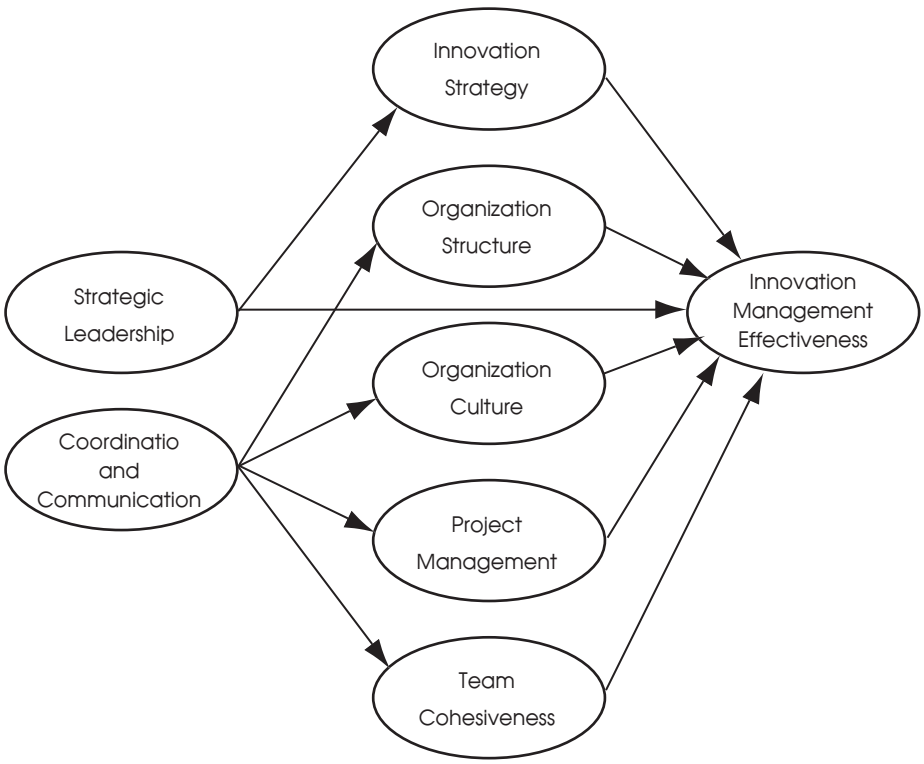

Figure 1 The Conceptual Framework Model

5. Operationalization of Variables

The variables in this framework are drawn from an integration of the contingency approach and the resource-based view approach of the determinants of the organizational innovation management effectiveness as proposed by prominent scholars as discussed above. The variables are conceptualized according to the organizational environmental perspective. Innovation management effectiveness is implemented in organizations and always operates as an open system. Changes in one component of an organization frequently have an effect on the other variables; that is to say, all variables are interconnected. The researcher also demonstrates the operationalization for each variable by defining innovation management effectiveness as organizational performance improvement which results from implementing innovations. That is, how an organization perceives the overall organizational improvement including factors such as productivity, finance, and employee morale (Klein, Conn and Sorra, 2001).

Ramanujam and Mensch (1985) defined innovation strategy as a timed sequence of internally consistent and conditional resource allocation decisions that are designed to fulfill an organization's objectives in terms of innovation goals, innovation resource allocation, innovation risk (overall philosophy), timing (first to market or happy to wait) and a long term perspective. Formulating an innovation strategy therefore is a matter of policy for those organizations that would like to pursue a sustainable competitive advantage through innovation. Mphahlele (2006) stated that the organization structure represents the development of human resources in different parts of the organization for doing specific work. Some organizational structures are more advanced in supporting innovation than others. For example, a steeply hierarchical organization that is overloaded with strict rules tends to stifle innovation because decision making tends to be slow. These can be measured in terms of the degree of specific rules and procedures and the degree of division of function.

According to Martins and Martins (2002), organizational culture concerns basic cultural norms, continuous learning support and reward and recognition that influence creativity and innovation. Project management refers to project activity in regard to the management of innovation studies within organizations on a project-by-project basis. It can be seen that the research streams for both project management and innovation have developed in relative isolation from one another, and the connection between

the two domains (project and innovation) is quite often implicit (Keegan and Turner, 2002). Cohesiveness within teams is determined by the desire of its individuals to remain a part of that team because their individual needs are being met (Turner, Hogg and Smith, 1984). Through cohesiveness the members of a team working together more freely with more communication to develop more innovative ideas is facilitated. Deschamps (2005) describes strategic leadership as creating and leading the innovation process, developing and coaching the innovators and promoting the innovation focused on the collaboration with internal and external partners, balancing incremental and disruptive innovations and the leader's behavior and style. Coordination and communication refer to all routines in the organization, both internally and externally, namely (Cebon and Newton, 1999; Lee, 1996; Rothwell, 1992; Souitaris, 2002) frequency counts and subjective evaluations together with sharing information, closing collaboration and guiding activity which are crucial the innovation management (Pinto and Pinto, 1990 and Mintzberg, 1979).

6. Research Hypotheses

The hypotheses are below:

H1: Innovation strategy has a positive effect on innovation management effectiveness

H2: Organization structure has a positive effect on innovation management effectiveness

H3: Organization culture has a positive effect on innovation management effectiveness

H4: Project management has a positive effect on innovation management effectiveness

H5: Team cohesiveness has a positive effect on innovation management effectiveness

H6: Strategic leadership has a positive effect on innovation management effectiveness

H6-1: Strategic leadership has a positive effect on innovation strategy

H7-1: Coordination and communication has a positive effect on organization structure

H7-2: Coordination and communication has a positive effect on organization culture

H7-3: Coordination and communication has a positive effect on project management

H7-4: Coordination and communication has a positive effect on team cohesiveness

The research attempts to test the hypotheses by beginning with innovation strategy with innovation focus in order to improve organizational performance. Secondly, organization structure with rules, procedures and division function has a key impact on innovation management effectiveness. Thirdly, the organization culture of both creativity and innovation are described as basic cultural norms are important to the organization. Fourth, project management literature often takes a rather normative stance toward innovation support being the best way of managing innovation project effectiveness. While, fifth, team cohesiveness can certainly benefit the understanding of various factors such as cohesion, composition and longevity in the context of organizations and greatly influence team cohesiveness. Sixth, strategic leadership with the ability to engage in transformational or transactional behaviors, depending on the specific innovation needs with functional collaboration and leadership behavior and style. Lastly, coordination and communication is very important to organizational improvement with objective frequency counts and subjective evaluations and is also crucial for innovation management effectiveness.

7. Research Methodology

In research design, the primary objectives are to study and test the theoretical framework and model of seven contingency factors. The research study also focuses on the determinant factors, attempting to employ the concept of alignment in contingency theory and resource-based view theory and examines whether the outputs of all these factors impact the increase in innovation management effectiveness in both the selected commercial and state-owned banks.

In the research process, the primary data was collected through questionnaires from the non probability sampling population of the staff of both commercial banks and state-owned banks through the quantitative method. While, the units of analysis are also at the individual level, requiring the individual to answer the questionnaires so as to find out more about the determinants of organizational innovation management effectiveness. For the method of analysis, the researcher used reliability analysis and the use of Structural Equation Model(SEM) using the AMOS program to analyze the data in terms of convergent validity by examining whether the constructs are suitable for further analysis. SEM is also predicated on a strong theoretical model by which latent constructs are defined (measurement model) and these constructs are re-

lated to each other through a series of dependence relationships (structural model). The emphasis on strong theoretical support for any proposed model underlies the confirmatory factor analysis technique. With reference to Hair et al. (2006), Hu and Bentler (1999), MacCallum and Austin (2000), the main fit indices used for the model assessment include Comparative Fit Index (CFI), Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), and Root Mean Square Error of Approximation (RMSEA). Therefore, the researcher of this study reports the four fit indices, CFI, NFI, NNFI and RMSEA in order to indicate the model fit and in this way the researcher can analyze other aspects of the model after identifying the model fit. According to Byrne (2001), CFI, NFI, and NNFI with values of 0.90 or higher indicate a well-fitting model, while 0.80 or higher indicates a reasonably well-fitting model. In addition, MacCallum, Browne and Sugawara (1996) have suggested that the cut-off point for RMSEA is in the range of 0.80- 0.10, indicating mediocre fit and when the RMSEA is higher than 0.1, the model has a poor fit.

Table 1 Measurement of the Structural Model Fit

Items	Criteria
Comparative Fit Index (CFI)	>0.90
Normed Fit Index (NFI)	>0.90
Non-Normed Fit Index (NNFI)	>0.90
Root Mean Square Error of Approximation (RMSEA)	<0.08

Source: Hu and Bentler, 1999: 1-55; Hair et al., 2006: 1-405.

8. Target Population and Sampling

According to table 1, if the size of population is 57,092 for a precision level of ±5% at a confidence level of 95%, the sample size is 397. In addition, the minimum size for structural equation modeling should be 150 (Anderson and Gerbing, 1988), while Hair, Black, Babin, Anderson and Tatham (2006) concluded that a sample size of 200 is small but reasonable – meaning the sample size in this study passes the criteria. The sample size for the four banks contributed by simple random sampling is shown below.

Table 2 The Population and Sample of The Selected Banks in the Study

Bank	Number of Staff	
	Population	Sample
Commercial Bank-1	19,758	137
Commercial Bank-2	16,082	112
State-owned Bank-3	18,303	127
State-owned Bank-4	2,949	21
Total	**57,092**	**397**

Source: Bank of Thailand. 2010 and Yamane.1967: 1-405

9. Measurement of Reliability and Validity

According to Hair, Black, Babib, Anderson and Tatham, (2006), reliability means the degree to which measures are free from error and therefore yield consistent results and Cronbach's alpha can be used as a measurement. Hair et al. (2006) stated high reliability means internal consistency exists, indicating that measures can represent the same latent construct. The reliability estimate of 0.70 or higher shows good reliability. For this study, there are eight main constructs, as shown in the table below.

Table 3 The Reliability Analysis of the Constructs

Construct	Cronbach's Alpha
Innovation Management Effectiveness (IME1-IME4) (4 items)	0.900
Innovation Strategy (IS1-IS3) (3 items)	0.933
Organization Structure (OS1-OS5) (5 items)	0.922
Organization Culture (OC1-OC4) (4 items)	0.918
Project Management (PM1-PM4) (4 items)	0.954
Team Cohesiveness (TC1-TC4) (4 items)	0.953
Strategic Leadership (SL1-SL4) (4 items)	0.932
Coordination and Communication (CC1-CC4) (4 items)	0.937

As shown in the table above, the constructs came in the following order from the highest to lowest in Cronbach's alpha score: Project Management (0.954), Team Cohesiveness (0.953), Coordination and Communication (0.937), Innovation Strategy (0.933), Strategic Leadership (0.932), Organization Structure (0.922), Organization Culture (0.918) and Innovation Management Effectiveness (0.900). These scores indicate that all constructs are highly reliable because the Cronbach's alpha scores of all eight constructs are higher than 0.8 For convergent validity, According to Hair et al. (2006), convergent validity is the extent to which the scale correlates positively with other measures of the same construct. Anderson and Gerbing (1988) have suggested that good convergent validity exists when the standardized factor loadings of each item exceeds 0.40 (Lin and Germain, 2003) and all t-values are higher than the significant level (i.e. t-value is higher than 2) as shown in table 3 of the goodness of fit for convergent validity below.

Table 4 The Goodness of Fit for Convergent Validity

Items	Fit Indices	Criteria
Comparative Fit Index (CFI)	0.953	>0.90
Normed Fit Index (NFI)	0.932	>0.90
Non-Normed Fit Index (NNFI)	0.945	>0.90
Root Mean Square Error of Approximation (RMSEA)	0.071	<0.08

Source: Hu and Bentler, 1999: 1-55; Hair et al., 2006: 1-405.

Eight constructs were also tested for convergent validity, namely innovation management effectiveness, innovation strategy, organization structure, organization culture, project management, team cohesiveness, strategic leadership, and coordination and communication. All standardized estimates (or loadings) exceed 0.4, and all associated t-values are significant at a level of 0.05 (t-values >±1.96; Byrne, 2001). Therefore, we can conclude that convergent validity has been established.

10. Model Assessment

The main goal is to identify how well the observed data in each latent variable fit the proposed model of the researcher. In this study, the researcher has proposed criteria to measure model fit as discussed, with the steps developed, as follows:-

10.1 The Proposed Model 1 - The Theoretical Model

The theoretical model was selected to develop and to support the conceptual framework for investigating the determinants of investigating organizational innovation management effectiveness with the main objective of investigating the determinants of the six prediction factors of innovation strategy, organization structure, organization culture, project management, team cohesiveness and strategic leadership. However, the results of the study show that there are only three constructs - innovation strategy, organization culture and team cohesiveness – that have positive influences on innovation management effectiveness.

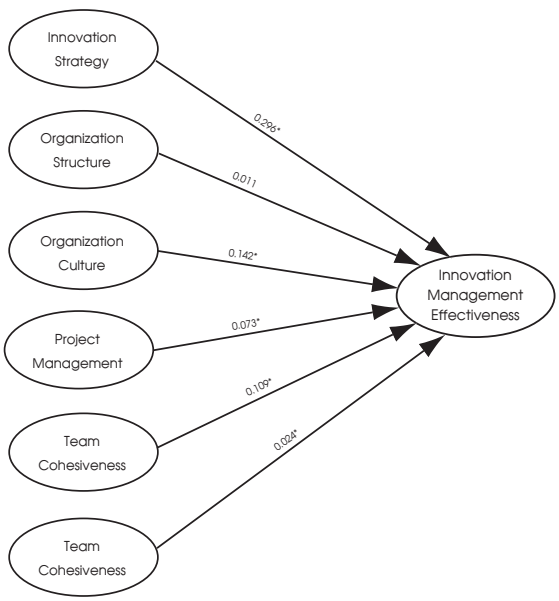

Table 5 The Goodness of Fit for Proposed Model 1

Items	Fit Indices	Criteria
Comparative Fit Index (CFI)	0.953	>0.90
Normed Fit Index (NFI)	0.933	>0.90
Non-Normed Fit Index (NNFI)	0.943	>0.90
Root Mean Square Error of Approximation (RMSEA)	0.076	<0.08

Source: Hu and Bentler, 1999: 1-55; Hair et al., 2006: 1-405.

According to the fit indices above, the model provided good fit, as CFI, NFI and NNFI indicated, because their values are greater than 0.90. RMSEA was slightly lower than the criteria. However, according to Hair et al. (2006), when the value of RMSEA is higher than 1.0, the model indicates poor fit. Therefore, overall the model is sufficient to indicate a model fit.

Table 6 The Relation of Parameters and Parameter Estimates of Proposed Model 1

The Relation of Parameters	Standardized Estimates
Innovation Strategy → Innovation Management Effectiveness	0.296* (4.004)
Organization Structure → Innovation Management Effectiveness	0.011 (0.183)
Organization Culture → Innovation Management Effectiveness	0.142* (2.332)
Project Management → Innovation Management Effectiveness	0.073 (1.224)
Team Cohesiveness → Innovation Management Effectiveness	0.109* (2.805)
Strategic Leadership → Innovation Management Effectiveness	0.024 (0.316)

Note: * indicates statistical significance at 0.05 (t-values >±1.96)
** indicates statistical significance at 0.10 (t-values >±1.645)
and t-values are shown in parentheses.

The results show that in respective order innovation strategy (path coefficient = 0.296 and t-value = 4.004), organization culture (path coefficient = 0.142 and t-value = 2.332) and team cohesiveness (path coefficient = 0.109 and t-value = 2.805) have statistically significant positive effects on innovation management effectiveness, while there were no statistically significant effects of organization structure (path coefficient = 0.011 and t-value = 0.183), strategic leadership (path coefficient = 0.024 and t-value = 0.316) and project management (path coefficient = 0.073 and t-value = 1.224) on innovation management effectiveness, respectively.

According to the conceptual framework , the researcher proposed research hypotheses and the results of the hypotheses testing are as follows:

1. Innovation Strategy

H1: Innovation strategy has a positive effect on innovation management effectiveness

This hypothesis is supported in that innovation strategy has a positive effect on innovation management effectiveness with a path coefficient of 0.296 and t-value of 4.004. This indicates that higher innovation strategy leads to a higher degree of innovation management effectiveness. As suggested in the literature, the relationship of innovation strategy is a positive one with innovation management effectiveness. This result supports the work of Mphahlele (2006), Martins and Terblanche (2003); Vlok (2005) and Dewar and Dutton (1986).

2. Organization Structure

H2: Organization structure has a positive effect on innovation management effectiveness

This hypothesis is not supported in that organization structure has a positive effect on innovation management effectiveness with a path coefficient of 0.011 and t-value of 0.183. This indicates that organization structure has no statistical effect on innovation management effectiveness. However, the work of Mphahlele (2006), Burns and Stalker (1961), Zaltman, Duncan and Holbek (1973) and Hage and Aiken (1970) support the assertion that relationship of organization structure is positive with innovation management effectiveness as suggested in the literature.

3. Organization Culture

H3: Organization culture has a positive effect on innovation management effectiveness

This hypothesis is supported in that organization culture has a positive effect on innovation management effectiveness with a path coefficient of 0.142 and t-value of 2.332. This indicates that higher organization culture leads to a higher degree of innovation management effectiveness. As suggested in the literature, the relationship of organization culture has a positive effect on with innovation management effectiveness. This result supports the work of Martins and Martins (2002), Martins (2000) and Adams, Bessant and Phelps (2006).

4. Project Management

H4: Project management has a positive effect on innovation management effectiveness

This hypothesis is not supported in that project management has a positive effect on innovation management effectiveness with a path coefficient of 0.073 and t-value of 1.224. This indicates that project management has no statistical effect on innovation management effectiveness. However, the work of Adams, Bessant and Phelps (2006), Globe

et al. (1973) and Keegan and Turner (2002) supports the relationship of project management as being positive with innovation management effectiveness as suggested in the literature.

5.Team Cohesiveness

H5: Team cohesiveness has a positive effect on innovation management effectiveness

This hypothesis is supported in that team cohesiveness has a positive effect on innovation management effectiveness with a path coefficient of 0.109 and t-value of 2.805. This indicates that higher team cohesiveness leads to a higher degree of innovation management effectiveness. As suggested in the literature, the relationship of team cohesiveness is positive with innovation management effectiveness. This result supports the work of Mullen and Cooper (1994), Langfred (1998) and Guzzo and Dickson (1996).

6. Strategic Leadership

H6: Strategic leadership has a positive effect on innovation management effectiveness

This hypothesis is not supported in that strategic leadership has a positive effect on innovation management effectiveness with a path coefficient of 0.024 and t-value of 0.316. This indicates that strategic leadership has no statistical effect on innovation management effectiveness. However, the work of Foster and Pryor (1986), Rothwell (1994) and Kanter (1985) supports the relationship of strategic leadership as being positive with innovation management effectiveness as suggested in the literature.

10.2 The Proposed Model 2 – The Managerial Model

The second proposed model of innovation strategy, organization culture, project management and team cohesiveness (four factors) are in the path of innovation management effectiveness, strategic leadership is in the path of innovation strategy and another one (coordination and communication) is in the path of team cohesiveness.

According to the fit indices above, the model provided good fit, as CFI, NFI and NNFI indicated, because their values are greater than 0.90. RMSEA was lower than 0.08. Therefore, overall the model is sufficient to indicate the model fit.

The results indicate that innovation strategy, organization culture, project management and team cohesiveness (four constructs) have a positive effect on innovation management effectiveness, strategic leadership has a positive effect on innovation strategy and coordination and communication has a positive effect on team cohesiveness.

Table 7 The Relation of Parameters and Parameter Estimates of Proposed Model 2

The Relation of Parameters	Standardized Estimates
Innovation Strategy → Innovation Management Effectiveness	0.308* (6.478)
Organization Culture → Innovation Management Effectiveness	0.155* (3.291)
Project Management → Innovation Management Effectiveness	0.085** (1.887)
Team Cohesiveness → Innovation Management Effectiveness	0.117* (3.688)
Strategic Leadership → Innovation Strategy	0.704* (18.261)
Coordination and Communication → Team Cohesiveness	0.899* (17.614)

Note: * indicated statistical significance at 0.05 (t-values >±1.96)
** indicated statistical significance at 0.10 (t-values >±1. 645)
and t-values are shown in parentheses.

All relationships are statistically significant for all parameters. Innovation strategy has the highest positive effect on innovation management effectiveness (path coefficient = 0.308 and t-value = 6.478) followed by organization culture (path coefficient = 0.155 and t-value = 3.291) and team cohesiveness (path coefficient = 0.117 and t-value = 3.688) while project management has the lowest positive effect on innovation management effectiveness (path coefficient = 0.085 and t-value = 1.887). Strategic leadership has the positive effect on innovation strategy (path coefficient = 0.704 and t-value = 18.261) and coordination and communication has the positive effect on team cohesiveness (path coefficient = 0.899 and t-value = 17.614).

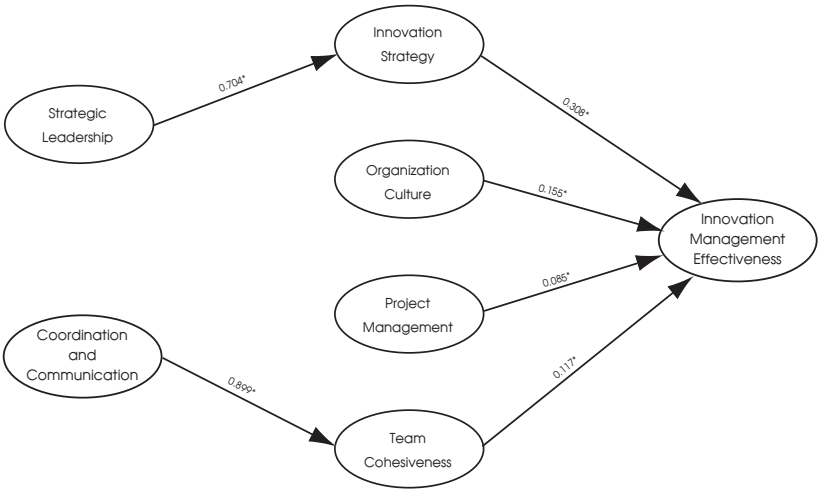

Figure 3 Summary of the Managerial Model

Note: * indicates statistical significance at the 0.05 level

** indicates statistical significance at the 0.10 level

Table 8 The Goodness of Fit for Proposed Model 2- The Managerial Model

Items	Fit Indices	Criteria
Comparative Fit Index (CFI)	0.944	>0.90
Normed Fit Index (NFI)	0.923	>0.90
Non-Normed Fit Index (NNFI)	0.936	>0.90
Root Mean Square Error of Approximation (RMSEA)	0.078	<0.08

Source: Hu and Bentler, 1999: 1-55; Hair et al., 2006: 1-405.

According to the fit indices above, the model provides good fit, as CFI, NFI and NNFI indicate, because their values are greater than 0.90. RMSEA is lower than 0.08. Therefore, overall the model is sufficient to indicate good model fit.

11. Discussions, Conclusions and Recommendations

11.1 Discussions

As a result of the study, there are two types of conclusion to be drawn - theoretical and managerial. The conceptual theory mainly explains the constructs that affect innovation management effectiveness while the resource-based view can partly explain

the organization culture based on cultural norms and empowerment. During the study, many constructs were introduced to measure their reliability and validity regarding innovation management effectiveness. The hypotheses were tested with empirical data in order to understand how the data fit with the conceptual framework.

11.2 Theoretical Conclusions

First, innovation strategy with a path coefficient of 0.296 is defined as a timed sequence of internally consistent and conditional resource allocation decisions that are designed to fulfill an organization's objectives in terms of innovation goals, innovation resource allocation, innovation risk (overall philosophy), timing (first to market or happy to wait) and a long term perspective (Ramanujam and Mensch, 1985). Innovation strategy is related to organizational factors that promote innovation management effectiveness (Mphahlele, 2006; Martins and Terblanche, 2003; Vlok, 2005; Dewar and Dutton, 1986). Second, organization structure represents the development of human resources in different parts of the organization for doing specific work (Mphahlele, 2006). Third, organization culture with a path coefficient of 0.142 partly explains how to give employees incentives through reward and recognition (Nystrom(1990) and O'Reilly (1989) as part of the innovation process Organization culture influences innovation management effectiveness (Martins and Martins, 2002; Martins, 2000; Adams, Bessant and Phelps, 2006). Fourth, team cohesiveness with a path coefficient of 0.109 is determined by the individuals within the team having the desire to remain a part of that team because their individual needs are being met (Turner et al. 1984.). It is still believed that the closeness brought about through cohesiveness can facilitate the members of a team working together more freely with more communication to develop more innovative ideas. Team cohesiveness influences on innovation management effectiveness (Mullen and Cooper, 1994; Langfred, 1998; Guzzo and Dickson, 1996). Lastly, strategic leadership is creating and leading the innovation process, developing and coaching the innovators and promoting the innovation (Deschamps, 2005). However, there remained three constructs - organization structure with a path coefficient of 0.011, project management with a path coefficient of 0.073 and strategic leadership with a path of coefficient of 0.024 - that have no significant effect on innovation management effectiveness.

11.3 Managerial Conclusions

The managerial model was selected to interpret the results of the research study. The first objective was to study the

determinants of organizational innovation management effectiveness. Four factors - innovation strategy, organization culture, team cohesiveness and project management - had statistically significant positive relationships to innovation management effectiveness. The second objective was to explain the outputs of the factors of the determinants of organizational innovation effectiveness. The results indicated that innovation strategy with a path coefficient of 0.308 has the highest statistically significant positive impact on innovation management effectiveness followed by organization culture with a path coefficient of 0.155, team cohesiveness with a path coefficient of 0.117 and project management with a path coefficient of 0.085, while strategic leadership has a positive effect on innovation management effectiveness via innovation strategy with a path coefficient of 0.704 and coordination and communication has a positive effect on innovation management effectiveness via team cohesiveness with a path coefficient of 0.899. The third objective was to test the model of the seven contingency prediction factors of innovation management effectiveness. The model was successfully tested in that the proposed model was shown to have a good fit with the data collected from the banks.

12. Recommendations

The critical importance of strategic leadership and high levels of employee engagement, as posited by Kotter(1996), leads change with the eight stage process establishing a sense of urgency, creating the guiding coalition, developing vision and strategy, communicating the change vision, encouraging employees for broad-based action, generating short-term wins, consolidating gains and producing more change with anchoring new approaches in the culture. Those two priorities drive the bank's human sigma and culminate in managing innovation effectiveness as a result of sustainable growth and profit, and competitive advantage. A bank must forge an innovation management effectiveness that is aligned with its overall innovation strategy with strategic leadership by choosing the project implementation with the best value propositions by improving the organization culture, managing the operation system and process effectiveness so it does not waste time or resources and commercialize innovations well, with everyone working together as a team (Jaruzelski et al., 2005) and improving coordination (Mintzberg, 1979) with communication and participation as critical factors in innovation (Johnson et al., 2001).

13. Limitations of the study

The results and findings of this research are clearly valuable regarding the theoretical aspects. However, several limitations exist and the details are as follows. First, this research is a cross-sectional study, using data from questionnaires and collected from bank representatives at one point in time; therefore the relationship of constructs from this study should be considered and applied with caution, and future studies may consider adopting a longitudinal study design in order to confirm the results of this study.

Second, the area of study is the banking industry. The generalizability of the results may be limited. Moreover, the research was conducted only within Thailand and in the Bangkok area. Therefore, future studies may apply the same questionnaires in other cultures or geographical areas in order to confirm the results. Additionally, cross-industry research is also recommended for future research to help improve the generalizability of the research findings. Third, there are uncertain situations with time constraints and unpredictable factors associated with these risks during the dissertation study.

14. Future Direction of the Research Study

This research and its findings provide a number of directions for future research as follows:-

1 The research results clearly show the effect of the causal variables on innovation management effectiveness. It is the merit of the present study that it has provided evidence that confirms these theses by combining a cross-sectional and a longitudinal approach for the improvement of innovation management effectiveness.

2 The cross-sectional approach with the research should expand on the number of local banks in Thailand under the conceptual framework and hypotheses model, taking a more qualitative approach with more interviews with high level management which would be beneficial for a better understanding of the antecedents of innovation management effectiveness.

3 A longitudinal approach could be taken to test the research model with comparison between banks in Thailand and banks in other foreign countries for causal explanations of innovation management effectiveness.

4 This research model should also be empirically tested the different environments in cluster industry sectors to determine its predictive validity in alternate settings.

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