

Barriers to Strategy Implementation and Their Links with Strategy Typologies

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Abstract

The purpose of this paper is to explore the nature of barriers to strategy implementation experienced by firms in emerging country. Specifically, it seeks to add to the existing body of knowledge on the link between patterns of barriers to implementation and strategy typologies. Survey method was used to gather information from 111 key informants of firms in chemical industry in Thailand. Nature of barriers to implementation is investigated using existing scale drawn from the literature with some adjustments. ANOVA and Post-Hoc analysis were used to test hypotheses. The analysis led to three main findings. First, firms with different Miles and Snow strategic types experienced with different barriers to implementation. Second, Analysers experienced the extent of problems more than Prospectors but less than Defenders. Third, Reactors had less effective strategy. They were exhibiting a lowest performance in implementation of strategy. The findings revealed that firms in more developed countries in the Western world experience fewer problems from implementation of strategy than those in emerging countries. It also allows management to focus on and cope with the barriers to strategy implementation that commonly occur and pose serious problems to the organization.

Keywords: Strategy Implementation, Barriers, Miles and Snow Typologies, Emerging Economies

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บทคัดย่อ

จุดประสงค์ของงานวิจัยนี้คือการศึกษารูปแบบของอุปสรรคต่าง ๆ ที่มักเกิดขึ้นในการนำกลยุทธ์มาสู่การปฏิบัติของบริษัทในกลุ่มประเทศเศรษฐกิจใหม่ นอกจากนี้ยังมีการเพิ่มองค์ความรู้ใหม่โดยการศึกษาความสัมพันธ์ของอุปสรรคเหล่านี้กับกลยุทธ์รูปแบบต่าง ๆ ของ Miles และ Snow ข้อมูลที่ใช้ในงานวิจัยถูกเก็บโดยการสำรวจจากผู้ตอบแบบสอบถามที่เป็นผู้บริหารและรับผิดชอบการกำหนดกลยุทธ์ของบริษัทในอุตสาหกรรมพลาสติกจำนวน 111 ท่าน ชุดคำถามทั้งหมดที่ใช้ในการเก็บข้อมูลได้ประยุกต์จากงานวิจัยที่เกี่ยวข้องในอดีต ข้อมูลที่เก็บได้ถูกทำการวิเคราะห์และทดสอบสมมติฐานโดยใช้วิธี ANOVA และ Post Hoc ผลจากการวิเคราะห์สามารถสรุปได้ 3 ประเด็นสำคัญดังนี้ ข้อแรก กลุ่มบริษัทที่มีรูปแบบกลยุทธ์ที่แตกต่างกันจะเผชิญกับรูปแบบอุปสรรคที่ต่างกัน ข้อสอง กลุ่มบริษัทที่มีรูปแบบกลยุทธ์แบบ Analyzer จะพบกับอุปสรรคในการปฏิบัติมากกว่ากลุ่มบริษัทที่มีรูปแบบกลยุทธ์แบบ Prospector แต่น้อยกว่ากลุ่มบริษัทที่มีกลยุทธ์แบบ Defender และข้อสุดท้าย กลุ่มบริษัทที่มีรูปแบบกลยุทธ์แบบ Reactor จะมีผลการดำเนินงานที่ต่ำที่สุดจากการเปรียบเทียบผลการวิจัยกับงานวิจัยใกล้เคียงอื่น ๆ พบว่าบริษัทในกลุ่มประเทศที่พัฒนาแล้ว จะพบกับอุปสรรคในการดำเนินกลยุทธ์น้อยกว่าบริษัทในกลุ่มประเทศกำลังพัฒนา ผู้บริหารหรือผู้รับผิดชอบในการวางแผนหรือการนำกลยุทธ์ไปสู่การปฏิบัติสามารถนำผลงานวิจัยชิ้นนี้ไปใช้ในการช่วยกำหนดแนวทางในการจัดการกับอุปสรรคต่าง ๆ ที่อาจเกิดขึ้นเพื่อเพิ่มโอกาสในความสำเร็จของกลยุทธ์

คำสำคัญ: การนำกลยุทธ์มาสู่การปฏิบัติ อุปสรรคในการดำเนินกลยุทธ์ Miles and Snow กลุ่มเศรษฐกิจใหม่

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Introduction

As business environment becomes increasingly changing and complex, many today's corporations discovered that strategic management is the pathway to succeed. Strategic management is regarded as an important process for businesses (Micheli, Mura, & Agliati, 2011; Kohtamaki, Kraus, Makela, & Ronkko, 2011; Kumar, 2010; Ogbeide & Harrington, 2011; Thompson & Strickland, 1990; Viljoan & Dann, 2003). It has been argued that the process of strategic management affects a firm's ultimate success or failure more than any other factors. This is due to the fact that it enables a firm to develop a future direction, provides the ways to achieve its mission, and ultimately leads to value creation (Jiang and Carpenter, 2013).

According to Wheelen and Hunger (2012), organizations that engage in strategic management generally outperform those that do not. Strategic management entails both strategic planning and implementation. The process of strategic management can be divided into two major tasks: strategy formulation and strategy implementation (David, 1995; Hitt, Ireland, & Hoskisson, 2005). The former involves the crafting of a strategy, whereas the latter is the managerial exercise of putting a chosen strategy in place (Thompson & Strickland, 1990). Strategic planning is important, yet formulated strategies must be implemented otherwise the planning phase becomes worthless.

Although both strategy formulation and strategy implementation have been highlighted as significant in the literature, strategy implementation has been regarded by some authors as more important than the strategy itself (Harrison & Pellestier, 2000; Hrebinaik, 2006; Ogbeide & Harrington, 2011; Robbins and Coulter, 1996; Schneier, Shaw, & Beatty, 1991). Many empirical studies found that most companies were unable to successfully execute their formulated strategies leading to disappointing achievements (Obeidat, Al-Hadidi, Tarhini, & Masa'deh, 2017). According to this fact, strategy implementation is obviously an important issue. Nonetheless, a number of studies indicate that strategy implementation has received less attention from both academics and practitioners compared to strategy formulation. Taking into account a lack of a cohesive body of strategy implementation literature, many scholars call for greater emphasis on the practical problems of strategy

implementation. There are some studies that examine why implementation is not always successful and that attempt to identify the barriers to implementation (Obeidat et al., 2017). Barriers such as poor communication, lack of leadership, and environmental uncertainty are regarded as key obstacles to success (Alexander, 1985; Beer & Eisenstat, 2000; Heide, Grohng, & Johannessen, 2002; Micheli et al., 2011; Noble, 1999; Ogbeide & Harrington, 2011; Raps, 2004; Taslak, 2004). Even if these studies indicated many factors that lead to a failure in strategy implementation, none of them attempted to discover whether there is a pattern of barriers to implementation due to a firm's strategy.

The emergence in Asia of so-called 'Tiger economies' and the rapid growth in newly emerging countries such as China and Vietnam, have prompted a great interest in Asian countries (Deshpande, Farley, & Bowman, 2004). Nonetheless, a review of literature revealed that the knowledge of the barriers to strategy implementation is only concentrated in Western countries. Furthermore, there is a limited knowledge on the relationship between organizational strategies and obstacles to strategy implementation in an Eastern context. The improvement in the industry will, in turn, contribute to the economic performance of the country. The chemical industries in 'Tiger economies' of Southeast Asia, that have been reported to have good prospects in the past decade, are now being challenged by China (Wood, 2005). Firms in the chemical industry in those countries including Thailand have to prepare themselves for this challenge. Such a gap requires further investigation. Given the importance of the role of strategic management in business, and the existing gaps in the literature, this study sets out a research project to explore and fulfill two major purposes: first, it aims to investigate typical obstacles to effective strategy execution; and second, it examines the relationship between those obstacles and Miles and Snow generic strategies.

Literature Review

Different views on strategic management theory

There are two opposite poles of strategy perspective-deliberate strategic process (strategic planning) and emergent process (strategic incrementalism). The basis of the deliberate strategic process (strategic planning perspective) is developed from the early work in 1965 by Learned, Christiansen, Andrews & Guth at Harvard University (for a discussion see Andrew, 1971; Forester & Browne, 1996) with the attempt to find the fit between environment and the firm using the famous SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis. According to Andrews (1971), the process starts from assessing the external environment, as well as internal strengths and weaknesses, and then strategies are formulated and chosen by the firm and, finally, those chosen strategies are implemented. On the other hand, the emergence process (strategic incrementalism) views strategy not as being formulated in a deliberate fashion, but emerged as the result of implementation following in the process (McKiernan, 1996). The proponents of this view argue that, in reality, the deliberate or intended strategies may not be realized; rather, many strategies may have emerged without necessarily planning in advance (Hurst, Rush, & White, 1989; Mckelvey & Aldrich, 1983; Mintzberg & Water, 1985; Quinn, 1980).

For the sake of simplicity in methodology design, this study follows the former view--deliberate strategic process. The strategic formulation is viewed as a separate process from strategic implementation. Specifically, a strategic decision is assumed to exist before implementation occurred. Given the different views on strategic management process, the term 'strategic management' also brings controversy among academics. Each perspective has different views on the process of strategic management; hence, this leads to different definitions. As this study employs the deliberate strategic process approach, 'strategic management' is defined as the managerial process of shaping a strategic vision, establishing objectives, developing a strategy, implementing, evaluating and controlling over time (Thompson & Strickland, 1990). Strategic management process can be broadly categorized into formulation and implementation (Hussey, 1998). According to Andrews (1971), the process starts

from assessing the external environment, as well as internal strengths and weaknesses, and then strategies are formulated and chosen by the firm and, finally, those chosen strategies are implemented.

Key Issues in Implementation

Strategy implementation refers to a systematic process or a logical set of connected activities that enables a company to take a strategy and make it work (Wheelen & Hunger, 2012). In other words, strategy implementation represents how firms take plans into action (Hussey, 1998). Strategic formulation is important, yet formulated strategies must be successfully executed. Many scholars and business people agree that strategy implementation is a very critical part of strategic management process that it has been almost completely neglected for decades (Grundy, 1998; Hrebinaik, 2006; Kaplan & Norton, 2001; Kruger, 1996; Thompson & Strickland, 1990). Strategy implementation is not an easy task. Thus, it is imperative to understand the factors that are involved in the implementation process and why many attempts of strategic implementation are not successful (Fakher, 2018). There are many key factors that contribute to the success and failure of strategy implementation. The key issues in implementation include leadership, communication, organizational structure, external environment, organization culture and staff (Alexander, 1985; Beer & Eisenstat, 2000; Miller, 1997; Noble, 1999 Raps, 2004; Taslak, 2004). Although these authors have investigated the key issues in implementation, they merely listed the implementation factors and did not provide or develop a comprehensive framework to provide a completed picture of key issues involved in strategy implementation.

Barriers to Implementation

There are several empirical studies that attempted to identify implementation barriers in various specific contexts (Fakher, 2018). Strategy implementation barriers can be defined as “an operational obstacle to goal achievement which either existed before implementation began and was not recognized or arose as a systemic reaction effort that was due to poor preparation or systematic failure” (Kargar and Blumenthal,

1994: pp 14-15). An early research to identify implementation barriers was undertaken by Alexander (1985). In that study, he spotted implementation problems faced by 93 executives of large and medium sized companies in the US. He developed a questionnaire based on earlier interviews he had conducted and 22 potential barriers listed in previous studies. Of the 22 potential problems, Alexander found only 15 of the them are prevailing. Nonetheless, industry and firm size effects are not taken into account in his work.

The following research utilized the 15 potential barriers identified as being most prevalent. For instance, Kargar and Blumenthal (1994) used Alexander's approach to identify key implementation factors in small community banks in North Carolina. They indicate that small banks experience different extents and types of implementation barriers when compared with the findings from Alexander's study. Another replication of Alexander's work was conducted by Al-Ghamadi (1998). He wanted to examine whether the implementation problems found in Alexander (1985) prevailed a decade later. The result shows that these problems continue to exist and implementation issues still receive a little attention even after more than a decade. Taslak (2004) also adopted Alexander's approach to investigate the factors restricting the success of strategic implementation in the Turkish textile industry. Both implementation barriers and problems in strategy formulation were examined in this study. Although Taslak (2004) based his work on the potential barriers identified earlier by Alexander (1985), he utilized only 12 potential problems. The result indicates that external environment-related issues and operation planning tend to predominate in implementation. The recent research conducted by Kohtamaki et al. (2011) highlights the important role of participative strategic planning on personnel commitment, one of barrier to strategy implementation, in small and medium-sized Finnish IT companies.

Apart from those questionnaire survey studies, some studies have adopted the case study to identify the key success factors and obstacles to implementing strategic decisions. For instance, Miller (1997) provides the deeper understanding about differences in importance of various factors in determining success. Her study aimed to clarify the factors for success and failure in implementing strategic

decisions. Beer and Eisenstat (2000) use an inquiry and action learning method called 'Organizational Fitness Profiling (OFP)' to understand the deep-rooted barriers in 12 organizations. The six most often mentioned by the teams are: top-down management style; unclear strategy and conflicting priorities; ineffective senior management team; poor vertical communication; poor communication across function; and inadequate down-the-line leadership skills. Aaltonen and Ikavalko (2002) studied strategic implementation in 12 service sector firms and Jiang and Carpenter (2013) conducted 20 interviews to identify key issues in strategy implementation of UK universities' internationalization. Their research papers focused on the interaction of strategic plan and implementation reality with the help of communication, interpretation, adoption and action. In summary, the results from those studies that adopted case study approach indicate that the major problems in implementation are quite similar to those identified by Alexander (1985).

For this research, the barriers to implementation employed by Taslak (2004) which originally developed by Alexander (1985) are adopted for two reasons: firstly, these twelve potential barriers represent the common barriers to implementation in previous studies; and secondly, the smaller numbers of barriers make it more manageable to investigate the strategic types with barriers to implementation. The list of implementation barriers to be studied is presented in Table 1.

Table 1 Potential barriers to implementation of strategic decisions

Potential barriers to implementation of strategic decisions
1) Uncontrollable factors in the external environment
2) Inadequate leadership and direction of departmental manager
3) Ineffective coordination of implementation activities
4) Inefficient capabilities of employees
5) Inadequate training given to lower level employees
6) Unclearly defined changes in responsibilities of key role
7) Problems surfaced were not identified earlier
8) The problems were not communicated to top management early enough
9) Implementation activities taking more time than originally planned
10) Competing activities distracting attention from implementing decision
11) Key formulators of the strategic decision cannot play an active role in implementation
12) Supporters of strategic decision leave the organization during the implementation

Source: Taslak (2004, p. 157)

Most research on barriers to implementation study barriers to implementation experienced by firms without taking into account generic strategy pursued by firms. In other words, none of these studies has ever investigated the relationship between strategic type and potential barriers to implementation, this study intends to fill this gap by exploring these relationships.

Organizational Strategies

The field of business strategy has demonstrated a shift from a perspective that each firm is unique toward a view which recognises the similarities among groups of firms (Covin, 1991; Dess & Davis, 1984; Miles & Snow, 1978; Porter, 1980). Currently, this perspective is still relevant and prevalent in the literature as evidenced by a number of recent studies that group firms based on their strategic behaviour (see, for example, Aragon-Sanchez & Sanchez-Martin, 2005; Galbreath, 2010; Garrigos-Simon Marques & Narangajavana, 2005; Torgovicky, Goldberg, Shvarts, & Dayan, 2005). As this study focusing on overall strategic orientation of the firms, strategy typology is highlighted in the research. Strategy typologies or generic strategies are the useful tool for classifying organizations by their strategic decisions. They are basic approaches to strategic planning that can be employed by any firm in any industry or market to enhance its performance.

Several typologies have been proposed to investigate company strategic behavior. Of all typologies offered in the literature, the Miles and Snow framework continues to be the most enduring strategy classification system available. The theory is considered by many scholars to provide practical, reliable and coherent categorization schema of organizations in a variety of industries. The Miles and Snow (1978) typology is based on in-depth investigation of four different industries. On the other hand, other strategy typologies, including Porter's (1980) typology, lack an extensive, detailed, theoretical orientation and are more focused and less generalizable (Smith, Guthrie & Chen, 1989; Slater & Olsen, 2000). As a consequence, this research adopts the Miles and Snow typology to describe the firms' overall strategic orientation. In their seminal paper, Miles and Snow (1978) identified organizations as one of four mutually exclusive strategic categories: prospector, analyzer, defender, and reactor. Prospectors are characterized by a consistent and strong exploration of new technology, market and organizational operations. In short, they are relentlessly seeking innovation in business. Defenders are engineering-oriented. They maintain their market share through high quality product and/or cost leadership. Analysers are an intermediate type. Analyzers are the result of the combination of the strengths of Prospectors and Defenders They are excel in a limited number of markets and slow to adapt to the changes in the market. A fourth, usually unsuccessful type, the reactor, has no consistent and clear strategy.

Hypothesis Development

The Nature of Barriers to Implementation Experienced by Firms in the Chemical Industry in Thailand

Even though previous research concludes the importance of implementation in strategic process, more than 70 percent of organizations' strategic initiatives fail at the implementation stage (Miller, 2002). Leadership, environmental uncertainty, and poor communication are regarded as common key obstacles to success (Beer & Eisenstat, 2000; Heide et al, 2002; Noble, 1999; Raps, 2004). Currently, the investigation has been conducted in Western contexts. Knowledge on the Eastern context will provide a clearer picture of the common barriers to implementation and reveal the nature and extent of problems experienced by firms in the chemical industry in Thailand. Hence, this research examines what are the nature of barriers to implementation experienced by firms in the chemical industry in Thailand. This investigation is exploratory and descriptive in nature.

The Patterns of Relationship, if any, Between Miles and Snow Typologies and the Types of Barriers to Implementation

Miles and Snow (1978) contend that each strategic type is different in terms of how it addresses the choices in which organizations define and approach their organization domains (the entrepreneurial problem), create an appropriate technology or a system (the engineering problem), and mitigate uncertainty within organizations (the administrative problem) to accomplish success in their domains. Most studies indicate that Defenders and Prospectors are different in many aspects, including organizational mechanisms, entrepreneurial nature, top and middle management, human resource policy, and operation planning (Bigadike, 1979; Chaganti & Sambharya, 1987; Courtright, Fairhurst, & Rogers, 1989). The diversity of these aspects may cause different types of barriers to implementation experienced by Prospectors and Defenders. This leads to the following hypothesis:

H1: Prospectors experienced different barriers to implementation compared to Defenders.

On the other hand, there is very little evidence on Analysers and Reactors in the previous studies. However, the unique characteristic suggested by Miles and Snow (1978) may lead to some specific patterns of barriers to implementation experienced by Analysers and Reactors. As Analysers are a hybrid form of Prospectors and Defenders, they possess the characteristics of both of them; but are not as extreme as those two. If Prospectors and Defenders are conceptualized in opposite poles in terms of their characteristics, it is expected that Analysers may be in between. Hence, it is argued that Analysers will experience moderate levels of barriers to implementation compared to Prospectors and Defenders. This leads to the following hypothesis:

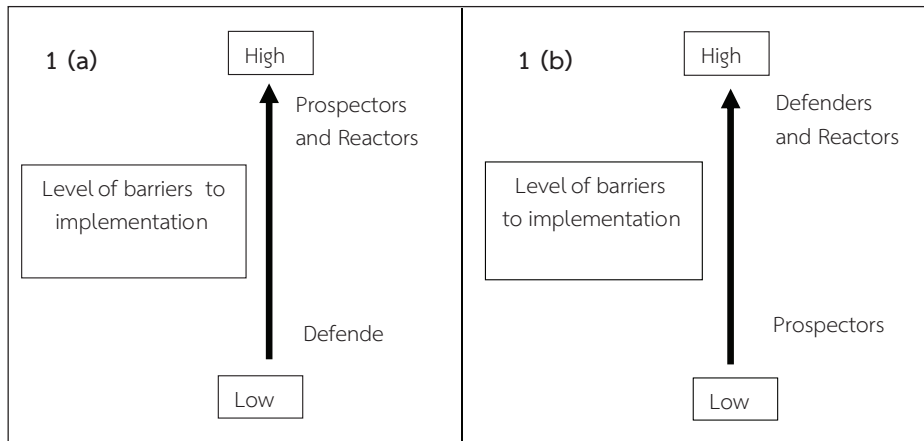
H2: Analysers experience moderate level of barriers to implementation compared to Prospectors and Defenders.

Reactors exhibit inconsistent and unstable patterns of adjustment to their environment (Miles & Snow, 1978). They do not possess mechanisms to respond to environmental change in a consistent fashion (Miles & Snow, 1978). It is argued that ineffective types of organization like Reactors will experience high levels of barriers to implementation. This leads to the following hypothesis:

H3: Reactors experience relatively high levels of barriers to implementation compared to the other strategic types.

The three hypotheses can be conceptualized as depicted in Figure 1. Figure 1(a) indicates that Prospectors and Reactors will experience higher levels of barriers to implementation, while Defenders will face lower levels of barriers to implementation in the following barriers (The numbers in the parenthesis indicate the corresponding barriers to implementation presented in Table 1)

Figure 1 Summary of three hypotheses (H1 to H3)



- Uncontrollable factors in the external environment
- Ineffective coordination of implementation activities
- Inadequate training given to lower level employees
- Unclearly defined changes in responsibilities of key role
- Problems surfaced were not identified earlier
- Implementation activities taking more time than originally planned
- Competing activities distracting attention from implementing decision
- Supporters of strategic decision leave the organization during the implementation

Whereas Figure 1(b) indicates that Defenders and Reactors will experience higher level of barriers to implementation, Prospectors will face lower level of barriers to implementation in the following barriers to implementation:

- Inadequate leadership and direction of departmental manager
- Insufficient capabilities of employees
- The problems were not communicated to top management early enough
- Key formulators of the strategic decision cannot play an active role in implementation

Methodology

The unit of analysis in this research is at the firm level. This is because the primary objective of this study is to examine the nature of barriers to strategy implementation and to empirically investigate its relationship to firms' strategic types proposed by Miles and Snow (1978). Structured questionnaires were collected from key informants from firms in chemical industry in Thailand. They were mostly senior executives who possess crucial information about organizational situations. The chemical industry plays an important role in Thailand's economic system. This industry is considered to be a fundamental industry for both manufacturing and the service sector. The production of chemicals leads to a continuous process in other downstream industries as many raw materials used in many industries are the products from the chemicals industry (Office of Industrial Economics, 2013). A study on a single industry provides 'natural controls' for a wide range of variables (Peteraf & Shanley, 1997, p. 183). It was decided to focus on one particular industry in Thailand, the chemical industry, instead of surveying across a range of industries. The list of companies was received from The Federation of Thai Industries' website. It was considered to be the most reliable and complete source of information. 309 companies were found in Chemical industry.

This paper employed Yamane (1967:886)'s formula in calculating the sample size with 95% confidence level.

$$n = N/1 + N(e)^2$$

Where n is the sample size, N is the population size, and e is the level of precision. When this formula is applied, the target sample size is 174.

Of 309 questionnaires posted out, 114 were returned achieving a response rate of 36 percent. According to previous research in this area, a sample size ranging from 100 to 400 is common (Conant, Mokwa, & Varadarajan, 1990; Jennings, Rajaratnam, & Lawrence, 2003; Micheli et al., 2011; Ogbeide & Harrington, 2011; Parnell & Wright, 1993; Taslak, 2004). Furthermore, the population size is very limited.

Measurement Model

The questionnaire consisted of two sections. The first section asked about the company and key informants information, whilst the second part asked about the key constructs. Information regarding key constructs and their corresponding scales was obtained by searching the relevant literature; therefore, all constructs were measured using existing scales drawn from literature with some adjustments. Three constructs employed in this study were measured as follows:

Miles and Snow Typology

Because of the widely use of Miles and Snow typologies, there are a number of approaches to operationalize the four types of strategies (Conant et al., 1990). Two most commonly employed approaches are discussed in this section: paragraph and multi-items approaches. In the paragraph approach, four typed paragraphs are explained to the respondents and then the respondents are requested to choose one paragraph that they think best describe their firm's characteristics. Alternatively, some researchers decided to operationalize Miles and Snow typologies by utilizing a multi-item approach (Conant et al., 1990; Sagev, 1987; Smith et al., 1989). This approach was designed to address the drawbacks of the single-item paragraph approach.

Due to the limitations of the paragraph approach, this study employed eleven-item scale from Conant et al. (1990). In each question, four descriptions representing the characteristics of each strategic type were shown to the respondents, and the respondents were asked to choose one of those four that best describe their firm's characteristics. This self-reporting has been considered as an appropriate method when undertaking research into strategy (Huber and Power, 1985; Snow and Hrebiniak, 1980). Firms were then classified into each Miles and Snow generic strategy based on the score that they received.

Barriers to Implementation

The respondents were asked to evaluate the barriers to implementation which they experienced during implementation of the strategic decision. The 'barriers to implementation' were taken from Taslak (2004) in which he defined and based the potential barriers on previous works (Alexander, 1985; Al-Ghamadi, 1998; Kargar and Blumenthal, 1994). Taslak (2004), however, employed 12 of those 15 potential problems identified in the previous studies. Taslak's (2004) measure was selected for two reasons: firstly, these twelve potential barriers represent the common barriers to implementation in previous studies; and, secondly, the smaller numbers of barriers make it more manageable under the time constraint of this dissertation. Barriers to implementation are measured by utilizing a five-point Likert scale ranging from 1 = never cause a problem to 5 = cause strategy implementation to fail (Alexander, 1985; Al-Ghamadi, 1998; Kargar and Blumenthal, 1994; Taslak, 2004).

Results

Of 111 responses, 40 firms (36 percent) are classified as Defenders; 36 firms (32.4 percent) are Analyzers; 19 firms (17.1 percent) are Prospectors; and 16 firms (14.4 percent) are Reactors. Defenders and Analysers are the dominating strategic types in the chemical industry in Thailand. The nature of twelve barriers to implementation was shown in Table 2. To facilitate the interpretation, the two adjacent pairs of numbers on the five-point Likert scale were added together (for display purposes) as follows: the frequencies of minor and average levels (Likert scale of 2 and 3) were added together; the frequencies of major and cause project to fail levels (Likert scale of 4 and 5) were combined together.

Table 2 The nature of barriers to implementation experienced by firms in the chemical industry in Thailand

Potential barriers to implementation	Frequency of minor/ average levels	Frequency of major/ cause project to fail levels	Frequency of any degrees of problems	Mean
1) Uncontrollable factors in the external environment	50 (45%)	51 (45.9%)	101 (90.9%)	3.19
2) Inadequate leadership and direction of departmental manager	68 (60.2%)	31 (27.9%)	99 (87.9%)	2.88
3) Ineffective coordination of implementation activities	59 (53.1%)	45 (40.5%)	104 (93.6%)	3.11
4) Insufficient capabilities of employees involved in implementation	67 (60.3%)	31 (27.9%)	98 (88.2%)	2.92
5) Inadequate instruction and training given to lower level employees	81 (72.9%)	24 (21.6%)	105 (94.5%)	2.85
6) Unclearly defined changes in responsibilities of key role	60 (54%)	42 (37.8%)	102 (91.8%)	2.95
7) Major problems surfaced were not identified earlier	73 (65.7%)	31 (27.9%)	104 (93.6%)	2.91
8) The problems were not communicated to top management early enough	67 (60.3%)	35 (31.5%)	102 (91.8%)	2.94
9) Implementation activities taking more time than originally planned	71 (63.9%)	34 (30.6%)	105 (94.5%)	2.95
10) Competing activities distracting attention from implementing decision	73 (65.7%)	26 (23.4%)	99 (89.1%)	2.69
11) Key formulators of the strategic decision cannot play an active role in implementation process	55 (49.5%)	42 (38.7%)	97 (88.2%)	3.05
12) Supporters of strategic decision leave the organization during the implementation	55 (49.5%)	27 (24.3%)	82 (73.8%)	2.48

Overall, all barriers to implementation in the list were commonly experienced by firms in the chemical industry in Thailand as evidenced by the high frequencies of occurrences (more than 70 percent) for each barrier reported by firms. Of the twelve barriers, there are seven barriers that more than 90 percent of firms experienced during the implementation phase: inadequate instruction and training given to lower level employees (94.5 percent); implementation activities taking more time than originally planned (94.5 percent); major problems surfaced were not identified earlier (93.6 percent); ineffective coordination of implementation activities (93.6 percent); unclearly defined changes in responsibilities of key role (91.8 percent); the problems were not communicated to top management early enough (91.8 percent); uncontrollable factors in the external environment (90.9 percent).

In terms of the severity of each problem reported by firms, three barriers--uncontrollable factors in the external environment (mean=3.19); ineffective coordination of implementation activities (mean=3.11); key formulators of the strategic decision that cannot play an active role in implementation process (mean=3.05)--were the biggest barriers to strategy implementation. The uncontrollable factors in the external environment and ineffective coordination of implementation activities were the only two barriers that more than 40 percent of firms reported as major effect or potentially cause a project to fail (severe effect), while inadequate instruction and training given to lower level employees, which ranked high in terms of its occurrences, were reported as major effect or potentially cause project to fail (severe effect) by just above 20 percent of firms. Other barriers such as unclearly defined changes in responsibilities of key role (mean=2.95); implementation activities taking more time than originally planned (mean=2.95); problems that were not communicated to top management early enough (mean=2.94); insufficient capabilities of employees involved in implementation (mean=2.92); major problems surfaced were not identified earlier (mean=2.91); inadequate leadership and direction of departmental manager (mean=2.88); inadequate instruction and training given to lower level employees (mean=2.85) were found to have moderate effect on implementation of strategies.

Hypothesis Testing*Miles and Snow Typologies and Types of Barriers to Implementation*

To begin investigating the relationship between Miles and Snow strategic type and barriers to implementation, descriptive statistics such as mean and standard deviation (S.D.) of each barrier to implementation were calculated for each strategic type. The results are presented in Table 3.

Table 3 Mean and S.D. of barriers to implementation according to strategic types

Potential barriers to implementation	Prospector	Defender	Analysers	Reactor
1) Uncontrollable factors in the external environment	3.95 (.911)	2.53 (.987)	3.19 (.951)	3.94 (.680)
2) Inadequate leadership and direction of departmental manager	2.63 (1.116)	2.90 (.744)	2.61 (1.076)	3.75 (0.577)
3) Ineffective coordination of implementation activities	3.47 (.841)	2.63 (1.125)	3.14 (.931)	3.81 (.834)
4) Insufficient capabilities of employees involved in implementation	3.11 (.937)	2.65 (1.167)	2.92 (.841)	3.38 (.500)
5) Inadequate instruction and training given to lower level employees	3.11 (.809)	2.55 (.876)	2.75 (.732)	3.50 (.632)
6) Unclearly defined changes in responsibilities of key role	3.53 (.841)	2.42 (.958)	2.69 (1.091)	4.13 (.500)
7) Major problems surfaced were not identified earlier	3.00 (.816)	2.63 (.868)	2.72 (.944)	3.94 (.443)
8) The problems were not communicated to top management early enough	2.21 (1.134)	3.00 (.784)	3.03 (1.000)	3.44 (.629)
9) Implementation activities taking more time than originally planned	3.00 (.943)	2.53 (1.012)	3.22 (.797)	3.31 (.497)
10) Competing activities distracting attention from implementing decision	3.37 (.955)	2.13 (.822)	2.67 (.862)	3.38 (.957)
11) Key formulators of the strategic decision cannot play an active role in implementation process	2.26 (1.195)	3.15 (.975)	3.00 (1.042)	3.88 (.619)
12) Supporters of strategic decision leave the organization during the implementation	2.32 (1.157)	2.20 (1.067)	2.64 (1.175)	3.00 (1.211)

From Table 3, it can be seen clearly that the mean scores of Reactor tend to be high in almost every barrier to implementation, while Analyser tend to have moderate mean scores compared to other strategic types. Of twelve barriers to implementation, Prospector possessed higher mean scores in nine barriers to implementation compared to those of Defender. Defender exhibited higher mean scores than Prospector in three barriers to implementation including: inadequate leadership and direction of departmental manager; the problems were not communicated to top management early enough; key formulators of the strategic decision cannot play an active role in implementation process.

In order to find whether each Miles and Snow strategic type experienced different levels of barriers to strategic implementation, a one-way ANOVA was performed. Table 4 summarizes the results from one-way ANOVA tests. Once the significant results were found, a Levene test was performed in order to select appropriate statistics for *post-hoc* testing. A Scheffe test was employed if homogeneity of variances can be assumed. In the case where homogeneity of variances cannot be assumed, a Tamhane test was used for multiple comparisons.

F-test indicated significant results for 11 barriers to implementation. The result suggested that the different strategic types experienced different levels of barriers to implementation. Only supporters of strategic decision that leave the organization during the implementation (barrier 12) was not subject to strategic types. As there were significant results in 11 barriers to implementation, post-hoc testings were performed and used as the basis to test the hypotheses.

Hypothesis 1: *Prospectors experience different barriers to implementation to Defenders.*

Overall, H1 was partially supported. Prospectors and Defenders experienced different level of barriers to implementation in six barriers to implementation at 5 percent level of significance. Prospectors faced more problems from four barriers to implementation: uncontrollable factors in the external environment; ineffective coordination of implementation activities; unclearly defined changes in responsibilities of key role and competing activities distracting attention from implementing decision. The findings were in line with the discussion made in literature review.

Table 4 ANOVA and post-hoc test results between strategic types and barriers to implementation

Potential barriers to implementation	F-test	Levene test	Post-hoc test
1) Uncontrollable factors in the external environment	14.629*	2.899*	P>D; P>A; P=R; A>D; R>D; R>A
2) Inadequate leadership and direction of departmental manager	6.331*	5.585*	P=D; P=A; P<R; A=D; R>D; R>A
3) Ineffective coordination of implementation activities	6.883*	1.737	P>D; P=A; P=R; A=D; R>D; R=A
4) Insufficient capabilities of employees involved in implementation	2.520*	4.651*	P=D; P=A; P=R; A=D; R>D; R=A
5) Inadequate instruction and training given to lower level employees	6.419*	1.526	P=D; P=A; P=R; A=D; R>D; R>A
6) Unclearly defined changes in responsibilities of key role	15.868*	6.176*	P>D; P>A; P=R; A=D; R>D; R>A
7) Major problems surfaced were not identified earlier	10.182*	4.526*	P=D; P=A; R>P; A=D; R>D; R>A
8) The problems were not communicated to top management early enough	5.869*	1.511	P<D; P<A; P<R; A=D; R=D; R=A
9) Implementation activities taking more time than originally planned	5.261*	3.317*	P=D; P=A; P=R; A>D; R>D; R=A
10) Competing activities distracting attention from implementing decision	12.547*	.952	P>D; P=A; P=R; A=D; R>D; R=A
11) Key formulators of the strategic decision cannot play an active role in implementation process	7.748*	2.652	P<D; P=A; P<R; A=D; R=D; R>A
12) Supporters of strategic decision leave the organization during the implementation	2.282	.380	-

P=Prospector, D=Defender, A=Analyser, R=Reactor

* the result significant at 5 percent level of significance

In contrast, Defenders experienced a higher level of barriers to implementation than Prospectors in two cases: the problems were not communicated to top management early enough; and key formulators of the strategic decision cannot play an active role in implementation process. The findings were in line with the discussions made in literature review.

Nonetheless, the results from Table 4 indicated that Prospectors and Defenders had the same level of barriers to implementation in the other six barriers to implementation, which included inadequate leadership from departmental manager; insufficient capabilities of employees involved in implementation; inadequate instruction and training given to lower level employees; major problems surfaced were not identified earlier; implementation activities taking more time than originally planned; and supporters of strategic decision that leave the organization during the implementation.

Hypothesis 2: Analysers experience a moderate level of barriers to implementation compared to Prospectors and Defenders.

Overall, the H2 was strongly supported. According to Table 4, the post-hoc test revealed that Analysers experienced no greater or no less level of barriers to implementation than Prospectors and Defenders in all barriers. Analysers experienced the same level of problems to Prospectors and Defenders in eight barriers to implementation. For the other four barriers, Analysers experienced a level of problems somewhere between the level of problems faced by Prospectors and Defenders. Thus, it was concluded that Analysers experienced a moderate level of barriers to implementation compared to Prospectors and Defenders.

Hypothesis 3: Reactors experienced a relatively high level of barriers to implementation compared to the other strategic types.

H3 was strongly supported. Reactors experienced a relatively high level of barriers to implementation compared to other strategic types. Firstly, the level of barriers experienced by Reactors were compared with Prospectors in eight barriers in which Prospectors are expected to experience high levels of problems (See Figure 1(a) for more details. According to Table 4, Reactors exhibited significantly higher

mean scores or equal mean scores to Prospectors in all eight barriers to implementation presented in Figure 1(a). These eight barriers to implementation included uncontrollable factors in the external environment; ineffective coordination of implementation activities; inadequate training given to lower level employees; unclearly defined changes in responsibilities of key role; problems surfaced were not identified earlier; implementation activities taking more time than originally planned; competing activities distracting attention from implementing decision; and supporters of strategic decision that leave the organization during the implementation.

Secondly, the level of barriers experienced by Reactors were compared with Defenders in the other four barriers in which Defenders are expected to experience high levels of problems (See Figure 1(b) for more detail). From Table 4, Reactors exhibited either significantly higher mean scores or equal mean scores to Defenders for all four barriers to implementation presented in Figure 1(b). These four barriers were inadequate leadership and direction of departmental manager; insufficient capabilities of employees; the problems were not communicated to top management early enough; and key formulators of the strategic decision cannot play an active role in implementation. Therefore, it was concluded that Reactors experienced relatively high levels of barriers to implementation compared to other strategic types.

Discussion

For the first hypothesis (H1), the significant differences between Prospectors and Defenders were found in six barriers to implementation. Compared to Defenders, Prospectors faced more problems from four barriers: uncontrollable factors in the external environment; ineffective coordination of implementation activities; unclearly defined changes in responsibilities of key role; competing activities distracting attention from implementing decisions. On the other hand, Defenders experienced more problems from two barriers: problems were not communicated to top management early enough and key formulators of the strategic decision cannot play an active role in the implementation process. The finding is consistent with the previous literature and supports the arguments and discussions made in literature review (Biggadike, 1979; Courtright et al, 1989; Govindarajan, 1986; Miles & Snow, 1978)

Nonetheless, there are still six other barriers--inadequate leadership and direction of departmental manager; insufficient capabilities of employees involved in implementation; inadequate instruction and training given to lower level employees; Major problems surfaced were not identified earlier; implementation activities taking more time than originally planned; supporters of strategic decisions that leave the organization during the implementation--that Prospectors and Defenders experienced at the same level. Even though these results were not as expected, the finding indicated that these six barriers to implementation may be common to both types of firms in the chemical industry in Thailand.

In summary, Prospectors should place more emphasis on these four barriers: uncontrollable factors in the external environment; ineffective coordination of implementation activities; unclearly defined changes in responsibilities of key role; competing activities distracting attention from implementing decision whereas; Defenders should pay more attention to these two barriers: the problems that were not communicated to top management early enough; and key formulators of the strategic decision that cannot play an active role in the implementation process. In addition, management of Prospectors and Defenders should also pay attention to the other six barriers which are common to both types of firms.

The second hypothesis (H2) was strongly supported. Analysers experienced the extent of problems somewhere between Prospectors and Defenders. The findings suggested that, by the nature of the Analyser, it faced lower risk in implementation compared to other strategic types. This is in line with the finding that Analyser is the strategic type that has the highest percentage of firm who succeed in implementation of strategic decisions. Table 5 presents the cross-tabulation between strategic types and firm's success in strategy implementation.

Table 5 The cross-tabulation between strategic types and a firm's success in strategy implementation.

Strategic type	Number of firms reported unsuccessful in implementation	Number of firms reported successful in implementation	Percentage of firms reported unsuccessful in implementation	Percentage of firms reported successful in implementation
Prospectors	11	8	58%	42%
Defenders	20	20	50%	50%
Analysers	17	19	44%	56%
Reactors	14	2	88%	12%

Finally, the third hypothesis (H3) was largely supported. The findings confirmed that Reactor is a less effective strategy. They exhibited a poor result in implementation of strategy (See Table 5). Miles and Snow (1978) indicated three reasons why a firm can become a Reactor: first, the organizational strategy may not be clearly articulated; second, the management in Reactor organizations insufficiently shapes the organizational structure and process; third, the management ignores the change in the environment. A number of barriers to implementation employed in this study are related to these three reasons. Thus, it is as expected in the hypothesis that the Reactor faced the difficulty in carrying out the strategic decision.

Implications

This study provides a number of business and research implications. In terms of the research implications, the findings added knowledge to the literature as the previous studies focused on other industries and their research has been conducted in Western countries. The findings suggested that more advanced countries in the Western world experience fewer problems from implementation of strategy than less developed countries in the East. This study is a pioneer in investigation of the problems of implementation by focusing on whether different strategic types have experienced barriers to implementation differently when they implement their strategic decisions. The findings add new knowledge to the existing literature and lay a foundation to

further research. In terms of implications for business, this study reveals the nature of barriers to implementation for firms in the chemical industry. It allows management to focus on and cope with the barriers to implementation that commonly occur and pose serious problems to the organization. Understanding the nature of problems allows firms to be more successful in strategy implementation. The information of the patterns of barriers to implementation that are specific to each strategic type allows management to specifically focus on barriers that are highly relevant to their selected strategy. The finding indicated that not only success in strategy implementation a significant predictor of a firm's performance, but also it has greater impact on a firm's performance than the Miles and Snow strategic type that a firm pursues. This finding reinforces the importance of strategy implementation in contributing to a firm's performance.

Suggestions for future research

An important issue for improvement is the use of more specific barriers to implementation. As previously mentioned, the barriers to implementation employed in this study are subject to interpretation. The collected data may not perfectly represent the true population of companies in chemical industry as some companies are not listed in the directory. The future research may consider using more specific barriers to implementation. It will enhance the usefulness of the results in terms of business implication. The management can pinpoint the source of problem more correctly. In addition, other endogenous factors that can influence firms' strategic behavior (typologies) such as organizational culture; leadership characteristics; organizational structure; and control and monitoring systems were not included in this study. Consequently, it is recommended for future researchers to include these factors into their studies.

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