



Drivers and Barriers to Growth of the Thai Rice Milling Industry

A thesis submitted in fulfilment of the requirements for the degree of Doctor of
Philosophy

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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis/project is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

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Abstract

This thesis involves two interrelated studies. Study 1 maps the characteristics of the Thai rice milling industry. There appears to be no studies of the characteristics of Thai rice millers and mills. Study 2 identifies the enablers and barriers to growth in the Thai rice milling industry. These two studies address two main research questions: Research Question 1: What are the principal characteristics of the Thai rice milling industry? Research Question 2: What are the drivers and barriers to growth of the Thai rice milling industry?

Study 1: Mapping the Characteristics of Thai Rice Milling Industry

The key objective of Study 1 is to examine the characteristics of the Thai rice milling industry. Participants are the population of Thai rice millers ($N = 38,241$), 91.1% are small business, only 3.5% are medium-sized enterprises, and 5.4% are large corporations. This study adopts a quantitative method to map the characteristics of the Thai rice milling industry. Data were obtained from the Thai Government office records, private and international institute databases, and other reliable sources.

Findings show that all regions of Thailand specialize in milling and removing husks, as expected, but surprisingly no region specializes in roasting, polishing, packaging, and processing of rice. In addition, large enterprises are more efficient in terms of employee per output, but less efficient in relation to machine capacity and level of capitalization. Finally, these findings suggest that government policies impact significantly on rice production but the extent of impact is relatively small.

Study 2: Drivers and Barriers to Growth in the Thai Rice Milling Industry

The main objective of Study 2 is to identify the enablers and barriers to growth in the Thai rice milling industry. Consistent with the constructivist approach, Study 2 employs an in-depth interviewing procedures in relation to potentially sensitive topics. The target population is the Thai rice milling sector. Participants are 33 randomly selected rice mills, classified as either small ($n = 24$), medium ($n = 2$), large ($n = 7$), cooperative ($n = 3$), non-family oriented ($n = 3$), or family-oriented ($n = 27$). Interviewees are experienced owners, senior managers or key employees. Findings demonstrate that regional location of rice mills, size of business, type of business (e.g.,

family business), rice mill activity (e.g., roasting), and government/institutional factors pose as formidable considerations.

Limited investment in education, technology, and modern machinery are barriers to growth. Findings suggest that interventions should focus on helping to build capabilities through training, education, technology, and innovation to enable this industry to regain a sustainable competitive advantage and move up the global rankings in this sector. A further imperative is the need to value add to rice production rather than focusing predominately on exporting.

Chapter 1

Introduction

Overview

This chapter begins with an introduction and reviews the current research status of the Thai rice milling industry. Next, the research aims and objectives, and research questions are outlined, followed by a brief discussion of the rationale underlying this thesis. Chapter 1 concludes with an overview of the structure and content of the present thesis.

The Thai economy is highly dependent on export products, including rice, which are more than half of the nation's Gross Domestic Product (GDP). Besides rice, Thailand's major agricultural exports are tapioca, rubber, maize, pineapple, durian, longan, palm oil, and herbs (Yearbook, 2013). Rice production has long played a pivotal role in Thailand's socio-economic development, making the country one of, if not, the world's top 10 rice exporters over the previous three decades (Rakotoarisoa, 2006), generating over 65,000 million Baht (US\$ 2,100 million) (The Custom Department, 2014).

Within this context, agricultural land in Thailand has declined from 17 million ha in 1995 to 15million ha in 2009. However, the rice farming cultivation area increased to 11 million ha in 2010 from 9 million ha in 1995. This increase in cultivation can be attributed to the Thai government encouraging farmers through government policies and also higher prices for rice on world markets (Maclean, Hardy, & Hettel, 2013). This industry creates jobs for around 56% of the Thai population (Krasachat, 2004), and accounts for approximately 12% of Thai GDP (Worldbank, 2014). Notwithstanding the rice industry has faced challenges on both the supply and the demand sides. Thailand has produced consistently low yield in contrast to other large rice producing countries such as Vietnam and India. This is mainly due to insufficient water delivery during drought seasons. Poor irrigation development and unfavourable water supply priorities have also contributed (Roche, 2014). A lack of long-term planning concerning rice production and marketing development has allowed other

countries to catch-up and even outperform Thailand's rice export industry. International competition continues to place increased pressure on the Thai rice industry (Figure 1.1).

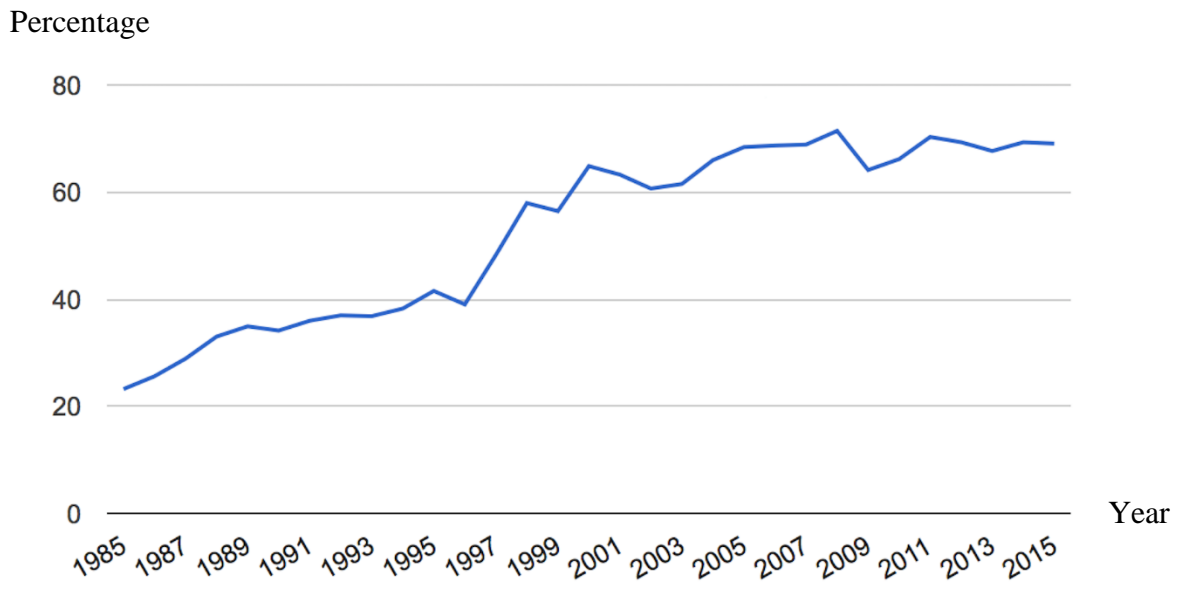


Figure 1.1 Thailand Rice Exports as percent of GDP

Note. Source: Trending Economic (2017)

As the Thai economy has developed, the role and significance of rice has gradually declined (Titapiwatanakun, 2012) because of fluctuations in price and the cultivated area expansion of major competitors such as Vietnam, the United States, and India (Ghoshray, 2008). When compared with international competitors, Thailand now lags in terms of efficiency and production cost (Doner, 2009). Although Thailand is a major global exporter, the Thai government is unable to regulate the price of rice because prices are dependent on market mechanisms (Ghoshray, 2008). Table 1.2 shows how other rice producing countries such as Vietnam and India have increasingly become competitive for the Thai rice milling industry.

Exporters	Exported value in 2001	Exported value in 2002	Exported value in 2003	Exported value in 2004	Exported value in 2005	Exported value in 2006	Exported value in 2007	Exported value in 2008	Exported value in 2009	Exported value in 2010	Exported value in 2011	Exported value in 2012	Exported value in 2013	Exported value in 2014	Exported value in 2015▼
World	6,752,555	6,513,232	7,220,429	8,717,949	10,102,532	10,545,297	13,213,950	21,254,681	18,689,870	20,289,552	24,060,934	23,963,515	25,427,518	26,017,228	22,577,644
India <i>i</i>	610,579	1,168,645	919,151	1,178,738	1,636,489	1,456,255	2,352,946	2,843,305	2,398,163	2,295,813	4,073,331	6,127,952	8,169,519	7,905,650	6,380,082
Thailand <i>i</i>	1,577,473	1,630,628	1,830,212	2,691,394	2,321,682	2,579,060	3,470,015	6,107,572	5,046,464	5,341,082	6,507,473	4,632,270	4,420,370	5,438,804	4,544,023
Viet Nam <i>i</i>	623,501	726,263	719,916	950,315	1,408,379	1,275,895	1,490,180	2,895,938	2,666,062	3,249,502	3,659,212	3,677,939	2,926,255	2,936,931	2,807,904
United States of America <i>i</i>	717,457	775,300	1,031,102	1,168,562	1,290,696	1,284,854	1,396,031	2,213,917	2,186,208	2,331,473	2,112,653	2,048,480	2,183,585	1,992,285	2,065,876
Pakistan <i>i</i>			626,624	682,860	1,099,267	1,151,880	1,145,677	2,439,562	1,774,460	2,277,124	2,062,063	1,882,126	2,110,992	2,199,636	1,927,200
Italy <i>i</i>	258,673	285,992	332,167	384,465	455,464	437,272	543,396	822,199	742,321	648,257	692,298	628,589	646,051	699,911	591,831
Uruguay <i>i</i>	167,872	140,216	186,872	180,404	200,565	217,979	280,012	443,495	459,043	386,045	472,052	560,072	507,992	513,119	361,419
Brazil <i>i</i>	5,545	6,109	4,962	7,660	56,777	59,872	53,360	311,635	267,552	157,599	612,754	545,956	400,594	396,799	350,179
Australia <i>i</i>	184,742	86,273	59,469	28,293	31,592	163,182	119,765	49,509	25,191	56,049	272,892	355,688	371,178	353,619	301,199
Cambodia <i>i</i>	2,388	4,464	643	1,924	2,982	2,416	1,556	2,427	11,003	34,748	106,368	139,359	251,369	231,485	284,905

Figure 1.2 List of exporters of rice against the world, in US dollar thousand

Note. Source: Rice Export by Country (2017)

Overall the Thai rice industry struggles to adapt to the rapid changes in trade, troubleshooting, and seemingly disruptive government support (Sussangkam & Nikomborirak, 2016; Sussangkam & Vichyanond, 2007). These factors have directly impacted on production and overall operational processes, consequently affecting Thailand's national trade. The rice industry is heavily dependent on international trade to strengthen the capacity of the Thai economy (Doner, 2009).

Research (e.g., Deng, Luo, Dong, & Yang, 2005; Junejo, Rohra, & Kanasro, 2007; López & Galinato, 2007; Titapiwatanakun, 2012) identifies problems associated with the rice milling sector in developing countries. For example, Junejo, et al. (2007) highlighted two such problems relating to the limited educational background, and use of technology. It is noteworthy that there are relatively few studies concentrating on growth and ways to arrest notable declines in the rice industry. In this context, growth refers to increases in output, exports, and sales. Such growth can be attributed to increases in yield and the size of rice grain, improvements in quality as a result of development processes, similar to natural biological processes in which an interacting series of internal changes leads to increases in size accompanied by changes in the characteristics of the rice (Penrose & Pitelis, 2002). While a number of researchers have explored the effect of government regulations on firm growth (e.g., Djankov, La Porta, Lopez-de-Silanes & Shleifer, 2002; Klapper, Laeven & Rajan 2004), other (e.g., Rajan & Zingales, 1998; Galindo & Micco, 2007) have investigated the importance of and access to finance for firm growth. Overall the Thai rice industry struggles to adapt to the rapid changes in trade, troubleshooting, and seemingly disruptive government support (Sussangkam & Nikomborirak, 2016; Sussangkam & Vichyanond, 2007).

These factors have directly impacted on production and overall operational processes, consequently affecting Thailand's national trade. The rice industry is heavily dependent on international trade to strengthen the capacity of the Thai economy (Doner, 2009).

Specifically, rice milling sectors in developing countries face a number of hurdles concerning how to grow rice effectively, relatively low prices on global markets, and ways in which to increase rice productivity through the optimal use of chemicals, fertilizers, agriculture machinery, and oil (Batbouta, 2014; Prasertwattanakul & Ongkunaruk, 2016). This line of research however excludes Thailand. For this main reason, it is uncertain which factors are significant and specific to the Thai rice industry. Against this backdrop a strong argument can be mounted for examining what are the drivers and barriers to growth within this sector.

1.1 Research Objectives and Research Questions

In the light of these issues, the main objectives of the current thesis are to map the characteristics of the Thai rice milling industry and to identify the enablers and barriers to growth. This thesis involves two interrelated studies. Study 1 maps the characteristics of the Thai rice milling industry. There appear to be no studies that have concentrated on the characteristics of Thai rice millers and mills. Study 2 identifies the enablers and barriers to growth in this sector. A mapping of the characteristics of the Thai rice milling industry is surprisingly absent in the extant literature (Shukla & Jharkharin, 2013). Moreover, research involving the Thai rice milling industry is also limited. A study of the characteristics of the Thai rice milling industry provides the overall context within which to examine the drivers and barriers to growth of this sector. Accordingly, these two studies led to the development of two main research questions:

Research Question 1: What are the principal characteristics of the Thai rice milling industry?

Research Question 2: What are the drivers and barriers to growth of the Thai rice milling industry?

1.2 Rationale

As discussed below, there are four main reasons for undertaking this research: Rice is the major product of the Thai economy, generating a significant proportion of export currency. Thailand needs to enhance its international comparative advantage because of increasing global competition from other emerging economies like Vietnam and India. There appears to be limited research on this topic and a superficial understanding of the Thai rice milling industry.

First, as noted earlier, Thailand was the largest exporter of rice in the world, but nowadays, Thai rice exports have fallen to their lowest levels since 2000 when the country exported over 6.5 million tonnes. In 2012, India became the largest supplier selling 9.75 million tonnes (USDA, 2012). Moreover, according to a relatively recent report (Vietnam Trade Promotion Agency, 2013) posted on Vietnam's General Customs Department website on January 16, 2013, Vietnam shipped 8 million tonnes.

Second, international trade according to World Trade Organisation (WTO) rules is free from quantitative restrictions. A country's trade is based predominately on its comparative and competitive advantage in international trade. Thus, every country faces tough competition in international markets and tries not only to maintain, but also to increase its market share. Early studies (Karp & Perloff, 1989) attempted to characterize the nature of markets suggesting that the rice market is predominately competitive. However, and perhaps surprisingly, relatively more recent research (Yumkella, Unnevehr & Garcia, 1994) identifies that only the high quality rice market was non-competitive. In the past, Thai rice was regard as being of high quality and unique, but, nowadays, competitor countries, that export rice, have improved the quality of their rice almost to the point where it is of comparable quality to Thai rice (Pandey, 2008; Suwannaporn & Linnemann, 2008). For this reason, it is necessary for Thai producers and millers to develop strategies to re-gain a competitive edge.

Third, there is a dearth of research investigating capabilities conducive to the growth of the Thai rice milling industry. Relatively little research has investigated the technological capabilities that contribute to the growth of the rice milling sector in developing countries. Bagachwa (1992) concluded that the use of appropriate technologies could be beneficial for increasing the quality and output of custom and merchant mills. Relatively recently, Intrarakumnerd et al. (2002) observed that rice

mills in developing countries tended to utilize out-dated technologies and were playing so-called catch-up football. Similarly, development of educational capabilities of rice millers and related agricultural personnel in developing countries seems to be an imperative, as identified a number of authors (Kalirajan & Shand, 1985; Asadullah & Rahman, 2009; Dias, Mattos, & Balestieri, 2004; Godoy & Contreras, 2001).

Finally, a mapping of the characteristics of Thai rice milling industry is surprisingly absent. Moreover, research of the Thai rice milling industry is also limited. Consequently, the capabilities of the Thai rice milling industry remains an enigma. As this study involves the entire population of Thai rice millers, hypotheses were not established from the outset. Accordingly, the present thesis is significant because it addresses each of these four areas.

1.3 Theoretical Conceptualization

Underpinning this thesis are four main theories: Neo-institutional theory, contingency theory, the resource based view of firm, and the dynamic capabilities perspectives. These theories establish a theoretical foundation for the thesis and are discussed below.

Neo-institutional theory (Scott, 2008; Powell & Dimaggio, 2012) focuses on internal and external organizational structures, external to the organization actors, society, environment of organisations, rules, norms, politics, and government regulations. This theory helps us to understand organisational behavior as situated in and influenced by organisations and wide social forces – especially broad cultural rules and beliefs. It raises the question: What is the impact of government policy or legislation changes on Thai rice milling organization? In contrast, contingency theory (Van de Ven, Ganco & Hinings, 2013; Donaldson, 2001) focuses on organizational structures, organizational size, organizational culture, environment, and organizational performance. This theory provides a framework for understanding how social and business environments are subject to change, with no single rule or law being able to solve management problems at all times, all places, and for all individuals or institutions. In additional, this thesis can address the question, What enables Thai rice milling organizations to fit their internal organization to the external environment? The resource based view of firm (RBV) (Barney, 1991; 2001a; 2001b) focuses on competitive advantage, organizational performance, assets, and resources. This theory explains the ways in which organisational resources contribute to the development of a sustainable competitive

advantage. The question relates to this theory, What are the key organizational resources that lead to a sustainable competitive advantage? Finally, the dynamic capabilities perspectives (Eisenhardt & Martin, 2000; Teece, Pisano & Shuen, 1997) focus on capabilities, environmental turbulence, and sustainable competitive advantage. This theory extend the RBV, explaining the ways in which enterprises can gain a sustainable competitive advantage in rapidly changing environments, and how the application of resources and processes can increase the wealth of organizations. This thesis can present the last the question, How do organisations adapt to changing environments?

1.4 Literature Review

This literature review identifies seven key factors, which have a significant impact on the Thai rice milling industry. These factors include: rice farming in Thailand, Thai rice milling, technological capabilities, education training and knowledge management, government policies, farm family enterprises, and lifestyle business.

Although rice can be grown in every regions of Thailand, jasmine rice is produced predominantly in the Northeastern region; but white rice is grown in the Northern, Central, and Southern regions. In addition, glutinous rice is cultivated in the North-eastern and parts of the Northern regions. Thai rice milling has the potential to hold a leadership position in international markets because of the uniqueness and premium quality of Thai rice (Wickens, 2001). Most Thai rice mills are either family enterprises that have been transferred from generation-to-generation (Bertrand, Johnson, Samphantharak & Schoar, 2008) or lifestyle enterprises, providing the owners with a balance of both time and money to fulfil their passions (Peters, Frehse & Buhalis, 2009). The key technologies for rice milling sector are handheld computers, intelligent mobile phones, portable computers, and other related equipment and applications (Höllerer & Feiner, 2004). In Thailand, the main barriers to introduction of new technology appear to be low levels of education (Atreya, 2007a; Doner & Ramsay, 1997), weak vision of the value of technology (Höllerer & Feiner, 2004), and lack of financial support (Maddison, 2013). Surprisingly, the agriculture workforce in Thailand tends to be relatively poorly of educated, especially medium and small enterprise employees (Bryant & Gray, 2005). In addition, Thai government regulations policies concerning rice are similar or the same as these of other economically

important crops (Garnett, et al, 2013). These policies target the farm level, the quality and standard of products, and safety procedures and standards for producers and customers (Keuschnigg & Nielsen, 2004). These literatures tell us about the important factors which influence to the growth of the Thai rice milling and also guide to interview questions lead to case studies in Study 2.

1.5 Research Design

As noted earlier, this thesis involves two interrelated studies, based on mixed-method approach (Creswell & Plano-Clark, 2011).

Study 1: The Key Characteristics of the Thai Rice Milling Industry

This study adopted a quantitative method to map the characteristics using secondary data comprising 38,673 Thai rice millers. Data were obtained from the Thai Government office records, Private and International Institute databases, and other reliable sources including The Office of Agricultural Economics, The National Statistical Office, The Department of Foreign Trade, Thai Rice Exporters Association, Food and Agriculture Organization, and Annual reports of dominant rice importers. These data are significant and provided a major methodological contribution to the area. It is rare for a rice milling study to utilize population data and in this case, an extensive database of almost 39,000 records. Data were analysed using multivariate statistics, including correspondence analysis, cluster analysis, and multivariate multiple regression techniques.

Study 2: The Enablers and Barriers to Growth and Sustainability of the Thai Rice Milling Industry

Participants are Thai rice miller including owners, managers, and key employees, including senior managers, accountants, marketing personnel, and family members from five family- and non-family oriented rice mills comprising a micro-business, and small, medium, large enterprises, and a Thai public-listed company. This study adopted a qualitative approach, involving tape-recorded interviews with owners, managers and, relevant employees. Interviews lasting up to one to two hours were conducted on the premises of the respective rice mills. Tape recorded interviews were transcribed and analysed to identify major and minor themes, keywords, and for content, leading to the development of five case studies and also 5 vignettes. Using vignettes in qualitative

interviews for the purposes of exploring the socially acquired knowledge and interpretative practices of participants.

Rice millers were nominated for data collection for this study, for three main reasons:

1. Rice millers are an importance player in rice supply chain, as they are in the middle-stream and deal with rice farmers, rice suppliers, rice exporters, and customers.
2. Rice mills are located across Thailand (IRRI, 2013) and hold a vast amount of inventory of paddy rice and milled rice. The milling capacity of all Thai millers is more than 80 million tonnes of paddy rice per annum (Worldbank, 2014).
3. Rice millers also have to deal with uncertainty demands of the domestic and international market.

1.6 Outline of the Thesis

Chapter 2 provides a detail of the theoretical conceptualization underpinning this thesis. Chapter 3 involves an in-depth literature review of the rice milling area, focusing on seven key factors: rice farming in Thailand, Thai rice milling, technological capabilities, education training and knowledge management, Thai government policy, farm family business, and lifestyle business. Respectively, Chapters 4 and 5 report on the methodology and findings of Studies 1 and 2. Finally, Chapter 6 draws conclusions regarding the drivers and barriers to growth of Thai rice milling industry, based on a discussion of finding emanating from Studies 1 and 2. Implications for research, government policy, and practice are outlined.

Chapter 2

Theoretical Conceptualizations and Underpinnings

Overview

Chapter 2 presents the theoretical conceptualizations underpinning this thesis. There are four main theories that drive this thesis: neo-institutional theory, contingency theory, dynamic capabilities, and resource based view of firm. These theories established a theoretical foundation and are discussed and compared below.

This chapter begins with a discussion regarding the theories that influence this research. There are primarily four complementary theoretical influences that relate to this research: contingency theory (Lawrence & Lorsch, 1986; Donaldson, 2001); neo-institutional theory (Dimaggio & Powell, 2012; Zucker, 1987; Peters, 2011); the resource based view of firm (Barney, 1991; 2001a; 2001b; Wernerfelt, 1984); and dynamic capabilities (Teece & Pisano, 1994; Teece, Pisano & Shuen, 1997; Teece, 2012).

2.1 Contingency Theory

For over half a century, contingency theory has held an important place in organizational studies research (Pennings, 1987; Volberda, van der Weerdt, Verwaal, Stienstra & Verdu, 2012), work groups (Keller, 1994), organizational environments (Scott, 2004), along with promising directions for future research (Van de Ven, Ganco & Hinings, 2013). The units of analysis have been companies, work organizations, or small work groups (Argote 1982; Donaldson, 2001; Scott, 2003). Contingency theory originating from organizational studies, particularly in relation to research explores the relationship between the structure of organizations and their environment. Seminal studies include Woodward (1958), Woodward, Dawson and Wedderburn (1965), Burns and Stalker (1961), Lawrence and Lorsch (1967a; 1967b), Perrow (1967), Thompson (1967), Galbraith (1974), Mintzberg (1979), Husted (2000), Donaldson (2001), Scott

(2003), Dart (2004), Morgan (2007), Hughes and Morgan (2008), Menz and Scheef (2014), Mikes and Kaplan (2014), and Van de Ven et al. (2013).

What enables organisations to fit their internal organization to their external environment? An underlying premise of contingency theory is that ability or performance is dependent on a fit between an organization and its environment (Thompson, 1967; Donaldson, 2001; Burton & Obel, 2004) and that different situations require different organisational structures (Robbins, Judge, Millett & Boyle, 2013). There is no *one best way* (Galbraith, 1974). According to Jaffee (2001, p.210), *contingency means that the effectiveness of a particular organizational structure or strategy depends on the presence or absence of other factors. In this sense, there are no absolutely right or wrong structures or strategies. Instead, rightness or wrongness must be gauged relative to the situation, the circumstance, or the other factors.* Similarly in the words of Scott (2003, p.101), an organization is considered an open system, which *stresses the complexity and variability of the individual parts – both individual participants and subgroups – as well as the looseness of connections among them*, this means that the structure of an organization is dependent on the nature of the environment (Scott, 2003).

Contingency theory explains the differences between organisational structures; identifies necessary organisational changes in accordance with changing situations; and narrows down a set of optional organisational models (Robbin et al., 2013).

This theory is significant and provides an understanding and explanation of how the Thai rice milling industry fits its internal organizational structures to the external environment (Wang et al., 2016). Discussion of contingency factors varies widely in the literature. All environmental conditions and long-lasting organisational capabilities and dimensions have the potential to be contingency factors that can influence organizational viability (Robbin et al., 2013). Among these factors are: size (Pugh et al., 1963; Pugh, Hickson, Hinings & Turner, 1968; Pugh, Hickson & Hinings, 1969a; Pugh, Hickson, Hinings & Turner, 1969b; Woodward, 1965; Van de Ven et al, 2013; Zona, Zattoni & Minichilli, 2013), technology (Pugh et al., 1963; 1968; 1969a; 1969b; Woodward, 1965; Zona et al., 2013), environment (Child, 1972; Duncan, 1972; Miller, 1992; Mintzberg, 2005; Dart, 2004; Van de Ven et al, 2013; Volberda et al., 2012; Dess & Beard, 1984), uncertainty (Robbin et al., 2013; Sainio, Ritala & Hurmelinna-

Laukkanen, 2012; Teller, Kock & Gemünden, 2014), division (McGrath, 1984), coordination (Child, 1972; Gupta, Dirsmith & Fogarty, 1994), strategy (Mintzberg, 1998; Scott, 2003; Van de Ven et al., 2013), centralization (Klaas, 2004), specialization (Klaas, 2004), formalization (Dess & Beard, 1984), national culture (Perrow, 1967), organizational climate and/or culture (Klaas, 2004; Burton, Lauridsen & Obel, 2004), incentive schemes (McGrath, 1984), and management styles and configurations (Klaas, 2004). It is noteworthy that research interest in contingency factors accelerated when the importance of environmental issues first appeared in strategic management literature (Mintzberg 1998; 2005). Not all factors identified in previous research (Van de Ven et al, 2013; Volberda et al., 2012) were found to be appropriate in Study 2. The factors found to be appropriate emerged during the interview process.

With respect to early research in this field, over six decades ago, Pugh et al. (1963) examined two key dimensions of work organisation: the number of employees and asset value, demonstrating that size is a critical contingency factor affecting organisational structure. Woodward (1965) concluded that organisational size had a less significant effect than expected, with neither the depth of management (e.g., number of managers), nor the quality of companies' industrial relations correlating significantly with the size of a company. Thompson (1967) claimed that there is no significant relationship between company size and complexity, and the number of contingency factors faced by an organisation. These conclusions were not tested empirically. Child (1972) did not treat size as a deterministic factor but stated that increasing size lead to high levels of structural differentiation.

Lawrence and Lorsch (1967a) can be regarded as one of the pioneers to recognize the critical role of environment as a multidimensional contingency factor. They compared the degree of integration and differentiation between subunits in companies, concluding that organizations adapt to their environment, mechanistic and organic structures complement one another, and that different subunits of an organization adapt in different ways leading to internal differentiation in the organization. In order to be successful, organization also need to be able to balance the processes of differentiation and integration, the degree to which is dependent on environmental requirements (Lawrence & Lorsch, 1967a), were organizations operating in a complex environment likely to adopt a higher degree of differentiation and integration than their counterparts.

In 1961, Burns and Stalker evaluated the effect environmental uncertainty and complexity might have on organizational structure. In their research, they examined the structure and management style of four different types of companies and found cause to differentiate between two types of organizational structures: mechanistic (characterized by high complexity, formalization and centralization; as well as routine tasks, and a programmed behaviour) and organic (characterized by decentralized authority flexible and ability to change). Mechanic structures were common in organizations operating in stable environments. Dynamic environment tended to be the domain of those organizations will organic structure. Overall, theses authors concluded that external environment was related to both internal management and organization structures (Dart, 2004).

Table 2.1 summarizes the key extent research on four principal foci (i.e., size, technology and innovation, strategy & environment) of contingency theory. Research involving these four foci is discussed below.

Table 2.1 Summary of key research on Contingency Theory

Key References	Unit of Analysis	Factors				
		Size	Innovation and Technology	Strategy	Environment	Other
Miller (1992)	Organization	x	x	x	✓	✓✓
Donaldson (2001)	Organization	✓✓	✓✓	x	✓✓	x
Scott (2003)	Organization	x	x	✓✓	✓✓	x
Volberda et al. (2012)	Work Organization	x	x	x	✓✓	✓✓
Zona et al. (2013)	Company	✓	✓✓	x	x	x
Van de Van et al. (2013)	Organization	x	✓✓	✓✓	✓✓	x

Note. “✓✓” denotes a high level of relevance. “✓” denotes relevance. “x” denotes an absence of research.

The company is the biggest unit, and the smaller units are organization and work organization, respectively.

Size

Extending research on this topic, the early Donaldson (2001) examined the relevance of organisational size. Previously, organisational size was measured using different indicators (number of employees, revenue, asset value). It is questionable whether these indicators measure or can be regarded as appropriate, or ever valid proxies of the same construct (i.e., size is unidimensional) or if measurement methods are comparable. Notwithstanding, Donaldson concluded that the different forms of measurement of organisational size moved together, and although the correlations between these variables was not perfect, their factors culminate in strong positive association. Similarly, Zona et al., (2013) concluded that employee numbers, asset value, and revenue are the most widely used instruments for measuring organisational size.

Innovation and Technology

Technology is one of the most critical contingency factors (Donaldson, 2001). Zona et al., (2013) distinguished information technology from core process technologies, defining technology as a set of techniques, methods and information used during work processes. Core process technology is connected with production, and is defined as a set of instruments, methods, and knowledge. Thus, rather than refining internal structural arrangements to fit an environment, today's organizational executives are designing for innovation, searching for distinctive and competitive ways to increase innovative capacity both within and outside of their organizations (Van de Ven et al. 2013).

Strategy

The choice of strategy relating to organization structure, management systems, and choice of key management personnel serves as an important contingency for many administrative decisions. As organizations increasingly diversify, with differences between strategies concepts at the business and corporate levels are becoming more acute (Scott, 2003). Work systems are most effective when they maximize an external fit between environmental demands and design configuration, and an internal fit among an organizations design components and levels of strategy, structure, systems, style, and culture (Van de Ven et al., 2013).

Environment

The concept of uncertainty is a central construct in research initiatives that focus on associations between firms and their surroundings (Miller, 1992; Scott, 2003). Pertinent, organisational environment factors have provided: Stability and complexity (Dart, 2004). A key element of structural contingency theory is that organizational performance is an outcome of a sound fit between the characteristics of structural organizational and environmental aspects (i.e., contingency factors) (Donaldson 2001). Consistent with this finding, Van de Ven et al. (2013) proposed that organizational units should be evaluated and designed to fit their differentiated local environmental demands.

In summary, the organisational size, technology and innovation, organizational strategy, and environment can be regarded as important contingency factors that organisations need to adapt to (Donaldson, 2001; Scott, 2003; Van de Ven et al., 2013). Mintzberg (1979) highlighted that the interrelationship between contingency factors can be better explained when groups of factors are examined rather than when single factors are examined in isolation. Beginning with the seminal works by Burns and Stalker (1961), Woodward et al. (1965), and Lawrence and Lorsch (1967a; 1967b), organization theory has been guided by the understanding that no single approach to organizing is best in all circumstances. Following Lawrence and Lorsch (1967a; 1967b), contingency theory has often emphasized uncertainty as a critical dimension of a task environment. Basically, contingency theory is a management approach that contributes to the attainment of organizational goal in different kinds of situations. This theory has broadened the scope of our understanding of the interrelationships between the internal aspects of organizations and their external environment (Robbin et al., 2013). Furthermore, this theory, grounded in empirical research explains how and helps to predict (McKone, Schroeder & Cua, 1999; Zona et al., 2013) why some organizations perform effectively while other fails (Robbin et al., 2013). Despite its strengths, this theory involves a number of limitations. Zona et al. (2013) suggested that this perspective does not take into account the role played by organizational actions and processes, or other relevant key organizational structures over the long-term. Rather, the focus is predominately on the ways in what contingency factors can change (Oehmichen, Schrapp & Wolff, 2016) and that companies are not shaped by their organizational contexts, which only create opportunities for them.

According to Scott (2003), *there is no one best organizational form but many, and their suitability is determined by the goodness of fit between organizational form and environment* (2003, p.105). In closing, organizational size, innovation and technology, strategy, and environment can be regarded as four significant contingency factors. Environment is the least changeable factor in the short-term but size and technology are less changeable over the medium term (Robbin et al., 2013). Organizations need to monitor their environment and deal with different situations in different ways. Moreover, to be successful in rapidly changing and dynamic environments, organizations must be flexible, internally dynamic, and have the capability to renew and innovate (Zona et al., 2013).

2.2 Neo-Institutional Theory

As a complex paradigm, neo-institutional theory incorporates elements from different theories (Meyer, Rowan, Powell & DiMaggio, 1991; Suddaby, 2014), spanning the disciplines of economics, political science, and sociology (Scott, 2008). The complexities associated with this framework extend beyond organizations, management system, and information system, culturing to capture *various aspects of the national environment including cultural norms, social knowledge, rules and regulations* (Kostova, 1997; p.180).

Given its labyrinthine quality, definitions of institutional theory are fraught with ambiguity, such that choosing a definition remains quite arbitrary, as different meanings reflect many different appeals to institutional theory (Mäki, 1993; DiMaggio & Powell, 2012). For example, almost two decades ago, Scapens (1994) indicated that institutional theory can be regarded as *a way of thought or action of some prevalence and permanence, which is embedded in the habits of a group or the customs of a people* (Waller, 1982; p.761).

Institutional theory addresses the conduct of organizations as induced by the degree of power in wider society. This theory claims that organizations will attempt legitimacy by adhering to the important rules and norms established by society and, by reliable institutions embedded in those societies (DiMaggio, 1988). Institutional theory describes how deep and resilient aspects of institutions are created, maintained, changed, and dissolved, as well as dealing with the pervasive influence of institutions on human behavior including the processes by which structures (e.g., rules, routines,

norms, schemas, belief systems) become established as authoritative guidelines for social behavior (Meyer & Rowan, 1977; Suddaby, Seidl & Lê, 2013; DiMaggio & Powell, 2012; Scott, 1995; 2005; 2008).

The general concept behind institutional theory is that forces or institutions within a given society exert influence on social behavior, increasing the likelihood of business activities becoming more similar than different over time. As these forces are largely different from one country to another, institutional theory captures the relative differences between societies. Meyer and Rowan (1977) proposed that institutional environments impose structural uniformity on all organizations in modern society. In line with this perspective, DiMaggio and Powell (2012) outlined the differences between three mechanisms of institutional isomorphic change: coercive isomorphism, normative isomorphism, and mimetic isomorphism.

These three mechanisms cause organizations to become increasingly similar to each other. For this reason, one can argue that institutional theory is predominately a framework that describes similarities surrounded by organizational structures rather than change in organization (Greenwood & Hinings, 1996). Coercive isomorphism is associated with formal and informal forces that result from coercive authority, that originates from an organization's dependency on other organizations and the cultural anticipations in the society in which the organization operations (DiMaggio & Powell, 2012). In contrast, normative isomorphism emanate from pressures associated with professionalization. DiMaggio and Powell (2012) argued that these two perspectives of normative isomorphism are of particular interest because of the grounding of formal education and legitimation on cognitive schemas and the growth and influence of professional networks that encouraged new practices to be deployed across organizations. Mimetic isomorphism, by comparison, concerns the factors that encourage firms to mimic, copy on duplicate processes and structure. It is held that obscure ambitions misunderstood or misapplies technologies or figurative uncertainty can encourage organizations to model themselves on other organizations (DiMaggio & Powell, 2012).

Scott (2013) distinguished three different types of institutions (regulative, normative, cognitive) that can be linked to the three mechanisms of institutional isomorphic

change processes (coercive, normative, mimetic) introduced by DiMaggio and Powell (1983).

Regulative: The regulative institutional factor consists of those existing laws and rules in which promote certain types of behaviours and restrict others particular national environment (Kostova, 1997). This factor is *reflective of the implicit and explicit political and social mechanisms that exist within a country* (Szyliowicz & Galvin, 2010, p. 327).

Normative: A country's normative institutional factor consists of *social norms, values, beliefs and assumptions that are socially shared and are carried by individuals* (Kostova, 1997, p. 180). Such normative components introduce *prescriptive, evaluative, and obligatory dimensions into social life* (Scott, 1995, p. 37). Hofstede and Hofstede (2001) defined culture as the *collective programming of the mind which distinguishes the members of one group or category of people from those of another* (2001, p. 9).

Cognitive: The cognitive factor of institutional theory reflects the knowledge and skills widely shared among individuals in a particular country (Scott, 1995). Kostova (1999) points out that *cognitive programs such as schemas, frames, inferential sets, and representations affect the way people notice, categorize, and interpret stimuli from the environment* (1999, p. 314). Whitley (1999) emphasized the importance of a country's educational system in developing individual competencies and skills. Educational spending translates into innovations that enhance the knowledge, skills, and abilities of individuals (Baldwin & Borrelli, 2008). Thus, Turner (1997) argued that the educational system plays the important role of transmitting societal norms and beliefs from generation to generation.

Early institutional sociology theorists (Meyer & Rowan, 1977; DiMaggio & Powell, 1983) have illustrated how different organizations comprising a diverse range of characteristics can adapt to similar normative behavior as well as employ similar structures, highlighting the consistency in standards of behavior and organizational structures.

Powell and DiMaggio (2012) argued that large organizations can extend their dominance over the domains of social life, and how organizational structures have

come to reflect the rationalised and institutionalised rules of society. These rules of society can be reflected as unchangeable objective facts and their employment can be habitual and, in accord with established norms of rationality (Gosain, 2004). Consistent with this view, DiMaggio and Powell (1983; 2012) stated that institutional isomorphism suggests that organizations not only contend for resources, but also for political influence and institutional legitimacy, in order to take advantage of the influence of political power and formality which in turn can increase the legitimacy of an organization (Meyer et al., 1991).

In term of small business, research that has been underpinned by institutional theory scholars (Van de Ven, Hudson, & Schroeder, 1984; Busenitz, Gomez & Spencer, 2000; Salimath & Cullen, 2010) show interest in the notion of education as an institution. Education is associated positively with the tendency to become an entrepreneur (Ismail et al., 2009). Educated people are more likely than uneducated people to start a new venture (Reynolds, 1991; Van de Ven, et al., 1984). Spencer and Gómez (2004) found that small enterprises are more likely to proliferate, and new ventures are more likely to expand and attract external investment, when the knowledge and skills necessary to operate a firm are widespread in a community.

Laws and regulations can specify the responsibilities of small business owners, assign property rights, and reduce the risks involved in business start-up; government policy can also inhibit entrepreneurial success (Spencer & Gómez, 2004). Researchers (Martin & Maabten, 1990) have found that burdensome procedural requirements can limit entrepreneurial activity, and that uncertainty and instability in government policies can reduce entrepreneurs' interest in developing long-term growth strategies (Tan, 1996). Institutional theory has also been used in marketing to understand the creation of markets as a social process (Humphreys, 2010), channel structure (Grewal & Dharwadkar, 2002; McFarland, Bloodgood & Payan, 2008), consumer choice of retailers (Arnold, Kuzinets & Handelman, 2001), customer trust (Grayson, Johnson & Chen, 2008), the impact of socially oriented marketing actions (Handelman & Arnold, 1999), marketing's influence within the firm (Homburg, Workman & Krohmer, 1999), and firm strategy (Paroutis & Heracleous, 2013).

In relation to the present thesis, where the preceding section on Contingency Theory explores the concept of fit in (Skinner, 2014), the complexities associated with Neo-

Institutional Theory framework extend beyond a useful framework for examining the impact of government regulations, laws, policies, and norm on rice millers. Government plays a key role in influencing of the quality and volume of rice.

2.3 Resource Based-View of the Firm

Nowadays, the resource based-view of the firm (RBV) has become an effective conceptualization (Eisenhardt & Martin, 2000). Barney (1996) helped to identify resources and capabilities as groups of tangible and intangible assets, including the skills of organizational management, organizational processes, organizational routines, information system, and knowledge that can be used by organizations to help to choose and start using strategies. In additional, the resources based-view theory (RBT) is extensively accept as one of the most well-known, important, and powerful theories for describing, explaining, and prediction relationship of organizations (Barney, 1996).

According to Barney (1991), two assumptions of RBV are: 1) Resources are distributed heterogeneously between firms, and 2) Three productive resources (natural resources, human resources, and capital resources) cannot be transferred from firm-to-firm without incurring cost. The concept of RBV is a field of internal resources which are strategically important for the creation of competitive advantages (Lorenzoni & Lipparini, 1999; Pringle & Kroll, 1997). RBV includes two components: resources and capabilities, which are sources of competitive advantages (Grant, 1991; Eisenhardt & Martin, 2000). The resources refer to tangibles and intangibles, such as finance, technology, knowledge, and human resources (Maijoor & Witteloostuijn, 1996). Capabilities refer to dynamic routines obtained by the organizations concerning the management capacity to continuously improve the effectiveness of the organizations (Moingeon, Ramanantsoa, Métais & Orton, 1998). Organizations attempts to utilize valuable, heterogeneous, rare, and inimitable resources in order to develop and sustain competitive advantages through their capabilities (Capron & Hulland, 1999). Barney (1999) helped to established that resources and capabilities are important for understanding to sources of sustained competitive advantage for organizations. Maritan and Peteraf (2011) focused upon how the heterogeneous resource positions that lie at the core of the RBT come into existence. The RBV of the firm provides a framework for understanding and explaining the ways in which organisational resources contribute to the development of competitive advantage (Hitt, Ireland, Camp, & Sexton, 2001;

Barney, 2001; Eisenhardt & Martin, 2000). According to Collis and Montgomery (1995), elements of the RBV can be used to assess the internal and external conditions of organizations trading in competitive environments.

Knowledge is a key factor and increases capability of a firm. It is also an intangible asset. The way that knowledge emerged and how it is managed is interesting (DeCarolis & Deeds, 1999). More valuable knowledge affects firm organization and market contact (Conner & Prahalad, 1996). Knowledge generation, accumulation, and application are the source of superior performance (DeCarolis & Deeds, 1999). DeCarolis and Deeds (1999) also note that a firm's geographic location, alliances with other institutions and organizations, and R&D expenditures are representative of knowledge flows. In addition, a system of knowledge and a system of learning enhance competitive advantage through innovation and strategic linkage of products at the point in time and over time (Helfat & Raubitschek, 2000). Some studies (Conner & Prahalad, 1996; DeCarolis & Deeds, 1999) note that the resource based-view of the firm is a knowledge based-view of the firm.

Organizational capability is a significant factor of successful business operations (Maritan, 2001). The capability is dynamic. Dynamic capabilities are a set of specific and identifiable processes, such as product development, strategic decision making, and alliancing (Eisenhardt & Martin, 2000). Under the capability-building mechanism, firm design and construct organizational systems to enhance the productivity of whatever resources the firm acquires (Makadok, 2001). In addition, internal capabilities enhance a start-up's performance (Lee, Lee & Pennings, 2001).

Based on the above discussion, knowledge and organizational capability enable the firm to achieve competitive advantage. RBV concerns itself with a firm's distinctive competencies in resources and capabilities complements and extends resource-based explanations of the firm variation and sustainable competitive advantage (Mahoney & Pandian, 1992; Oliver, 1997). However, a well-understood and common managerial choice also affects a firm's chance of generating benefits (Mosakowski, 1998).

Although some earlier works had identified organizational resources as important (e.g. Penrose, 1959; Rumelt, 1982; Wernerfelt, 1984), and RBV did not begin to take shape until the 1980s. This decade was controlled by frameworks that focused from outside, such as porter's (1980) five forces model, but changing slowly emergence of RBV

began to redirect notice inside of organization (Hoskisson, Hitt, Wan & Yiu, 1999). In a seminal paper, Dierickx and Cool (1989) concluded that the basic principles of RBV logic focuses on three main areas: the strategy and marketing perspective (Wernerfelt, 1984), the ability of firms to generate a return to nation economics (Rumelt, 1984), and that superior performance depends on the characteristics of the resources that can be controlled (Barney, 1986).

A series of important articles provided insights into how phenomena such as organizational culture (Barney, 1986), causal ambiguity (Lippman & Rumelt, 1982), and resources in general (Wernerfelt, 1984) could contributed to organizational success. Penrose (1959) developed a set of ideas about how a firm's resources influence its growth; in particular, growth is constrained when resources are inadequate. Barney (1991) presented and developed the core tenets of RBV; presented a detailed definition of resources; and articulated the full set of characteristics that make a resource a potential source of competitive advantage (i.e., valuable, rare, inimitable, and non-substitutable).

Harrison, Hitt, Hoskisson, and Ireland (1991) highlighted the value of resources and interaction between resources in the context of diversification. Castanias and Helfat (1991) characterized CEOs as firm resources that possess varying qualities and of general, industry-specific, and firm-specific skills. Fiol (1991) proposed organizational identity as a core competency leading to competitive advantage. Kogut and Zander (1992) introduced the concept of combinative capabilities; emphasized the importance of knowledge as a resource. Amit and Schoemaker (1993) split the overall construct of resources into resources and capabilities.

The early years of the resource-based theory's development were focused on establishing theoretical and empirical relationship between the presence of resources and the development of sustained competitive advantage (Grant, 1996). According to Makadok (1999), firms have different resources and capabilities. Building business relationship can thus be a tool to complete in a market. Combining specific resources and capabilities among partners helps them achieve competitive advantages (Combs & Ketchen, 1999; Das & Teng, 2000; Madhok & Tallman, 1998). In addition, relational capability, which refers to the capability to interact with other companies, also

influences the lead firm's knowledge access and transfer with relevant effects on company growth and innovativeness (Lorenzoni & Lipparini, 1999).

According to Jap (1999), the ability of firms to coordinate with their customers is an organizational capability. Coordination efforts and investment leading enhance profit performance and the realization of competitive advantages over time. The RBV helps to explain corporate venture. Integrating resources and capabilities enhance firms in order to develop corporate and internal ventures, and achieve competitive advantage (Greene, Brush & Hart, 1999). The resources and capabilities include human, social, organizational, physical, and financial capital (Doh, 2000). Innovation is a resource and capability of the firm. Here, it includes technology, innovativeness, and product development. Determinants of technological innovativeness in small firms consist of the characteristics of owner and manager, and the technological assets (Hadjimanolis, 2000).

As mentioned earlier, RBV has become a useful concept to explain business phenomena. It assists in understanding how firms exist and survive in the competitive markets (Verona, 1999). Grant (1996) articulated that knowledge-based view of the firm as a spin-off of the resource-based view. Oliver (1997) theorized about how the resource-based view of the firm and institutional theory together can be explaining sustained competitive advantage. Teece, et al. (1997) built on RBV idea to introduce the concept of dynamic capabilities; in particular, explained competitive advantage as arising from the confluence of assets, processes, and evolutionary paths. Priem and Butler (2001a; 2001b), Barney (2001) debated the usefulness of RBV as a theory of strategy and organization. Makadok (2001) synthesized ideas on excess profits offered by RBV and theory on dynamic capabilities. Ireland, Hitt, and Sirmon (2003) introduced strategic entrepreneurship as recognizing the resources required to exploit growth opportunities in order to create and sustain competitive advantage. Teece (2007) specified the nature and micro-foundations of the capabilities necessary to sustain superior enterprise performance in an open economy with rapid innovation and globally dispersed sources of invention, innovation, and manufacturing capability. Wernerfelt (2010) considered the processes through which a firm can acquire resources, and he argues that its current stock of resources create asymmetries in competition for new resources.

The RBV has given rise to prominent spin-off perspectives, most notable the knowledge-based view (Grant, 1996), the natural-resource-based view (NRBV) of the firm (Hart, 1995), and dynamic capabilities (Teece, et al., 1997). RBV's insights have been integrated with those of other perspectives, such as institutional theory (Oliver, 1997). However, one theory may not be enough to clearly explain the relationship. Other theories may be added to study of the relationship, such as dynamic capabilities, contingency theory and agency theory. Much research on RBV (e.g. Hart, 1995; Makadok, 2010) was emphasized large firms and firms in developed countries. While the number of the small and medium-sized enterprises (SMEs) increased rapidly, how those firms compete in a market and achieve competitive advantage needs clarification. Makadok (2010) argues that although RBV focus on competitive advantage has been useful in helping to understand some sources of interfirm profit differentials, it is limiting because competitive advantage is not the only casual mechanism by which profit can be generated.

Hart (1995) argued that models of sustainable competitive advantage need to be expanded to include the constraints and challenges that the natural environment places on firms, and how resources and capabilities rooted in the firm's interaction with its natural environment can lead to competitive advantage. Barney (1991) suggested that strategic resources that are valuable, rare, non-imitable, and non-substitutable can lead to a competitive advantage. Valuable resources influence the efficiency and effectiveness of strategies, and include the reputation of the organization, business relationships, and technological capabilities. Rare resources are not necessarily found in large quantities, but hold interest and value. Non-imitable resources are unique and difficult to copy (Bruton, Dess & Janney, 2007). Non-substitutable resources cannot act or serve in place of others. These four types of resources contribute to profit building and sustainable competitive advantage (Barney, 2001). Accumulated knowledge is another important resource along with its transferability to others (Kogut & Zander, 1992; Spender, 1996; Chien & Tsai, 2012).

Incorporating a number of key elements (e.g., Maritan & Peteraf, 2011; Suddaby, 2014) from Neo-Institutional Theory, Resource Based Theory provides explanations for organizations and an understanding of the basis of a firm's competitive advantage and performance (Kozlenkova et.al., 2014).

2.4 Dynamic Capabilities

Organizations are functioning in increasingly dynamic environments (Schreyögg & Kliesch-Eberl, 2007) that require fast action in high-rapidity settings (Eisenhardt & Martin, 2000) involving constantly changing technologies, consumer demands, and political instability. Organizations essentially need to be flexible in dynamic environments through decentralization and low levels of formalization (Scott, 2000). In changing environments the process of dynamic capability formation must be considered to be open in nature (Chesbrough, 2003). The Dynamic Capabilities Approach emerged in the 1990s and added the missing dynamic perspective to the Resource-Based View; this approach is thus today the predominantly applied explanation for a competitive advantage. The recent extension of the resource-based view into dynamic markets provides a new perspective for analysing how firms develop new capabilities to cope with shifting markets (Teece et al., 1997). Dynamic Capabilities reveal that a firm's ability to *integrate, build, and reconfigure internal and external competencies to address rapidly changing environments* realize potential sustainable competitive advantages (Teece et al., 1997; p.516). Sustainability and, sustainable competitive advantage is regarded as a whole process, encompassing suitability and size of assets including tangible and intangible assets (Teece et al., 1997). A central concern of a firm's overall strategy and management is to maintain a dynamic fit between what the firms has to offer and what the environment dictates (Liao, Kickul & Ma, 2009). Achieving this fit requires that the firm is able to change its processes. Thus a firm has to possess dynamic capabilities, which, in addition to increasing the firm's opportunities to survive, often provide organisations with the potential for growth (Helfat et al., 2007).

In service and manufacturing sectors, such as hospitality or rice milling, organization can be exposed to critical obstructions. As a case in point, these types of businesses often require large volumes of service or product to be developed in relatively short spans of time. For these reasons, these organizations must continuously and effectively manage their changing working conditions or risk losing customers during periods of high demand, raising the spectre of failure or obstructions. For this reason, capabilities that overcome uncertainty are important (Roberts & Grabowski, 1999; Koufteros, Vonderembse & Doll, 2002; Perrow, 1984; Hou, 2008). Increasing global competition, shorter product life-cycles, and rapid technological advancement are some of the

drivers behind this dynamism encouraging researchers to extend the rather static perspective of the Resource-Based View of the Firm (RBV).

How do organizations adapt to changing environments? The answer to this question has significant implications for the role of organizations in the development of capabilities (Teece et al., 1997). The identification of the ways of organizations adapt to their environment as well as their origin helps to clarify the emergence of dynamic capabilities and contributes to the academic discussion, namely whether these influences are internal to the organization, external, or both (Helfat et al., 2007).

Teece et al. (1997) developed the Dynamic Capabilities Approach the framework of which helps to explain how companies adjust their resource configurations through the application of particular capabilities and adapt to changing environments to achieve a sustainable competitive advantage. The theory of Dynamic Capabilities is seen as an extension of the Resource-Based View to the view of a dynamic environment. Dynamic capabilities are primarily focused on seeking a better understanding of the relationship between resources and performance. The Dynamic Capabilities expounds upon performance in terms of the ways in which enterprises can gain a sustainable competitive advantage in rapidly changing dynamic, or accelerating environments (Menon, 2008), and how the application of resources and processes can increase the wealth of organizations.

Teece et al. (1997), argued that dynamic capabilities enable a firm to respond to environmental change, as well as the broader notion of Eisenhardt and Martin (2000), that dynamic capabilities can also be the source of disruptive change. There are various definitions for dynamic capabilities (Teece et al. 1997; Eisenhardt & Martin 2000; Winter 2003; Helfat et al., 2007). According to Teece et al. (1997, p.517), *the term 'dynamic' refers to the capacity to renew competences so as to achieve conformity with changing environment.* There are three essential components of Dynamic Capabilities: possession of unique resources, capability to deploy or allocate resources, and capability to upgrade these resources through ongoing or non-stationary learning. *The term 'capabilities' highlights the key role of strategic management in adapting, integrating, and reconfiguring internal and external organizational skills, resources, and functional competences to match the essentials of a changing environment* (Teece et al., 1997, p.517).

In addition, Helfat et al.'s (2007, p.4) stated understanding of dynamic capabilities as *the capacity of an organization to purposefully create, extend, or modify its resource base*. The purpose of dynamic capabilities is to allow existing firms to address rapidly changing or high velocity environments (Eisenhardt & Martin, 2000; Teece et al., 1997) through a continuous change in a firm's resource base (Helfat et al., 2007).

Different theories try to explain the sources of sustainable competitive advantage. The most recent and promising theory attributes the source of competitive advantage to so-called Dynamic Capabilities, which allow a company to reconfigure its assets in order to adapt to a changing environment (Teece et al. 1997). The essence of the Dynamic Capabilities approach is that competitive success arises from the continuous development, alignment and reconfiguration of firm-specific assets (Teece & Pisano, 1994; Teece et al., 1997; Augier & Teece, 2009). In other words, dynamic capabilities directly affect the firm's resource base, which in turn is the source of the firm's competitive advantage (Ambrosini, Bowman & Collier, 2009).

While the Resource Based-View focuses on how organizations select between appropriate resources, dynamic capabilities emphasizes resource development and renewal. The theoretical focus of RBV researchers, therefore, has traditionally been at the resource level (Barney, 2001a; Teece et al., 1997). In contrast, conceptual research on dynamic capabilities has primarily focused at the process or routine level of analysis. Of concern is that these firm processes and routines are themselves a collective action, representing combinations of firm resources (Nelson & Winter, 2009; Felin & Foss, 2005; Felin & Hesterly, 2007). The resource-based view cannot be ignored while the dynamic capabilities approach is reviewed. The resource-based view argues that resources that are simultaneously valuable, rare, imperfectly imitable and imperfectly substitutable (VRIN) are a source of competitive advantage (Barney, 1991). The underlying assumptions of the resource-based view are that resources are heterogeneously distributed across firms and that this heterogeneity can be sustained over time. This explains how some firms are able to earn super profits in equilibrium and, as such, it is essentially a static view (Barney, 2001a; 2001b). It is argued that dynamic capabilities are an extension of the resource-based view while they govern the rate of change of a firm's resources and, notably, its VRIN resources. These resources – that is, the firm's resource base – then enable a firm to achieve sustained competitive advantage (Ambrosini et al., 2009).

Rapid technological change, knowledge, global environment competition, organizational strategy and demanding customers are seen as just a few of the factors that are influencing the external environments of firms today. Because of these factors, there is increasing demand for flexibility in the organization and much of this literature shows that flexibility is seen as a *good thing* (Cummings & Worley, 2014; Avison, Powell, Keen, Klein, & Ward, 1995).

Technology and innovation

Tripsas and Gavetti (2000) support their proposition of managerial beliefs as a constraining influence factor for the emergence of dynamic capabilities. They employed case study research to generate empirical evidence to illustrate the difficult adaptation to radical technological change that established firms face. Empirical research that attempted to draw a more holistic picture of the evolution factors of dynamic capabilities includes the work of Gatignon, Gotteland and Haon (2016). They promote the concept that innovation management can be seen as a dynamic capability. Research examining technology suggests that it can be used to enhance the quality and timeliness of organizational processes (Huber, 2013). Specifically, more advanced technology has been found to increase problem identification and decision making speed (Campos, Parellada, Valenzuela & Rubio, 2015) and increase problem solving efficiency (Lawler & Elliot, 1996).

Helfat et al. (2007) considered the technical and evolutionary fitness of a dynamic capability. These authors noted that technical fitness is a measurement of the effectiveness of the individual capability (e.g., a count of the number of new products developed) without regard to its interaction with other organizational processes and capabilities. Such a case indicates that the firm needs a level of connectedness with external sources of technological change if it is to recognize environmental knowledge shifts and then develop the requisite processes and positions (Appleyard, 2003). To address this issue, research on a firm's ability to identify a technological change has highlighted the role of a firm's top management team, focusing on the connectivity of the key managers to external sources of knowledge (Kaplan, Murray, & Henderson, 2003). Further, research has even suggested that the technology infrastructure of an organization should focus on speed of implementation and flexibility (Luftman et al.,

2013). Technology should thus be designed to be responsive to changes and needs in time of uncertainty.

Knowledge

Recent theoretical research suggests that these capabilities arise from an organization's ability to both explore for new information and exploit its current knowledge base (O'Reilly & Tushman, 2007). These processes represent the requisite resources needed to achieve an appropriate fit with a changing external knowledge environment (Lavie, 2006).

Environment

Rarely, have authors investigated the influence of the context of the companies on dynamic capabilities, even though the importance of that influence is often assumed (Collis, 1994; Ethiraj, Kale, Krishnan & Singh, 2005). Few studies have investigated contextual factors like country-specific beliefs and behaviours (Rindova & Kotha, 2001; Wooten & Crane, 2004).

Best practice

Best practices are systems and strategies. A best practice is a generally accepted as the *best way of doing a thing*. One definition suggests that a best practice is formulated after the study of specific business or organizational case studies to determine the most broadly effective and efficient means of organizing a system or performing a function. Even though this perception contradicts the general perspective of Teece et al. (1997), they see sources of competitive advantage based on capabilities in managerial and organizational processes, which determine how things are done in a company. This definition would also include best practices, which determine how a certain process is executed. Thus, the understanding of the different authors is not that divergent as usually claimed.

The notion of best practices as influential factors of dynamic capabilities embraces the increasing recognition of knowledge and knowledge creating routines as one of the fundamental issues of a firm's strategic success (Nonaka & Takeuchi, 1995; Davenport & Prusak, 1998; Von Krogh, Ichijo & Nonaka, 2000) and as a pillar of dynamic capabilities. The successful implementation of best practices is largely based on the

knowledge of existing best practices for a certain process and the understanding of putting these processes into practice within the organization. Best practices could be identified as important factors for the development of dynamic capabilities. One inherent characteristic of best practices is that other companies can adopt them. The structure of the companies could be identified as an influence factor of dynamic capabilities. Whereas Teece et al. (1997) see the structure more as an outcome of dynamic capabilities, the findings show that the organizational structure can impede or enhance the emergence and development of dynamic capabilities as proposed by Lawson and Samson (2001). Luo (2001) suggests that capabilities that are embedded in the organization may require greater control over transactions, which would result in the internalization of certain activities (Luo, 2001). This suggestion is consistent with the argument of Kogut and Zander (1992), who see organizations as superior to markets in sharing and transferring knowledge among the members of the organization.

In much of the early literature, researchers suggest that organizations should align their structures with the different levels of uncertainty in the external environment. For example, Burns and Stalker (1961) argued that as the environment becomes more complex and/or unpredictable, firms should adopt a more organic structure and those in a more stable environment should align themselves with a more mechanistic structure. These authors imply that organizations with a higher level of flexibility can adapt to changes in the environment and this ability leads to more success (Burns & Stalker, 1961; Thompson, 1967). Simon's theory of administrative behavior (March & Simon, 1958; Simon, 1976) and Weber's bureaucracy theory (Weber, 1947) contrasted views of the organization as a closed system in which the environment had little or no influence on the organization with the view of the organization as an open system in which the environment is seen as influential (Scott, 2000).

In fact, this early management thought focused on how the organization essentially minimizes any possible connections with the external environment (Scott, 2000) so as not to confront the outside surroundings. However, as organizational thought evolved and research began to focus on the organization as an open system e.g. sociotechnical systems (Trist, 1981) and contingency theory (Borgenhammar & Woodward, 1966), researchers saw the environment as influential to the organization and accommodation of environmental influences has thus become an important aspect to consider. As described below, researchers (Burns & Stalker, 1961; Galbraith & Lawler, 1993;

LaPorte, 1996; Lawrence & Lorsch, 1967) consider the organization an open system and suggest that how the organization is configured contributes to its flexibility when dealing with these environmental influences.

Lawrence and Lorsch (1967) suggested that there is no one best way to organize and that characteristics of the organization must be able to interrelate with the conditions in the environment. Galbraith and Lawler (1993) argued that there is no one best way to organize because there is environmental uncertainty that affects the tasks of the organization in different ways and at different times. He argued that the greater the complexity of these tasks, the greater the amount of information that must be processed in order to confront this uncertainty. Related research shows that a mechanistic or organic structure (Burns & Stalker, 1961) may be an appropriate response depending on the environment. In their studies, Burns and Stalker (1961) investigated about twenty industrial firms in which they identified these two types of structures that they associated with different types of environments. Essentially, they found that the more the environment varied, the more differentiated the structure of the organization needed to be (Scott, 2000).

This construct, known as dynamic capabilities, has recently emerged as a key topic for researchers interested in explaining how firms adapt to shifting knowledge environments. Recent research on dynamic capabilities purports that organizations need to build these capabilities to successfully confront increasing uncertainty. According to Teece et al. (1997), sources of competitive advantage based on capabilities can be found in managerial and organizational processes. These processes determine how things are done in a company. Asset positions, including e.g. intellectual property or complementary assets and the future strategic paths available to a company, shape the firm's processes and thus influence the development of dynamic capabilities.

Certain factors that inhibit the emergence of dynamic capabilities can be attributed to existing managerial beliefs. Other researchers argue that companies may have similar capabilities, but certain factors lead to different performance. Zott (2003) explored intra-industrial performance differences among companies from a dynamic capabilities perspective. Zott found that these differences emerge through timing, cost, and learning effects that differ for similar dynamic capabilities in different companies.

Even small variations of these effects, especially when combined, can generate significant differential firm performances within the same industry. Whereas these papers mainly focus on internal influence factors, other researchers have tried to address the influence factors of firm environment. Collis (1994) indicated the importance of context-specificity, a key focus of this thesis, which is rather underrepresented in research on factors that influence dynamic capabilities. Leoncin, Montresor, and Vertova (2003) concentrates on empirical bias with respect to the internal and external perspectives. Their conceptual paper deals with the identified gap between an organizational and an environmental approach to explain dynamic capabilities. These investigations found that the focus is alternatively either on the nature of the firm or on the nature of that firm's environment, and therefore biased.

The highlighting of organizational learning in the research stream of dynamic capabilities has led to a strong emphasis on the internal organization and thus disregards *the relational and contextual aspects affecting the creation and development of dynamic capabilities* (Leoncin et al., 2003, p.2). To address this issue, the authors compared an integrated approach that combines the organizational and environmental view to a model of the firm as an open, dynamic system, co-evolving in broader technological systems.

Rindova and Kotha (2001) examined the competitive advantage of the companies. These authors found that these firms dynamically reach a strategic fit with a hypercompetitive environment. Recent research on dynamic capabilities purports that organizations need to build these capabilities to successfully confront existing uncertainty (Eisenhardt & Martin, 2000; Galunic & Eisenhardt, 2001; Teece et al., 1997).

Specifically, current research on dynamic capabilities examines search, entrepreneurial action, and learning of the dynamic capabilities process (Smith, Cao, & Lofstrom, 2004), as well as the experience accumulation, knowledge articulation, and knowledge codification of the dynamic capabilities process (Winter, 2003). Ambrosini et al., (2009) found that four different outcomes may result from the deployment of dynamic capabilities. First, they can lead to sustainable competitive advantage if the resulting resource base is not imitated for a long time and the rents are sustained. Second, they can lead to temporary advantage which is typical for markets with high turbulence.

Third, they can give competitive parity if their effect on the resource base allows the firm to operate only in the industry rather than to outperform rival firms. Finally, the deployment of dynamic capabilities may lead to failure if the resulting resource base is irrelevant to the market. Fundamentally, the research on dynamic capabilities concerns how organisations emerge, develop, grow, change, decline and rejuvenate over time (Helfat et al., 2007). Probably the most discussed difference between the fundamental views of Teece et al. (1997) and Eisenhardt and Martin (2000) is related to the relationship between dynamic capabilities and the pace of change in a firm's business environment.

According to Teece et al. (1997) dynamic capabilities occur only in rapidly changing environments whereas Eisenhardt and Martin (2000) explain that dynamic capabilities are at play in both stable and dynamic environments. The latter view is supported; for example, by Ambrosini et al. (2009) who suggest that in stable environments dynamic capabilities are often small adaptations of resources, whereas in high-velocity environments more radical modifications and changes in the resource base are needed. Zollo and Winter (2002) support this by stating that firms integrate, build and reconfigure their competencies even in environments subject to lower rates of change. The majority of researchers have (implicitly or explicitly) assumed that dynamic capabilities are essentially firm-specific and unique (Makadok, 2001; Teece et al., 1997; Barreto, 2010). Recent research has attempted to overcome this shortcoming by investigating the micro-foundations of such capabilities—the skills, processes, procedures, and organizational structures that comprise dynamic capabilities (Teece et al., 2007).

Increasing global competition, shorter product life-cycles, rapid technological advancements, strengthened competition, and consumer demand is critical (Cohen & Levinthal, 1990; Luo, 2001; Wang & Ahmed, 2007). The Dynamic Capabilities perspective attempts to respond to the increased rapidity of the environment (Child & McGrath, 2001) through development of specific capabilities. The Dynamic Capabilities focuses on how the organization adapts to connections with the external environment (Scott, 2000).

The Dynamic Capabilities approach emerged in the 1990s, extending the Resource-Based View of the Firm. The Dynamic Capabilities perspective provides a framework

for understanding sources of sustainable competitive advantage. Dynamic Capabilities are essential for competing in global economies, enabling organizations to innovate and develop (Winter, 2003). The influence of a company's environment on the evolution of dynamic capabilities in contrast to the organization's internal sources also remains unclear (Galunic & Eisenhardt, 2001).

To sum up, there is no general agreement about the features of dynamic capabilities. Whereas certain models highlight the external perspective, like Porter's Competitive Forces (2011), other researchers (Griffith & Harvey, 2001; Zott, 2003) reach inside the organizations concentrating unique firm resources. These perspectives have promoted further research about transferability and hence sustainable competitive advantage based on dynamic capabilities. The study shows the complexity of influences on dynamic capabilities. The development of dynamic capabilities cannot be limited to one single factor. The findings reveal that influence factors cannot be uniquely attributable to the internal dimension of companies. In addition, the context of the companies could be identified as an important source of influence factors for dynamic capabilities. Dynamic capabilities are based on specific identifiable processes of an organization and emerge through a complex system of technology, innovation, knowledge, environment, and best practices factors.

Dynamic capabilities coupled with good strategy are seen as necessary to sustain superior enterprise performance, especially in fast-moving global environments (Teece, 2014). Dynamic capabilities investigate the attribute, origination, process, influence, and contribution of the dynamic capabilities (Barreto, 2010; Helfat & Peteraf, 2009; Loasby, 2010; Narayanan et.al., 2009; Prange & Verdier, 2011) and most scholars believe that dynamic capabilities increase competitive advantage. Additionally, dynamic capabilities are regarded as a transformer for converting resources into improved performance. Wu (2007) thus demonstrates that dynamic capabilities mediate between entrepreneurial resources and performance.

Organizations essentially need to be able to be more flexible in a dynamic environment through such structural factors as decentralization and less formalization. Structure led to flexibility in the organization and in turn better performance in a dynamic environment. The importance of dynamic capabilities has increased because the global economy has become more open and the sources of innovation and manufacturing are

more diverse, geographically and organisationally (Teece, 2000), and multiple innovations have to be combined to achieve marketplace success (Somaya & Teece, 2007).

Table 2.2 provides a summary of the key features of these four main theories.

Table 2.2 Summary of the Key Features of Contingency Theory, Neo-Institutional Theory, RBV, and Dynamic Capabilities

	Contingency Theory	Neo-Institutional Theory	Resource Based View of the Firm	Dynamic Capability
Unit of Analysis	Organisation	Organisation	Organization	Capability, Organization
Focus On	Organizational structure, Organizational size, Organizational culture, Environment, Organizational performance, Management's ability, Resources, Strategy, Efficiency, Technology	Internal and external organization Structure, External to the organization actors, Society, Environment of organisations, Rules, Norms, Politics, Government regulations, Institutional isomorphism	Competitive advantage, Organizational performance, Assets, Capabilities, Resources	Capabilities, Absorptive capacity, Environmental turbulence, Agility, Sustainable competitive advantage
Research Question	What enables organisations to fit their internal organization to the external environment?	What is the impact of government policy or legislation changes on organizations?	What are the key organizational resources that lead to a sustainable competitive advantage?	How do organisations adapt to changing environments?
Core Concept	A basic theme of Contingency Theory is that organisations have to deal with different situations in different ways, with no single best way of management applicable to all situations. In order to be effective, the internal functioning of an organization needs to co-relate with the demands of external environment. 'Goodness of fit' is a core concept of contingency theory, involving effectiveness (doing the right things), efficiency (doing things right), and efficacy (does the means actually work in enhancing output).	<ul style="list-style-type: none"> • Deep and resilient aspects of social structure. • Consideration of the processes by which structures, including schemas, rules, norms, and routines become established as authoritative guidelines for social behaviour. • Inquiry into how these structural elements are created, diffused, adopted, and adapted over space and time; and how they fall into decline and disuse. • The ostensible subject is stability, order in social life, consensus, and conformity but also conflict and change in social structures. 	RBT is based on the idea that the effective and efficient application of all useful resources that the organization can muster help to determine its competitive advantage. Elements of the RBT can be used to assess the internal and external conditions of organizations trading in competitive environments. Organisational resources can be regarded as assets, capabilities, processes, firm attributes, information, and knowledge that firms can take advantage of and effectively control. These resources need to be valuable, rare, inimitable, nonsustainable.	Dynamic capabilities refer to a firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environment. There are three essential components of dynamic capabilities: possession of unique resources, capability to deploy or allocate resources, and capability to upgrade these resources through ongoing or non-stationary learning. These capabilities are essential for competing in global economies subject to rapid technological environments, intensified competition, and consumer demand.
Purpose	To understand how social and business environments are subject to change, with no single rule or law being able to solve management problems at all times, all places, and for all individuals or institutions.	To understand organisational behavior as situated in and influenced by organisations and wide social forces – especially broad cultural rules and beliefs.	To understand and explain the ways in which organisational resources contribute to the development of a sustainable competitive advantage.	To extend the RBT of the firm, explaining the ways in which enterprises can gain a sustainable competitive advantage in rapidly changing environments, and how the application of resources and processes can increase the wealth of organizations
Strengths	<ul style="list-style-type: none"> • This theory, grounded in empirical research, is ordered as a valid and reliable approach for explaining how organizations perform effectively. • This theory has broadened the scope of understanding the interrelationship between the internal aspects of an organization to its external environment. 	<ul style="list-style-type: none"> • Consideration of analytical, social, and political perspectives. • Explicit consideration of external actors. • Conceptualization and operationalization of the external environment. • Well established theoretical basis. 	<ul style="list-style-type: none"> • Focus on a firm level of analysis. • RBT reflects not only organizational assets, but also the ways in which they are combined and utilized to create heterogeneity in the “services” they provide. • RBT can improve general understanding of the competitive differences with close rivals. 	<ul style="list-style-type: none"> • It focuses on internal and external competences to address rapidly changing environments and rapidly creating situation specific new knowledge. • Dynamic Capabilities as the key to competitive advantage.
Weaknesses	<ul style="list-style-type: none"> • Lack of clarity blurring the interaction between the internal aspects of an organization to its external environment. • Theoretical statement fail to provide any clues about the specific form of the interaction intended. 	<ul style="list-style-type: none"> • Excessive focus on constraints imposed on management to conform to norms, rules, or requirements. • Legitimacy is regarded as a principal driver of resistance to change on breaking away from the norm because of fear of becoming an outcast from the social format. 	<ul style="list-style-type: none"> • RBT does not take into account the dynamism of environment, seemingly taking a static perspective. Organizations need to be able to manage increasingly turbulent environments. • RBT does not provide tangible translations for operationalizing the theory. • RBT has been applied only to large organizations, and that sustainable competitive advantage resources are expensive to acquire in the first place and can be refuted from different viewpoints. • The RBV does not explain how resources create competitive advantage, in another word, the mechanism to explain the linkage between resources and product market. 	<ul style="list-style-type: none"> • Dynamic Capabilities are complex, structured and multi-dimensional. • The concept of dynamic capabilities has not prevailed over such definitional issue. Confounding the situation is the fact that a significant number of empirical studies pertinent to dynamic capabilities do not explicate to concept.
Interview questions	What internal or external factors have helped you to grow your business and acted as barriers to growth?	In what ways, if any, have government regulations or changes in regulation influenced your business. - growth : rice production, taking on new employees or making employees redundant, exporting, diversification	What do you identify as the key internal business resources that your business has to enable growth the business?	<ul style="list-style-type: none"> • How does your business respond to the advent of new technologies or new equipment in your industry? • Is innovation an important feature of your business? Why?
Key Papers	Lawrence and Lorsch (1967); Burns and Stalker (1961); Chandler (1962); Lutans (2011); Mintzberg (1979); Morgan (2007); Perrow (1967); Woodward (1958, 1965); Thompson (1967)	Scott (1995, 2004); Powell and DiMaggio (1983, 1991); Meyer and Rowan (1977); Dacin (1997); Deephouse (1996); Suchman (1995)	Hitt et al. (2001); Barney (1991,2001); Eisenhardt and Martin (2000); Dierickx and Cool (1989); Wernerfelt (1984); Rumult (1984); Kogut and Zander (1992); Spender (1996); López and García (2005)	Teece et al. (1997); Menon (2008); Cohen and Levinthal (1990); Luo (2001); Wang and Ahmed (2007); Winter (2003); Petroni (1998); Prieto and Smith (2006)

Chapter 3

Literature Review

Overview

Chapter 3 provides a critical analysis of the literature identifying the seven main factors that impact significantly on the Thai rice milling industry. These factors involve: rice farming in Thailand; Thai rice milling; technological capabilities; education, training, and knowledge management; government policy and regulation; rice millers as farm family businesses; and lifestyle entrepreneurs and lifestyle businesses.

This literature review presents a critical analysis of seven key factors identified as having a significant impact on the Thai rice milling industry. These factors include: rice farming in Thailand; Thai rice milling; technological capabilities; education, training, and knowledge management; government policy and regulation; rice millers as farm family businesses; and lifestyle entrepreneurs and lifestyle businesses (Figure 3.1).

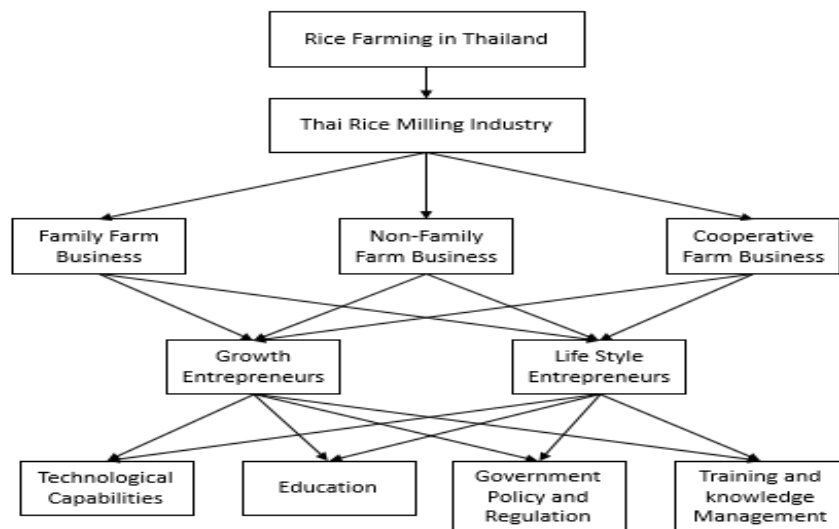


Figure 3.1 Flow Chart of Literature Review

3.1 Rice Farming in Thailand

Thailand is one of the world's largest rice producer ranked 3rd, globally. Thai rice paddy output is approximately 30 million tonnes a year, a third of which is exported. Rice is grown in 20% of the country (or around 10 million ha), with almost half grown in the Northeastern region, the poorest region of the country (Asian Development Bank, 2012). For example, as discussed in Chapter 1, Figure 1.1, show that Thailand is heavily reliant on its export market. However, a lesser percentage is attributable to non-rice commodities, eventhough, rice makes up one of the largest export commodities globally (Riaz et.al., 2017; Timmer, 2010).

Thailand is located in a temperate zone suitable for growing long-grain and short-grain rice (Chinvanno et al., 2013). Rice can be classified into four ecosystems cultivations, including irrigated, rained lowland, deep-water, and upland. The most predominant is rained lowland, followed by irrigated, deep-water, and upland (Chuenban et al., 2012). Basically, it can be argued that there are four types of rice: organic, fragrant, non-fragrant, and glutinous.

In Thailand, following the major floods of 2011 that impacted 1.6 million hectares, rice output was 600,000 tonnes less than annual reported forecasts provided by the Food and Agriculture Organization of the United Nations (FAO, 2013b) and almost 4 million tonnes less than the main crop harvested in 2010. Following the 2011 floods, farmers were expected to delay planting, however, prospects for the 2011 secondary crop (planted January and harvested April) remained positive, with officials having projected it to increase by 10% to 11.1 million tonnes (7.4 million tonnes, after milling) (FAO, 2013a). These targets were achieved.

Indeed, farmers engaged in off-season crop-planting activities rely on the availability of water for irrigation, improved soil conditions, and favourable prices, all of which promote both area and yield. In addition, the Government extended assistance to flood-affected producers who received seeds and fertiliser, as well as credit on preferential terms. Based on such expectations, Thai overall paddy production (i.e., primary and secondary crops) in 2011 was forecast to be 9% lower than in 2010, aggregated at 31.5 million tonnes (20.84 million tonnes, post milling) (FAO, 2013a).

Notwithstanding, the Thai Government continues to procure rice under the Paddy Pledging Program. By 15 January 2012, however, only 5.3 million tonnes of paddy was reported to have been mortgaged under the Program, even though the Thai Government amended a number of the terms of the scheme since its re-inception. Specifically, the Thai government permitted farmers in the northern and north-eastern provinces to store up to 1.0 million tonnes in their own facilities, so as to compensate for low miller participation in the Program. Nonetheless, by February 2012, the mortgaging progress remained slow, when compared to the original expectations that up to 10.0 million tonnes would be absorbed by the scheme (Royal Thai Government, 2013).

It was noteworthy, by 2012, starting Paddy Pledging Program that a significant proportion of farmers preferred to sell their rice supplies on the open market despite receiving lower prices than those pledged under the Program. Possible reason can be attributed to initial logistical hurdles related to the floods, costs of transporting supplies to pledging centres, as well as problems associated with government administrative procedures, and reported delays in receipt of payments (Royal Thai Government, 2013).

In Thailand, most rice is produced during the major cropping period, between May-to-February. Around 9 million hectares is cultivated yielding more than 22.2 million metric tonnes (mmt) of paddy rice. The major- or first-rice crops are grown in every province classified broadly as Northern, North-eastern, Eastern, Western, Central, and Southern (Table 3.1). Between 2000 and 2009, paddy rice production increased from 19.02 mmt to 23.26 mmt with the north-eastern region producing about 57% of the output. Most of the second-rice crop output originates from the Central Plain that is equipped with an irrigation system designed purposefully for rice production (Chinvanno et al., 2013).

Table 3.1 Paddy Production by Province and Year (in million metric tonnes)

Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Northern	4.96	5.76	4.87	6.57	6.46	6.72	6.46	6.61	6.6	6.5
North-Eastern	8.54	9.47	9.09	10.19	10.01	10.44	10.29	10.38	10.3	10.38
Central Plain	4.67	4.92	4.91	5.54	5.39	5.6	5.29	5.52	5.59	5.63
Southern	0.85	0.75	0.76	0.83	0.79	0.78	0.8	0.81	0.75	0.75
Total Area	19.02	20.9	19.63	23.13	22.65	23.54	22.84	23.32	23.24	23.26

Note. Source: OAE (2010)

In 2012, production reached a record 26.1 million tonnes (17.3 million tonnes, after milling), surpassing the 2011 flood-affected outcome by 9%. This benchmark was achieved despite localised flooding and drought in regions such as the north-eastern provinces, where much of the production of fragrant rice varieties is concentrated. The secondary crop attained a 3% yield higher than in 2011, or 11.7 million tonnes (7.7 million tonnes, after milling) (FAO, 2013a).

More generally, the anticipated production growth come on the back of expanded area coverage, reflecting the attractive prices offered to producers under the Paddy Pledging Program. Since launching its 2012-2013 season operations, on 1 October 2012, the Program was reported to have absorbed 8.8 million tonnes by 10 January 2013, double the amount pledged at the corresponding period in 2011-2012, when production losses to severe floods and difficulties in transporting supplies to pledging centres limited the volume of the main crop absorbed by the scheme (FAO, 2013a).

Table 3.2 Thailand Paddy Production by Crop 2008-2012

Year	Area Planted (million acres)			Yield (million tonnes/acres)			Production (000 million tonnes)		
	Main	Minor	Total	Main	Minor	Total	Main	Minor	Total
2008	22.5	4.9	27.4	1.05	1.77	2.82	23,236	8,415	31,651
2009	22.5	6	28.5	1.05	1.52	2.57	23,158	8,863	32,021
2010	25.3	6.3	31.6	1.03	1.66	2.69	25,743	10,261	36,004
2011	23.9	6.6	30.5	1.02	1.75	2.77	23,980	11,330	35,310
2012	24.2	6.7	30.9	1.10	1.79	2.89	26,130	11,700	37,830

Note. Source: FAO (2013a)

FAO's forecast for 2013 production in Thailand stood at 38.0 million tonnes (25.2 million tonnes, after milling), a 4% year-on-year expansion (FAO, 2013b). These figures reflected a buoyant main season harvest, conducive weather, and high official support prices. Against this backdrop, the Thai authorities maintained mortgaging prices for the main season crop at 13,800-15,000 Baht (US\$ 440-478) per tonne, but reduced offseason crops by 13% to 13,000 Baht (US\$ 414) per tonne. In addition, lower value-based ceilings were imposed on the quantities that could be pledged from both the major and secondary crops. The decision came as the Thai government continued to face significant pressure over the financial implications of its high support-price policy. The limits imposed aimed to keep the overall volume pledged under the Program at 16.5 million tonnes. This benchmark was established after the 2012/13 mortgaging target of 22 million tonnes was reported to have been amply met, absorbing close to 60% of paddy produced during that season (FAO, 2013b).

As shown in Figures 3.1 and 3.2., geographically, Thailand is divided into six regions: North, Northeast, Central, West, East, and South. The majority of rice farms are located in Northern, Central, North-eastern, and Southern regions. Each region has different rice growing environments (Global Rice Science Partnership, 2013).

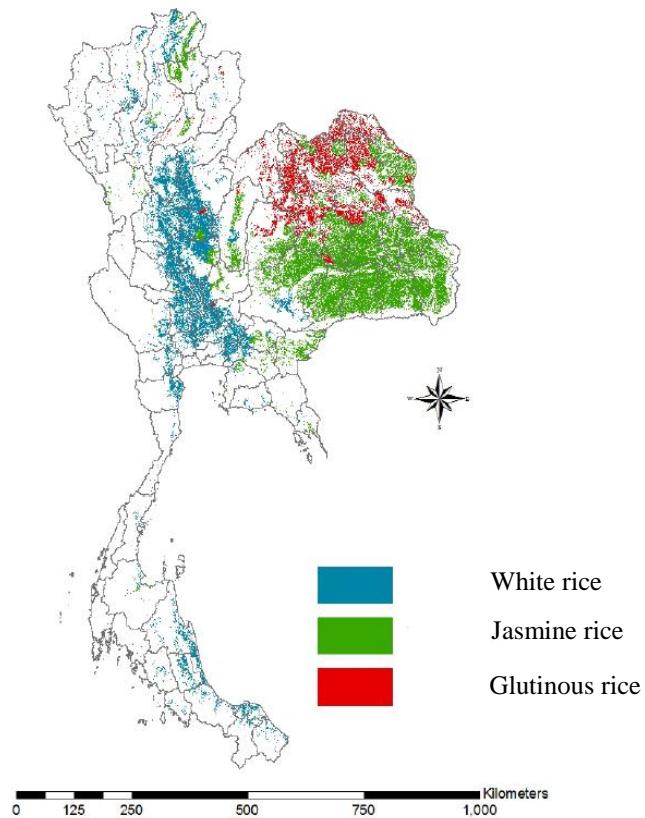


Figure 3.2 Type of Rice in Thailand Across Each Region (Kunnakeet & Butdaabun, 2013)

The Northern region comprises about 20% of total rice land area in Thailand. Upland rice is grown in the lower heights of high hills or upland areas. Lowland rice is grown mainly in lower vale and on some lawn fields where water can reach (Global Rice Science Partnership, 2013). This region produces mostly long-grain white rice and jasmine rice (Thai Encyclopaedia, 2011).

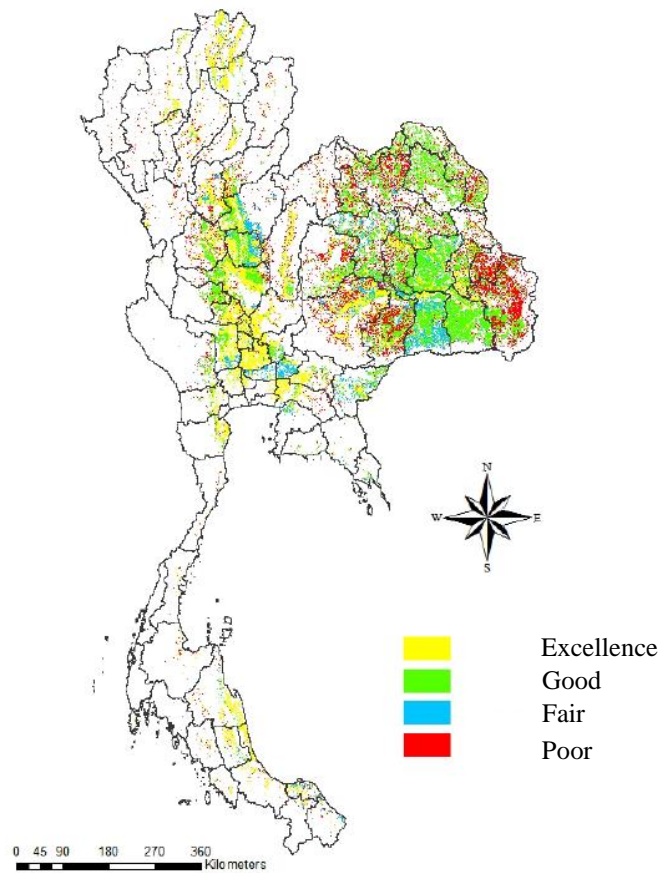


Figure 3.3 Soil Quality for Farming in Thailand Across Each Region (Kunnakeet & Butdaabun, 2013)

The Central region is an intensively cultivated alluvial area. During the rainy season, most of farmers prefer to grow rice in this region, which values for about one-fifth of the total cultivated rice land of the country in the wet season. The average farm size in each farmer is large, and also a large proportion of the rice land can grow two rice crops during the year due to it can access to irrigation facilities. Almost 75% of the dry-season rice is grown under irrigated conditions and is located in this region. Farm operations are almost entirely mechanized, and farmers adopt a direct-seeding method of crop establishment to save labor (Global Rice Science Partnership, 2013). The central region produces mostly long-grain white rice. The main rice surplus comes from this region (Thai Encyclopaedia, 2011).

In contrast, the geography of the North-eastern region has inward curving shape like a saucer, and plateaued situated at 90-200 meters above sea level. This region holds almost half of the rice land in Thailand, but the average size of rice farms is smaller than for other regions. Irrigation is limited due to the inconsistencies inherent in the

land's natural features and physical appearance (Global Rice Science Partnership, 2013). Moreover, the quality of soil is poor and subject to drought in the dry season. The north-eastern region produces both jasmine rice and glutinous rice (Thai Encyclopaedia, 2011).

The Southern area, touching the edge of Thailand coasts, is considered about 14% of the total area of the total area of the country, but has just only 5% of the total rice land. Most of soil in this region is salt soil and acidic (Global Rice Science Partnership, 2013). This region produces mostly long-grain and short-grain white rice. With the limited rice farm under cultivation, there is always a shortage of rice for local consumption (Thai Encyclopaedia, 2011).

This overview of rice farming and ways in which the Thai government has intervened demonstrates that the development of rice farming has shifted from subsistence to commercial farming (Nuchnart, 2006). Over the previous two decades, rice farmers have been relying on purchased inputs such as seeds, fertilizers, and labor and farming services (land preparation & harvesting). Commercially-oriented farming with high level of cash inputs has created greater cash flow requirements than previously. As a result, farmers have had to borrow more finance from the Bank for Agriculture and Agricultural Cooperatives (BAAC) (Bank for Agriculture and Agricultural Cooperatives, 2010). In addition, farmers have needed access to knowledge on appropriate farming practices.

Both government and private companies play an important role in transferring farming technologies and promoting suitable farm input application (OAE, 2010). Traditionally, the government has played a pivotal role at the farm level in undertaking research and development, especially for rice-variety improvement, quality seed improvement and propagation, and promoting the use of organic fertilizer and good agricultural practices (GAP) farming systems (FAO, 2013a). The following section examines the Thai rice milling sector by region.

In conclusion, as the world's sixth largest rice producers, Thailand has established a distinctive rice grain. Rice cultivations are predominantly rainfed lowland. Over time, rice farmers have changed their management style from subsistence to commercial farming, relying on purchased inputs for land preparation and harvesting. In addition,

government and private companies provide a vast array of farming technologies and push appropriate farm input applications.

Rice planting extends over two seasons, producing major- and secondary-rice crops. The major- or first-rice crop is grown in May across all provinces (i.e. Northern, North-eastern, Eastern, Western, Central, and Southern). The secondary rice crop is grown in January, but only in irrigated districts.

The majority of rice farms are located in four regions: Northern, Central, North-eastern, and Southern. The Northern and Central regions have excellent soil quality, while the North-eastern region has the poorest soil quality, which is subject to drought condition. By comparison, the Southern region has distinctive salty and acidic soil.

Jasmine rice, a unique aromatic rice, is produced predominantly in the North-eastern region, while white rice is grown in the Northern, Central, and Southern regions. Glutinous rice, which is easily grown on the hillsides, requires less water, and is cultivated in North-eastern and parts of the Northern regions. Notwithstanding, the North-eastern region holds almost half of total rice land in Thailand, but the average size of rice farms is smaller than other regions. It would seem that a combination of factors including climatic conditions, rice planting seasons, regional location of rice farms, soil type and quality, and size of rice farm strongly influence rice output and ultimately, milling performance.

3.2 Thai Rice Milling

Among the many types of agricultural crops in Thailand, rice is possibly the most important in term of both employment and trade (Meenaphant, 1981). Rice farms comprise over 50 % of land use and rice farmers and millers make up almost 60% of the Thai population (Krasachat, 2004). Thailand is one of the main rice exporters on the world rice market (David & Otsuka, 1994). Much of Thailand's rice production is from wet season agriculture. The largest quantity of paddy rice in this season is purchased almost immediately after harvesting in October-February from farmers by millers or paddy merchants often leading to a large surplus of rice. However, irrigated farming allows an annual second crop in some parts of the country. This second crop is grown in irrigated areas during January-April providing Thailand with a high quality surplus needed for export, and constituting the main exported rice (Vanichjakvong,

2002; Thai Rice Foundation under Royal Patronage, 2006; International Rice Research Institute, 2007).

Thai rice millers are one of the leading exporters of milled rice to the international market. Thailand exports one-tenth of the world's rice (FAO, 2013a; 2013b). Thai rice-milling firms can help to drive Thailand to a leading position in the international rice market. Thailand was the world's largest milled rice exporter in terms of volume and value for a number of years and according to Baldwin and Childs (2011), in 2010, Thailand exported more than 9 million metric tonnes of milled rice. Thai rice is well-known for its relatively unique and high quality. In addition, on average Thai milled rice is the highest priced for a major rice exporting country (FAO, 2011; Baldwin & Childs, 2011).

The Thailand rice milling industry can be divided into two main areas: rice mills and rice-refining mills (BOI, 2015). Paddy rice is milled by rice mills, providing inputs for rice-refining mills. The activities of rice refining mills involve the process of cleaning, whitening, polishing, sorting by colour, and grading. These output products can be sold at a higher price to the rice market.

As shown in Figure 3.3, the rice supply chain system has a number of players, from farmers to millers to customers, each of whom plays an important role. Rice mills have a key function located between production and markets. Paddy rice can be purchased directly from farmers by rice millers, or indirectly from the farmers via paddy traders, and the Thai government through its rice mortgage scheme. Paddy farmers, who grow rice predominately for their own consumption, have their rice milled mainly by small- or local- rice mills (capacity of less than 1-12 tonnes per day). Medium-to-large rice farmers send their production to medium (capacity of 30-60 tonnes per day) and large mills (capacity of 100 tonnes per day). This rice is then refined and packed for domestic customers by retailers and for international customers by exporters. Milled rice can also be transferred to rice distributors who manage storage systems, prior to being distributed to retailers, government agencies or exporters. Most Thai rice mills sell their products on the domestic market, with only a relatively small number of firms able to export to the international market, which requires higher quality standards. The intense levels of competition in the global rice milling industry have forced Thai millers to

upgrade their skills to sustain their performance (Vaiyarabutr, 2001; Wiboonpongse & Chaovanapoonphol, 2000).

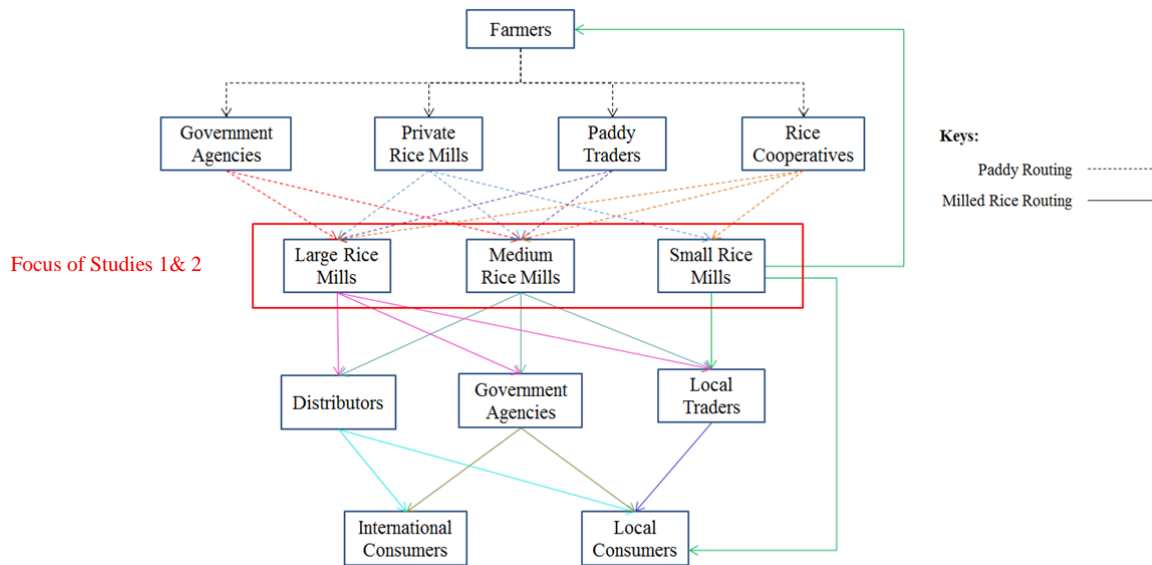


Figure 3.4 The Thai rice industry supply chain

According to Pinsuwan (2007), the Thai rice milling industry needs key workers with relevant knowledge and skills to deal with ever increasing levels of sophisticate in rice production systems, to enhance competitiveness. However, a number of researchers (Pimpeng, 2007; Pinsuwan, 2007; Namuangrak, 2009) report that the knowledge of and skills rice milled workers' are inadequate to serve in this industry. For example, HRM systems are non-existent or out-dated and do not include policies for employment, training, sharing of information and knowledge, and equality.

Relatively few large Thai rice milling enterprises have strategies for to building relationship networks with Europe partners and quality controls supported by international standards. Despite these limitations relationships between rice milling firms and rice farmers tend to be long established, providing solid partnerships and good quality rice seeds for cultivation. These relationships also provide training and workshops to support rice farmers (Suwannaporn & Speece, 2010). Siamwalla and Na Ranong (1990) suggested that the high quality of output can be attributed to the mutual supportive relationships between rice milling firms and farmers.

According to Salazar and Galve Górriz (2011), sound relationships with middlemen and high quality paddies, can also contribute to high prices for regular paddy traders. Maintaining high quality paddies is critical for meeting the customer requirements. These authors indicated that in a number of cases, buyers has established joint investments with the rice milling firms, these relationships have resulted in close relationships between parties and other benefits including rice-milling firms obtaining marketing information.

Domestic demand is met by delivering milled rice through retailers to domestic customers. International demand is fulfilled by moving rice through exporters who then on sell to international customers (Thai Rice Foundation under Royal Patronage 2006). Given the national importance of rice, both domestically and for export purposes, rice millers are the target population for Study 2 of the present thesis.

In summary, Thailand provides high quality rice for domestic consumption and a large surplus for export purposes. Thai rice milling firms have the potential to elevate the Thai rice industry to a global leadership position in international markets because of the uniqueness and premium quality of Thai rice. Farmers, government agencies, millers, middle traders, and consumers are the key players in the rice supply chain system. Despite these positive features, the relevant knowledge and skill level of rice mill owners and workers are limited and arguably deficient to compete aggressively in global market. Nonetheless, only a relatively small number of large Thai rice milling firms provide training and education to support workers and rice farmers. Without this knowledge and skill level the potential and quality of rice output will remain unfulfilled. Compounding this problem is the lack of relationship networks with international partners, a characteristic embraced predominately by large Thai rice milling firms.

3.3 Technological Capabilities

Technological capability is one of the factors that enable a country and its enterprises perform functions (especially innovation) critical to economic development and to gain an international competitiveness. Accumulating these capabilities, especially in developing countries, is considered to be a learning process which requires absorptive capacity. Murovac and Prodan (2009) described absorptive capacity as the ability to learn and solve problems. It facilitates absorbing existing knowledge, assimilating it

and in turn, generating new knowledge (Lall, 1992; Kim, 1997). This capacity underscores the importance of learning as a prerequisite to innovativeness (Jerez-Gomez et.al, 2005; Alegre & Chiva, 2008). Amara et.al (2008) described learning capability as those assets that enable firms to transform and exploit their resources in order to develop product or process innovations. Drawing upon existing literature, a number of authors (Cohen, 1995; Freeman, 1995; Lundvall, 1997), identify five modes of learning: searching, training, doing, and interacting. All of these are known to significantly influence the accumulation of technological capability in any organization.

The food and agricultural sectors has a high demand for innovative technologies such as machinery, technology systems, and network technology. In order to remain globally competitive, the ways in which technologies are adopted can make a real difference along the value chain from farming, irrigating techniques established, monitoring of soil and cultivating, storage of rice, food processing methods, and delivery of products (Suprem, Mahalik, & Kim, 2013). Modern process automation has been impacted by the advent of new technology systems and the agriculture and food sector is not an exception. When the relevant and appropriate information is considered at the best time and the appropriate machinery is utilized it can help agri-business has the potential to benefit inordinately (Chauhan, 2010).

Technological capabilities have been the subject of research since the mid-1980s. Since this time, a number of authors (Bell & Pavitt, 1995; Ernst, 1998; Kim, 2004) have defined this construct. For example Bessant, Francis, Meredith, Kaplinsky and Brown (2000) defined technological capabilities as the accumulated knowledge, skill, experience, and organizational base which enable a firm to acquire, develop, and use technology to achieve competitive advantage. As stated by Kim (2004), technological capabilities refer to an ability to make effective use of technological knowledge in production, engineering, and innovation. These capabilities enable a firm to create new technologies, and to develop new products and processes in response to their changing economic environment. By way of contrast, technological learning is a process of building and accumulating technological capabilities.

In the 90's, a number of studies (Romijn, 1999; Bagachwa, 1992) highlighted the importance of technological capabilities in the rice milling industry, in developing nations. In an investigation exploring the relationships between technological effort and the acquisition of technological capabilities in the Pakistani small farm sector, Romijn (1999) found that outside technical assistance is important relative for other learning mechanisms (e.g., searching for new technological information, examination of competitors' products when they are on public display) for developing complex products. In another study, Bagachwa (1992) established that millers who utilised inappropriate technology were less successful in terms of employment creation, output expansion, surplus generation, skill formation, economies of scale, and overall resource use. Ansal (1990) reported that firms in developing countries tended to undertake substantial efforts in order to achieve a wide variety of technical changes, accounting for a substantial proportion of productivity growth.

Research on the adoption and application of information technology in the agricultural sector can be regarded as an important area, given the complexities associated with global competition and climate change. Mishra and Williams (2006), observed that owners of companies that had internet access tended to be well educated, and to have off-farm business income, family members who were business partners and farms ideally location. Similarly, Burke and Sewake (2008) stated that the majority of agri-business users who access and surf agricultural websites for business purposes were more likely to have a higher educational level than their counterparts. The key technologies for agriculture and milling sector include handheld computers, intelligent mobile phones, portable computers and other related equipment (Höllerer & Feiner, 2004).

Owing to the limited research on the technological capabilities of Thai rice millers, a review of studies on their counterparts in other developing countries, such as Mexico (Gosen, 1995) and Pakistan (Romijn, 1999) reveals noteworthy findings, as does those emanating from South-East Asia. For example, in an investigation on the usage of technology of rice farmers in the Mekong Delta area, showed that there are a number of key technologies (e.g. machine harvesting, rice dyers) that benefit both farmers and the industry. The finding of Shaffril, Hassan and Samah (2009) and Samah, Shaffril, Hassan, Hassan, and Ismail (2009) supported those of Chi (2008), which stressing that low levels of education, weak perceptions of the value of technology, low teaching

capacities, lack of financial support, small land holdings, poor geographical conditions, disorganization, and limited capacity for expanding the workforce were barriers to the introduction of new technology to business.

The benefits of technologies such as information technology and website access, help agricultural farming entrepreneurs to seek related information, products, and services (Gakuru, Winters & Stepman, 2009). According to Barton (2003), internet provides farmers with the tools to communicate with other farmers and agricultural agencies across long distances. The internet is regarded as the most popular online service, being more useful than telephone technology. Farmers are able to access information through internet at any time, and to create networks between them, other farmers, and agricultural agencies. It also has the capability to help increase the opportunity to increase their agriculture productivity (Obiechina, 2004). Pickernell et al. (2004) highlighted that the internet has had a dramatic impact on agriculture. It offers farmers' opportunities to improve their quality of life, to expand their market seek new customers, and access market price information, weather, or other relevant knowledge.

Notwithstanding, technology holds a number of disadvantages. According to Chi (2008), some machinery is too heavy, which can create problems associated with mobility and use. Traditional farmers can enjoy the minimum cost with respect to their routines. For example, technologically-driven rice roasting helps the reduce grain loss from sun drying, but requires hired labour and operating costs. However, traditional farming relies on the sun for the same process. Technologies also involved complicated software programs, hardware, and other components that require time, knowledge, consultants, more workers, making financially enviable for small operators. Technology usage must be in line with the knowledge and capital capacities of the business. Entrepreneurs with limited funds and resources have fewer opportunities to introduce new technology into their business. In addition, not all businesses are able to use the same technology owing to employee numbers, level of skills and knowledge, and available funds (Shaffril et al. 2009; Samah et al. 2009). Furthermore, training and education, along with experience with rice milling can help motivate millers to learn and take-up new technology.

The poor rates of technology adoption in developing countries have been well documented, and there is empirical literature recognizing the importance of agricultural technology adoption in different contexts (Duflo, Kremer & Robinson, 2009; Conley & Udry, 2010; Suri, 2011). A number of these studies (Anderson & Feder, 2007; Foster & Rosenzweig, 1995; 2010) have referred to the control and effect of technology adoption and also its possible barriers. Determinants of adoption depend on contextual factors, the type of technology, level of education, personal preferences, financial support, risk preferences, and access to information and learning.

According to the International Telecommunication Union (ITU) (2009), over the previous 10 years, mobile phone usage has expanded rapidly in Africa, Latin America, and Asia, including Thailand. In 2008, there were approximately 4 billion mobile phone subscribers worldwide. Initially, adoption was primarily by wealthier, urban, and more educated residents, however, in recent years, mobile phones have been also been adopted by rural and urban populations, in some of the world's poorest countries (Aker & Mbiti, 2010).

Adoption and innovation are complex social processes that are often over-simplified by innovation researchers (Van de Ven, 1986; Vanclay, 2004; Pannell et al., 2006). Innovation refers to the use of new ideas to improve ways of doing things in the face of institutional factors, regulations, and governance (Carruthers & Vanclay, 2012). Innovation researchers (Lockie, Mead, Vanclay & Butler, 1995; Guerin, 1999; Vanclay, 2003, 2004; Pannell et al., 2006) have tended to examine the experience of innovation only at certain points along the value chain. Most of this researcher has been within the managerial context and firm level. However, interest in the adoption of innovative technologies on the agricultural sector such as at the level of farmers and agriculture workers is becoming increasingly prevalent.

In conclusion, technological capability refers to an ability to use technology to achieve competitiveness in global markets. The key technologies for agriculture and the rice milling sector are handheld computers, intelligent mobile phones, portable computers, and other related equipment and applications. The highly competitive global environment has contributed to ever increasing high demands for innovation and technology in the food and agricultural sectors. In developing countries, including Thailand, the main barriers to introduction of new technology in the rice business

appear to be low levels of education, weak vision of the value of technology, and lack of financial support. Notwithstanding, there are a number of benefits associated with technology, such as providing efficient tools for communication, access to agricultural- and global-market price information, the provision of opportunities for farmers to improve their quality of life and products, and expanding new customer-bases through the use of the internet. Nonetheless, there are a number of disadvantages, such as high cost and skill requirements for workers.

3.4 Education, Training, and Knowledge Management

The educational requirements of a capital-intensive, industrially focused growth strategy can be expected to differ in important ways from the requirements of a strategy placing emphasis on employment and agriculture. Although researchers (Alene & Manyong, 2007; Atreya, 2007b; Wright, 2005; Yang et al., 2005; Bravo-Uerta, 2002) agree that agricultural education and information services can offer a variety of benefits to the agricultural sector, most on the agricultural benefits of education is limited to an examination of data from the urban sector (Tao Yang, 1997). The principle expected benefits derived from an educational process include the possibility of increasing the prospects of quality agricultural enterprises and enhancing financial results (Charatsari & Papadaki-Klavdianou, 2010).

Mellor (1988) argued that most aspects of agricultural growth through educational change are based on increasing the number of rural supporting institutions to benefit small farmers. Owing to the agricultural sector's immense size, the intensity of use of a trained workforce requires large investment in education, at all levels. Moreover, the broader the participation in rural development, the more intensive requirements for a trained workforce are as a case in point, in Thailand, the agriculture workforce that is less than 40 years old has mostly completed only a secondary education. Those who exceed 40 years of age have to a large extent barely finished an elementary-level of education (Bryant & Gray, 2005).

It appears that owners and employees of micro- and small-scale enterprises (MSEs) in developing countries, including Thailand, tend to have relatively low levels of education. One reason is that, despite recent advances, primary education completion rates remain at only 60% in Sub-Saharan Africa, 80% in South Asia, and 90% in the Middle East and North Africa (World Bank, 2009). MSEs tend to have less-educated

owners and workers than do larger firms (Orlando & Pollack, 2000; Söderbom & Teal, 2001). Educational disparities across firm size are especially striking at the university level: for example, 21% of microenterprise owners in Chile have Bachelor's degrees, compared to 42% of small firms and 55% of medium size firm owners (Alvarez & Crespi, 2003). The lower levels of educational attainment among MSE owners and employees is remarkable when contrasted with their counterparts in developed countries, where those with higher education are more likely to be self-employed (Woodruff, 1999). One reason for this contrast is that impoverished people in developing countries tend to start-up and manage survival-oriented MSEs owing to limited alternative employment opportunities.

Low educational and skill levels are also characteristic of some European countries. For example, in Greece, a high proportion of training programs and short courses focusing on farm equipment, supply companies and quality systems in agricultural production are provided by local cooperatives or private agencies. It is argued that the overall picture of occupational training in the agricultural sector remains unsatisfactory in Greece (Alexopoulos, Koutsouris & Tzouramani, 2009).

Over the previous five decades, economists (Schultz, 1964; Huffman, 1985) have emphasized the importance of human capital investment (primarily education) in improving farming efficiency and agricultural productivity; with a large body of empirical literature (Schultz, 1975; Tao Yang, 1997) supporting the positive effects of education in agricultural production. Investment in human capital can enhance farming efficiency and agricultural productivity. Notwithstanding, investment in education and training is not a universal panacea (Rosenzweig, 1995). For education and training investments to yield returns, the scope for productive learning must be complimented with either technical innovations or changes in market and political regimes. In fact, these ideas are in line with Schultz (1964), who over five decades ago pointed out that, when farmers' means of production are dispossessed because of state ideology, many agricultural skills are lost, mainly because the economic incentives to apply these skills are destroyed. The reviews of Schultz and Rosenzweig are consistent with recent evidence from Eastern Europe when the region moved from a centralized economy to a market-based economy. Reflecting this perspective, Orazem and Vodopivec (1995) observed that educated Slovenians attained high levels of compensation when their country shifted to a market economy between 1987 and 1991.

Formal education can benefit farmers, through increased productivity (Gasson, 1998) and allocated efficiency (Mohapatra, 2011). Differences in agricultural productivity across countries are attributable, in part, to differences in educational levels (Ruttan & Hayami, 2011). Nevertheless, agricultural education empowers farmers to express opinions and make sound decisions. Education and training can be an effective instrument for developing agricultural skills where farmers are unable to reach their goals because they lack knowledge and insight (Van den Ban & Hawkins, 1996). For program to be effective, research (Charatsari, Papadaki-Klavdianou & Michailidis, 2011; Al-Rimawi, Karablieh & Al-Kadi, 2004; Roberts & Dyer, 2004; Luft & Thomson, 1995) demonstrates that content and educator characteristics, such as knowledge of subject matter, ability to design courses, communication skills, and skills to adapt to the students' particular needs are essentials.

As Thailand develops, the country faces new challenges in its educational policies. In the 1970s and 1980s, Thailand succeeded in providing all children with access to good quality primary education. However, expansion of education at lower and upper secondary levels, and in post-secondary education proceeded more slowly. As the 1990s approached, Thailand's enrolment ratios at these levels lagged far behind those of competitive neighbours. While 80% of the Thai workforce has completed primary school levels, less than 40% of the population has completed secondary school (World Bank, 2000). The basic education of the population has been an important factor underpinning Thailand's past development success. Thailand has paid less effort to improve land productivity in agriculture but has promoted industrialization. Correspondingly, educational development has lagged (Kawada & Levine, 2014). Perhaps not surprisingly, Reimers and Klasen (2013) found that farmers who had completed primary education were significantly more productive than those with less education in traditional agriculture, which covers the bulk of the Thai agriculture sector.

In conclusion, education and training provides a number of advantages through increased productivity and allocated efficiencies to the agricultural industry. It can help to enhance financial results. Thailand provides sound quality primary education to all children, but secondary level education appears wanting. Surprisingly, the agriculture workforces in Thailand tends to be relatively poorly of educated, especially MSE employees. In addition, the low levels of education observed in MSEs are noticeable

when compared with their counterparts in developed countries. Thus, it is imperative that the Thai government and private institutions support this sector by up-skilling agricultural owners and workers.

3.5 Government Policy

Thai government policies have aimed to sustain paddy prices at a reasonably high level, secure competitive advantage in international markets, and alleviate the poverty of farmers (Keuschnigg & Nielsen, 2004). Although the Thai government has intervened in rice production and rice trading (Roumasset & Setboonsarng, 1988), for example, by mandating a reduction in rice capacity (Yao, 1999), this intervention does not appear to have benefitted rice millers in the ways that the government intended (Yao, 1997; 1999). For these reasons, successive Thai governments have promulgated policies to encourage rice millers to export their produce.

Regulatory Environment

Perhaps surprisingly, the Thai government is involved in the rice export industry through government-to-government trading, managed by the Department of Foreign Trade, under the Ministry of Commerce (Siamwalla, Setboonsarng, & Patamasiriwat, 1991). Government-to-government rice trading is initiated via subcontracts to private rice exporters through special auction procedures. Government involvement in rice trading primarily aims to secure and promote the Thai rice export market rather than to monopolize the rice sector. Currently, the Thai government does not place any restriction on rice exports (Warr & Kohpaiboon, 2007).

Policies on the regulation of rice standards are similar or the same as those for other economically important crops (e.g., maize, cassava). GAP (Good Agricultural Practice) sets the standards for agricultural products that are controlled at the farm level. This agricultural practice has contributed to the standardization of products, making them safe for both producers and consumers (Achterbosch & van Tongeren, 2002).

The implementation of policies relating to agricultural and food standard certification started in 2003 (Agrifood Consulting International, 2005). There are two types of certification: Certification of products and certification of production systems. The first type of certification seeks to ensure that products are of quality and meet safety standards. This level of certification ensures that production process standards are

maintained, including complying with GAP protocols and Codes of Conduct, along with reaching Organic Agriculture requirements. The second type of certification establishes standards for the production of agricultural goods so that they comply with protocols including the Good Manufacturing Practice (GMP), and the Hazard Analysis and Critical Control Points (HACCP) system.

Regulations have also been promulgated to control rice trading, including exports. In the past, the government restricted the quantity of rice exports because of its negative impact on the domestic market. For this reason, the Thai government set a number of laws and policies such as the Export License (Rice Trade Act), a Quota System, an Export Tax, a Rice Premium, and the Rice Reserve Enactment to regulate the quantity of rice exports and the domestic rice price, which has been relatively lower than the world price (Tada, Hu, & Tokrisna, 2009).

Major Subsidy Programs

In recent times, two overarching policies were implemented to further develop the rice industry (Royal Thai Government, 2013): The first policy covers two areas: the Farm Income Guarantee (FIG) and the Paddy Pledging Program (PPP) geared to raise the price of rice which farmers can receive when compared with the free market (FAO, 2012).

In 2008, the farm income guarantee was initiated to enable farmers to sell their produce quickly so that they could lower debt and increase liquidity (Thai Rice Exporters Association, 2011). Introduced in 2011, the PPP aimed to raise prices both domestically and on world markets, to increase government stockholding, and to concentrate benefits for rice millers rather than other stakeholders, when compared with previous years (Thai Rice Exporters Association, 2011; FAO, 2012). However, the PPP led to market distortions in the domestic paddy price. With this policy, farmers could sell their paddy to government agencies and also buy it back within 90 days at 3% interest rate. The program benefited farmers and rice millers who participated in the program and rice traders who were able to secure a low price via government auctions. The program was managed by the Bank of Agriculture Cooperatives (BAAC) and supervised by the Ministry of Finance. But independent rice millers lost ground as farmers chose to join the pledging system in which the pledged price was higher than the market price. Contrary to expectations, Thai rice exporters were also affected by

the higher rice price in the pledging season but lost their competitive edge in the world rice market. The second policy targeted domestic consumers to enable them to buy rice at a lower than market-value price when there was a shortage in supply (FAO, 2012).

The aforementioned argument highlights the ways in which laws, regulations, and government administrative procedures and policies can affect firm profitability margins by changing their costs or revenues. Government regulation can provide both risks and benefits to businesses and also contribute to growth (Badri, Davis, & Davis, 2000). Overall, Asian governments view rice as a strategic commodity because of its dietary importance, the opportunities, it affords for agricultural employment, and income generation for farmers (Von Braun & Bos, 2005). Almost 50% of Thais in rural areas are involved in agricultural activities (IRRI, 2007). The agricultural sector accounts for approximately 12% of Thai GDP (US State Department, 2011), and rice is among the top five products exported from Thailand to world markets (World Bank, 2009).

To sum up, Thai government regulation policies concerning rice are similar or the same as these of other economically important crops. These policies target the farm level, the quality and standard of products, and safety procedures and standards for producers and customers. However, the Thai government has policies restricting the quality and quantity of rice exports, as well as those that support rice farmers and millers. Over the past decade, the FIG and the PPP have been two influential rice policies. Perhaps surprisingly, for the FIG, the price was set much higher than the market price. As a result, the policy became too costly for the Thai government, which later, consequently, suspended this policy. Following the introduction of the FIG, the Thai government introduced the PPP as a way of increasing the income of farmers and millers. However, the pledged prices resulted in distortions in production and trade problems. Currently, the FIG and the PPP have been ceased owing to the change of Thai government. Currently, no new rice policies have been announced or introduced.

3.6 Farm Family Businesses

Chua, Chrisman, and Sharma (1999) defined family business as an enterprise governed and/or managed by members in the same family or a small number of families with the purpose of developing and pursuing the vision of the business for sustainability across generations. Family firms can show many features common to all firms (Sharma,

2004), but it is the family relationships, which create and lead to unique characteristics (Chua, Chrisman, & Steier, 2003). The F-PEC scale (Klein, Astrachan, & Smyrnios, 2003, 2005) not only highlights but also measures the influence of familiness, helping researchers to understand differences between definitions of family and nonfamily entities. This scale demonstrates the important interrelationships between family influence, business (i.e., ownerships, management), and organizational culture (e.g., values, missions).

Business, ownership, and family are combined in family businesses (Astrachan & Jaskiewicz, 2008). Family members who work in family businesses have three distinct but important roles, as managers, owners, and relatives. For this reason, family businesses have notable business relationships in family relationships, supporting both family and business needs (Bork, Jaffe, Lane, Dashew, & Heisler, 1996; Chua et al., 2003). Notwithstanding, decision making in family business is not always reasonable owing to the emotionalities attached to the business (Schulze, Lubatkin, Dino, & Buchholtz, 2001; Sharma, Chrisman, Pablo & Chua, 2001; Salvato, Chirico, & Sharma, 2010; Sharma & Manikutty, 2005; Shepherd, Wiklund, & Haynie, 2009).

Research (Davis & Harveston, 1998; Handler, 1992, 1994; Morris, Williams, Allen, & Avila, 1997; Sonnenfeld & Spence, 1989; Ward, 1997, 2004) demonstrates only a relatively small proportion of family firms continue following business succession to the second generation, with an even smaller proportion succeeding post the second generation. Accordingly, the process of ownership and management succession is critical in family businesses (Chua, Chrisman, & Sharma, 2003).

Family farming implies a structure in which the farm business and the farm operator's including the family household are viewed as highly intertwined, with production and consumption occurring locally. The term usually refers to a farm owned and operated by a family (Brandth, 2002). One definition of the farm family business (Gasson & Errington, 1993) suggests that it consists of six principal elements: business ownership is combined with managerial control in the hands of business principals; principals are related by kinship or marriage; family members provide capital for the business; family members execute the farm work; business ownership and managerial control are transferred between generations; and the family lives on the farm.

Farms are consistently transferred from generation-to-generation. Many family farm businesses have survived multiple generations, and each generation operates in the same location, usually, focusing on the same type of production, with multiple generation working together (Lobley, Errington, McGeorge, Millard, & Potter, 2002). However, it is not uncommon for family farms to generate less than average return on investment or report negative profits over a number of years, for various reasons (e.g., climatic) (Minten, Randrianarison & Swinnen, 2009).

Family farming can be understood as a social and economic structure defined by the intersection of three characteristics (Pritchard, Burch & Lawrence, 2007). First, family farming differs from corporate agriculture, in which land may be held by landlords or investors, but worked by some other group or individuals. Second, labor usage varies considerably between different types of agriculture; and at different times of the year (such as at harvest or shearing periods); and farms may make considerable use of wage-labor. The essential point is that family farming systems depend vitally and extensively on family-based labor. Third, the concept of family farming assumes that farm families draw their main source of income from the sale of agricultural outputs produced on their farms, rather than outside earnings. However, in recent times, it is not uncommon for sources of income to originate outside (e.g., consulting, farm management, and retail of produce).

Recently, a number of studies have focused on farm succession and farm investment. For example, Potter and Lobley (1992) found the on-farm investment behavior of farmers without successors was radically different from that of farmers whose successors already had been identified. Perrier-Cornet, Blanc, Cavailhes, Dauce & Hy (1992) reported that in France, the Netherlands, and Belgium, farm modernization is associated with intergenerational succession. However, farms located in the United Kingdom, Greece, and Italy did not show any significant relationship between these factors. In an examination of Israeli farm panel data, Kimhi (1995) found that succession contributed significantly to farm expansion both in terms of farm size and intensity of production. However, at times of farm financial crisis, expansionary phases did not continue, but forced many potential successors to seek off-farm employment. Notwithstanding, Phimister (1994) argued that financial pressures arising from intergenerational farm asset transfers can also have a negative impact on subsequent farm investment.

Stiglbauer and Weiss (1999) reported that intra-family succession plays a significant role in farm survival. These investigations identified that farm size, family size, degree of farm diversification, and life-cycle patterns in farmers' succession behavior increases the probability of farm succession and subsequent farm sustainability. Kimhi and Nachlieli (2001) identified that age of owners/managers, level of education, and age of the oldest child are significant factors in Israeli family-farm sustainability. Moreover, in a survey of Northern Germany family farms, Glauben, Tietje & Weiss (2004) reported that farm characteristics and age of family farm owners/managers significantly influence farm sustainability.

In Thailand, the majority of rice millers/mills can be regarded as farm family businesses. Given that research demonstrates an association between farm family businesses and performance and survival, studies that focus on this sector will need to take into account a number of factors such as: generation of ownership, willingness and ability of potential successors to take over the farm, level of investment, phase of a development, and economic conditions.

Studies show that the sustainability of small family business, including family farm business, is not only dependent on organizational factors but also on institutional and social considerations because the local, global, economic, and social cohesion impact most if not on all businesses (Howorth, Rose, Hamilton, & Westhead, 2010), especially, in terms of markets, price, availability of labor, employment, and community.

There are a number of factors that prevent the growth and succession of farm family businesses, such as low ability levels of family members (Barach & Gantisky, 1995; De Massis, Chua & Chrisman, 2008); lack of motivation of family members (Chrisman, Chua, & Sharma, 1998; Sharma & Rao, 2000; Cespedes & Galford, 2004); personal sense including a lack of interest in the business by family members (Sharma et al., 2001); unexpected factors (Kelly, Athanassiou, & Crittenden, 2000); divorce, remarriage, or arrival of new children (Weiste, 2013); conflict between parents and children (Lansberg, 1988); conflict among family members (Tagiuri & Davis, 1996; Morris et al., 1997); lack of trust in management by family members (Barach & Ganitsky 1995; Chrisman et al., 1998; Sharma & Rao, 2000); conflict between family and nonfamily business members (Bruce & Picard, 2006; Chua et al., 2003); lack of

trust in management by nonfamily members (Bruce & Picard, 2006; Eddleston, Chrisman, Steier & Chua, 2010); change in business performance (Sharma et al., 2001; Cespedes & Galford, 2004); decreased scale of business activity (Stavrou, 1999; Venter, Boshoff & Maas, 2005); and business training failure (Morris et al., 1997; McKenzie & Woodruff, 2013; Smalibone, 1990), inter alia.

In conclusion, family farm business are important to the Thailand' economy because most of the industrialization is driven by family business, in which family members control both ownership and management. A number of family farms have continued across multiple generations, but in modern times potential successors are either moving to cities for employment and career opportunity or are just not interested in farming. Therefore, the process of family farm management is of almost importance. There are a number of factors which influence family farm sustainability, such as farm size, family size, degree of farm diversification, age of owners/managers, level of education, and also age of the eldest child, amongst others. It is these types of factors that are examined in Studies 1 and 2 of the present thesis.

3.7 Lifestyle Entrepreneurs and Lifestyle Businesses

Research (Seikkula-Leino, Ruskovaara, Ikavalko, Mattila & Rytkola, 2010; Henricks, 2002) suggests that lifestyle-oriented entrepreneurs tend to own and operate their businesses around their personal values, beliefs, interests, and passions. Lifestyle entrepreneurs seek to attain a respectable living, find satisfaction in career attainment and achievements, and are likely to spend quality time with family and friends (Henderson, 2002). In other words, Lifestyle entrepreneurs are likely to be concerned with business survival, and maintaining sufficient income to ensure that their enterprise provides them and their family with a satisfactory level of funds to enable enjoyment of their chosen lifestyle (Morrison et al., 2008).

Lifestyle entrepreneurs view their decision to start businesses not as a career but as a life strategy to achieve satisfaction (Buttner & Moore, 1997). In other words, lifestyle entrepreneurs develop their business activities of living day-to-day into fully functioning businesses. Lifestyle entrepreneurs combine their own leisure interest, personal beliefs, values, and way of life (Ateljevic & Doorne, 2000). Material economic factors, location, family matters, personal issues, experience, and technology

are key factors that influence not only the lifestyle of entrepreneurs but also their business operations (Morrison et al., 2008).

Lifestyle entrepreneurs operate in many industries such as farming, agri-business, rice milling, and rural tourism (Komppula, 2004; Hall & Rusher, 2004; Ateljevic & Doorne, 2000; Marchant & Mottiar, 2011; Helgadóttir & Sigurðardóttir, 2008; Andersson Cederholm & Hultman, 2010). Lifestyle entrepreneurship is a feature of all economies including Europe, North America, and developing nations (Shaw, 2004).

Although a relatively high proportion of firm might be growth oriented (Henderson, 2002; Mhango, Marcketti & Niehm, 2005; Zimmerer & Thomas, 2006), there is something to be said about the possible life-quality enhancements associated with owning, and operating a lifestyle firm. Murry (2002) highlighted the lifestyle entrepreneur's desire for life quality, suggesting that balance in family and businesses demands generally enhances one's awareness that life is meaningful and manageable. This view is supported by the literature that shows that a balance between work-life and family-life is critical for personal happiness and perceptions of overall health (Horridge & Craig, 2001; McNabb, 2004).

As well as enhancing personal satisfaction, entrepreneurship can also contribute to improving life quality. Etzioni (1993, 1995) maintained that developing and sustaining life quality requires an interest in sharing resources and community values relating to family, government, religion, and community wellbeing. Cornwell (1998) reported that community and home-based enterprises, and lifestyle enterprises are an integral part of community building and powerful elements for social change. Lifestyle entrepreneurs can contribute by sharing values and goals with people in the community, giving back, and by bettering the operations of their community (Henricks, 2002).

Hall and Rusher (2013) explored the attitudes and operational decision-making of New Zealand owner-managers. These authors found that profits and a strong business strategy is no match with an owner's motivation and lifestyle. Nevertheless, lifestyle can be regarded as a strategic business objective for some entrepreneurs.

A number of researchers (e.g., Lynch, 1997) have argued that lifestyle business is a fuzzy concept. Such lifestyle firms have been seen to represent forms of consumption as much as production (William, Shaw & Greenwood, 1989). Dewhurst and Horobin

(1998) believed that small business owners sought utility maximization based on a usually single trade-off between income/growth and quality of life goals.

The primary concern of lifestyle business is to provide a sufficient and comfortable living to maintain a selected way of life (Kuratko & Hodgetts, 1992; Morrison et al., 2008). Lifestyle entrepreneurship fits with personal circumstances and style of life (Kaplan & Warren, 2009), such that personal endeavors are prioritized over business goals (Bolton & Thompson, 2004). These goals are not growth motivated (Burns, 2010).

Lifestyle businesses are frequently formed for reasons associated with life quality providing ways in which emotions or energy can be expressed or made use for sharing creative work or to provide flexibility in managing demands associated with work, family, and community roles (Brush, 1992; Stanforth & Muske, 1999).

The life motives associated with running a small company has been demonstrated in several studies (Peters, Frehse & Buhalis, 2009; Shaw, 2004; Komppula, 2004) and the lifestyle characteristics of firms has been further developed. Rather than building a traditional business to maximize profits, competitiveness, market orientation and business expansion, lifestyle business ownership places greater significance on the personal life aspirations and circumstances of owners. In this light, relatively recent studies suggest that small businesses do not regard long-term business planning as cost-effective (Cioccio & Michael, 2007), especially when there is increasing environmental uncertainty.

Lifestyle entrepreneurship is associated with both positive and negative connotations. Hollick and Braun (2005) concluded that non-constrained lifestyle firms involving a low-skill base, poor performance, and deficient in planning can have a negative effect on customer experience. Dewhurst and Horobin (1998) concluded that lifestyle businesses tend to have limited long-term survival prospects.

A number of studies have addressed lifestyle entrepreneurship beyond the economic orientation of owner-managers. For example, Mottiar (2007) found that lifestyle firms tend to engage more often in informal or non-legally structured practices, remaining on the fringe of the established business community, than formalized businesses.

Ateljevic and Doorne (2000) investigated the role of culture in lifestyle oriented micro firms and conclude that a number of owners choose to stay small or at the same size rather than growing in order to preserve both their life style and their business position. However, interest in running these types of businesses often relates as much or even more to lifestyle, location, and leisure preferences as it does to a desire for profit or security (Ateljevic & Doorne, 2000; Getz & Carlsen, 2000). These type of enterprises are evident in the tourism industry (Ateljevic, 2007; Getz & Carlsen, 2000; Haber & Reichel, 2007).

In conclusion, although the benefits of general entrepreneurship (e.g., economic activity, profit, job creation, innovation) are well known, the literature seems to appreciate the diversity and differences. A lifestyle entrepreneur is a person who realizes that their life and interests is most important, and earnings revolve around their passions, rather than life around their work, which can limit self-fulfillment and their families. In other words, lifestyle entrepreneurs contribute to family, community, and life quality rather than to high growth (Burns, 2010; Davidson & Henrekson, 2002; Pastakia, 1998; Thompson, Alvy & Lees, 2000). Notwithstanding, owing to their focus, lifestyle entrepreneurs do provide many essential community services and benefits including employment (Henderson, 2002). Although lifestyle enterprises provide owners with a good balance of both time and money to accomplish their passions, these businesses also involve limitations, involving low level of human resource skills, poor business performance, and inadequate strategic planning.

Chapter 4
Study 1
The Key Characteristics of the Thai Rice Milling Industry

Overview

This thesis employs a mixed method design (Creswell & Plano, 2011) involving quantitative (Study 1) and qualitative (Study 2) approaches. Chapter 4 reports on the finding of Study 1, a mapping exercise of the entire population of Thai rice millers (n = 38,241). The principal objective of Study 1 is to explore the key characteristics of the Thai rice milling industry. This chapter describes then profiles the population of millers. These findings are discussed in term of the data collection and data analytic procedures, the extant research, and pertinent policy and applied implications, forming the basis for substantiation and extension in Study 2 through interview-based case studies. The limitations of this research design are also outlined.

This thesis adopts both quantitative and qualitative techniques in order to achieve its objectives. Mixed methods research designs help to provide in depth and a rich array of information, while also enhancing the internal validity of an investigation (Creswell, Plano Clark, Gutmann & Hanson, 2003). Another reason for the adoption both quantitative and qualitative techniques for this thesis relates to the dearth of research on this topic. Thus, it is important to source both primary and secondary information from different perspectives. Study 1 relies upon a quantitative analysis of a non-readily available large-scale Thai government database. Study 2 garnered qualitative data obtain through semi-structured interviews that culminated in five case studies and five vignettes of Thai rice millers. In Study 2, a qualitative approach was followed.

Study 1 maps the characteristics of the Thai rice milling industry. This research exercise is surprisingly absent in the literature. Moreover, research involving this industry is limited. For these two reasons alone, understanding of the Thai rice milling industry is an enigma. Obtaining an indepth understanding of the rice milling industry characteristics helps provide a foundation and overall context in which to examine the

drivers and barriers to growth, which this sector presents. Thus, a key objective of Study 1 is to map the characteristics of the Thai rice milling industry by a number of key variables including region (location), age of company, gender of owner, description of business, size of mill, and whether mills are either family or non-family enterprises. Family-oriented enterprises are significantly prevalent among the Thai rice milling industry, the study of these enterprises provided one of the reasons for determining the characteristics of the rice milling industry. The overarching question addressed by this research (RQ1) is: *What are the principal characteristics of the Thai rice milling industry?*

Subsidiary research questions are:

RQ1a: What are the key drivers and barriers of rice milling output?

RQ1b: Do rice milling family businesses differ from rice milling non-family firms?

RQ1c: What has been the impact of government policy changes, if any, on rice milling production and employment in this industry?

RQ1d: What are the key predictors of performance?

4.1 Research Design

Polit and Hungler (1999, p.155) described *the research design as a blueprint, or outline, for conducting the study in such a way that maximum control will be exercised over factors that could interfere with the validity of the research result*. In the other words, research design is associated closely with the adopted theoretical framework, forming the guidelines or basis of the plan and strategy of research (Henn, Weinstein, & Foard, 2005), helping to determine how the study will be conducted, and also increasing the chances of obtaining a rich matrix of information (Burns & Grove, 2001). This process concerns amongst other processes, generating research problems, specification of research questions, outlining data collection and analysis procedures, interpretation of findings and their implications, and report writing (Creswell & Clark, 2007; Walliman, 2006). For Study 1, the main research objectives are geared towards exploration, description, and explanation based on the large-scale Thai government database (Richardson, 2005; Babbie, 2015).

According Burns and Grove (1999, p.23) these types of objectives can be regarded as *a formal, objective, rigorous and systematic process for generating information about the phenomenon*. In addition, the processes associated with these objectives tend to be formalised in nature (Mouton & Marais, 1992), involving formalized instruments to collect and gather information, and analysed using statistical procedure (Wood & Brink, 1998; Burns & Grove, 1993; Kraemer & Blasey, 2015). These principles, inter alia were adopted for Study 1 in order to determine the contribution of these factors to the growth, or otherwise, of the Thai rice milling industry.

4.2 Research Paradigm

According to Terre Blanche, and Durrheim (1999), the research process has three major dimensions: ontology, epistemology, and methodology. These authors noted that a research paradigm is an all-encompassing system of interrelated practices and thinking that defines the nature of enquiry along these three lines.

Weaver and Olson (2006, p. 460), indicated that research is affected and guided by paradigms, noting that: *paradigms are patterns of beliefs and practices that regulate inquiry within a discipline by providing lenses, frames and processes through which investigation is accomplished*. Other authors (e.g., Taylor, Kermode & Roberts, 2007, p. 5) have described a paradigm as *a broad view or perspective of something*. Given the critical relevance of paradigms, for any research, the structure of methodological choices must be clarified from the outset. An exploration of the paradigm adopted in Studies 1 and 2 are discussed below.

Ontology and epistemology are the two main philosophical perspectives that separate research paradigms (Laughlin, 1995; Kalof, Dan & Dietz, 2008; Saunders, Lewis & Thornhill, 2009). Respectively, these perspectives relate to the nature of reality and the development of knowledge. In terms of social research, ontologically, objectivists (Saunders, et al., 2009) or realists (Punch, 2013) hold that the existence of reality is external and independent of social participants and their explanation of it. Objectivists hold that all of the knowledge, which is reasonable and reality depends on logical and objective process of reasoning. Subjectivists, by comparison, assume that reality depends on social participation and that individuals contribute to the construction of social phenomena. Epistemology concerns the ways in which individuals create,

understand, and use knowledge. This knowledge is taken as acceptable and valid (Saunders et al., 2009; Lincoln, Lynham & Guba, 2011; Hallebone & Priest, 2009).

There are a number of paradigms used to guide research, and authors incorporate different paradigmatic schemas to conceptualize and classify their research (Denzin & Lincoln, 2000). Paradigms include: positivism, postpositivism, constructivism, and critical theory (Hennink, Hutter & Bailey, 2010). The chosen paradigm depends on the context, research questions being addressed, and how these questions are answered (Terre Blanche & Durrheim, 1999).

In management research, there are several methodological choices when conducting research. For Study 1, the quantitative methods lean to objectivist epistemology, whereas for Study 2, qualitative procedures lean towards a subjectivist epistemology (Bogdan & Biklen, 1998; Borg & Gall, 1989; Denzin & Lincoln, 2000; Johnson & Christensen, 2008).

The following sections expand on these four paradigms (Table 4.1) and show how different paradigms utilized in this mixed research methods approach suits the research questions that are addressed in Studies 1 and 2.

Table 4.1 Comparison of Relevant Paradigms

	Positivism	Postpositivism	Critical Theory	Constructivism
Ontology	naive realism - "real" reality but apprehendable	Critical realism - "real" reality but only imperfectly and probabilistically apprehendable	historical realism - virtual reality shaped by social, political, cultural, economic, ethnic, and gender values; crystallized over time	relativism - local and specific constructed realities
Epistemology	dualist/objectivist; findings TRUE	modified dualist/objectivist; critical tradition/community; findings probably true	transactional/subjectivist; value-mediated findings	transactional/subjectivist; created findings
Methodology	experimental/manipulative; verification of hypotheses; chiefly quantitative methods	modified experimental/manipulative; critical multiplism; falsification of hypotheses; may include qualitative methods	dialogic/dialectical	hermeneutical/dialectical

Note. Source Guba and Lincoln (1994, p. 109).

Positivism

Positivism is commonly known as the paradigm associated with the objectivist epistemology. According to Guba and Lincoln (1994), a paradigm is a researcher's guide to worldviews or belief systems. Borg and Gall (1989, p. 17) described positivism as *a system of philosophy that excludes everything from its consideration except natural phenomenon and their interrelationships*. Positivism regards fact knowledge as observable rather than from any acceptance of non-observable existence (i.e., feelings, values).

The main feature of positivism, in terms of ontology, is the position that there is only single reality and this reality is understandable (Lincoln & Guba, 1985). Other important elements involve the application of the scientific method, and the importance of unbiased and objective observations (Borg & Gall, 1989). It is held that the research outcomes obtained through the applications of this ontology can lead to the establishment of valid and reliable cause and effect relationships (Johnson & Onwuegbuzie, 2004).

Positivism is used predominately for quantitative methodologies and experimental methods of data collection and analysis. The observations associated with positivism are regarded as being dependent on theory and there is no such thing (i.e., value-free, objective, neutral observation) to test a hypothesis (Bogdan & Biklen, 1998; Carr & Kemmis, 1986). Positivism is restricted to observations in a study (i.e., test performances, responses to questionnaires). In other word, a positivistic approach is not suitable for the study of feelings, intentions, or for that matter the social dynamics of the rice milling industry. Borg and Gall (1989) argued that observable behavior is more real than feelings and intentions.

This research does not subscribe solely to a positivist epistemology, but aims to identify the drivers and barriers to growth in rice milling industry, and to explore both the qualitative aspects in terms of rice millers' views and behavior in relation to adopting new technologies in their learning as well as the quantitative aspects in terms of their enterprise's performance to in promoting growth.

Constructivism

Constructivists hold that reality is built by participants, can change, and can have multiple perspectives (Hennink et al., 2010). Individuals' perceptions are subjective. Thus, moral truths do not exist independently of human knowledge or perceptions. For these reasons, constructivists communicate with participants using qualitative procedures in order to understand the social world from the experiences and subjective meanings that people attach to it. Constructivists tend to use a narrative form of analysis to describe specifics and highly detailed accounts of a particular social reality being studied (Punch, 2013).

Constructivism is an alternative research paradigm for social and management study, and focuses on common beliefs with naturalism or interpretivism. Lincoln and Guba (2000) pointed out the differences between positivist and constructivist paradigms. Constructivists believe in specific constructed realities and individual and collective experience, and follow a subjectivist epistemology. Crotty (1998, p. 58) suggested that *constructivism focuses on the hold our culture has on us in shaping our experience and the way we see things to give us a definite view of the world.*

The research methods employed in Study 2 explore the factors, which impact on the growth in Thai rice milling. Thus, the empirical methods utilized to collect information about rice millers' attitudes and achievements are in line with the constructivist approach. Study 2 employs in-depth interviewing procedures in relation to potentially sensitive topics (Renzetti & Lee, 1993). The subsequent section describes the research method employed in Study 1.

Method

Population

Participants are the population of Thai rice millers ($n = 38,241$) that were listed in the 2014 Thai Ministry of Industry, Directory of rice millers. Table 4.2 shows the demographics and key characteristics of these businesses. As shown in Table 4.2, 91.1% are small business, only 3.5% are medium-sized enterprises, and 5.4% are large corporations. The rice milling industry, with about 38,241 registered rice mills dispersed across Thailand (Thai National Statistical Office, 2013) is under considerable pressure because of the impact of the political and social environments. Since 1999,

the number of Thai rice millers has risen by almost 30%. During the period, the Paddy Pledging Program was introduced in 2010 by the former Thai Prime Minister, Yingluck Shinawatra, and aimed to give Thai farmers and millers the opportunity to pledge and then provide virtually an unlimited supply of rice to the government at a price higher than what they would have obtained by selling their produce at market rates (Jitsuchon, Bisonyabut & Methakunavut, 2011).

Table 4.2 Company Demographics

Demographic	N	\bar{X} (SD)	Median	Min	Max
Company Age	36,290	30.61 (6.78)	31.00	1.00	48.00
Machine Capacity	38,018	49.49 (441.25)	14.00	1.00	27,690.95
Capitalization	37,450	1,905,425.38 (16,645,691.25)	80,000.00	4,500.00	582,000,000.00
Number of Employee	37,715	1.88 (4.56)	1.00	1.00	210.00
Rice Input / Output	24,096	14,944.67 (66,584.38)	4,000.00	4.00	2,700,000.00
Type of Business					
Small Business	34,812	(91%)			
Medium Business	1,330	(3.5%)			
Large Business	2,057	(5.4%)			

Procedure

This study adopts a quantitative method to map the characteristics of the Thai rice milling industry. Data were obtained from the Thai Government office records, private and international institute databases, and other reliable sources including The Office of Agricultural Economics, The National Statistical Office, The Department of Foreign Trade, Thai Rice Exporters Association, Food and Agriculture Organization, and Annual reports of dominant rice importers. It should be noted that this government database is available only to academic researchers, including PhD candidates who make a formal request. Information was provided in PDF linear record format. That is, for each company there are three lines of undifferentiated data which needed to be identified, differentiated, classified into variables, and then transferred manually onto

Excel spread sheets. This process was tedious, taking three people approximately 6 months to complete.

Measures (Variable)

Originally, as noted, data are captured in PDF format and include information on location (regions), company register number, age of mill, address, telephone number and name of owner, business activity, number of full time employees, rice milling machine capacity, capitalization, type of business (e.g., family, sole-trader, cooperative, partnership), and rice input/output.

Statistical Procedures

SPSS (Statistical Package for Social Sciences) was used to analyse data. The three principal statistical procedures employed were multiple correspondence analysis, an optimal scaling procedure; cluster analysis; and multivariate multiple regression. Results emanating from these methods are presented below in term of the present research questions.

Results

RQ1: What are the principal characteristics of the Thai rice milling industry?

Optimal scaling, a procedure particularly useful when data are categorical, was employed to determine the relationships between key demographic and firm characteristics. As noted earlier the key research question addressed in Study 1 is: *(RQ1) What are the principal characteristics of the Thai rice milling industry?*

As shown in Figure 4.1, all regions of Thailand specialize in milling and removing husks, as expected, but surprisingly no region specializes in roasting, polishing, packaging, and processing of rice.

RQ1b: Do rice milling family business differ from rice milling non-family business?

In term of type of business, family business and non-family business tend to focus on milling and removing husks (Figure 4.2). In contrast, cooperatives are more likely to roasted rice. Packaging, polishing, and processing are not associated with business type.

As shown in Figure 4.3, in term of type of business, non-family businesses are aged less than 10 years and located in the Eastern region. Family businesses predominate in the Northern, Northeastern, Western, Central, and Southern, parts of Thailand, and are older than their counterparts. Gender influences do not seem to be present. Analyses reveal the attributes of rice millers that have performed better than their counterparts. This study identifies that a key driver to rice milling output is mill location. Central and Eastern regions are superior producers. Male owned family-oriented operations are associated with high levels of output, which can be attributed to employee productivity, loyalty, and deeply rooted methods that enhance efficiency. As expected, larger enterprises produce greater output.

In contrast, barriers to rice milling output are associated predominantly with size and enterprise ownership structure. Non-family enterprises and cooperatives are associated with low levels of outputs.

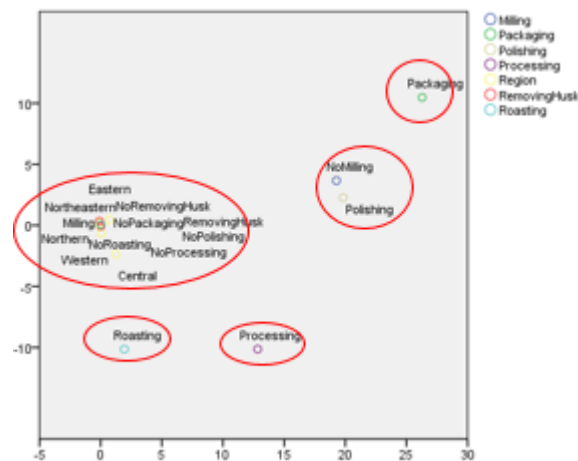


Figure 4.1 Relationships Between Region and Rice Mill Activities

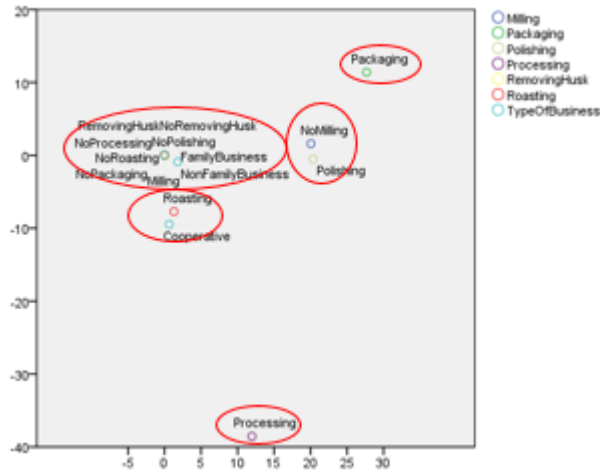


Figure 4.2 Relationships Between Type of Business (Family vs. Non-Family vs. Cooperative) and Rice Mill Activities

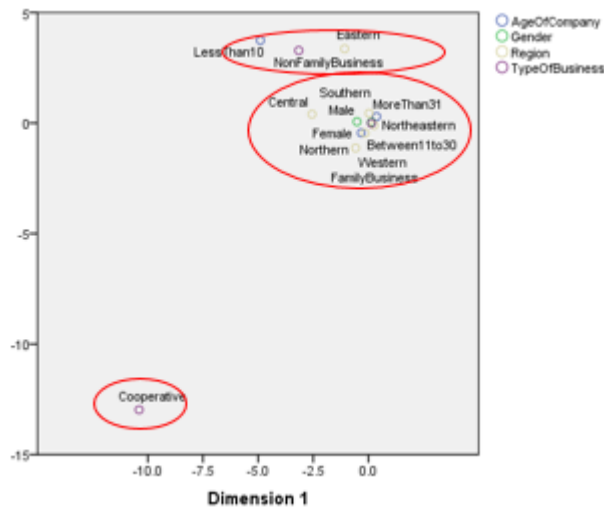


Figure 4.3 Relationships Between Age, Type of Business (Family vs. Non-Family vs. Cooperative), Gender of Owners/Managers, and Region

RQ1a: What are the key drivers and barriers of rice milling output?

This question was examined utilizing a cluster analysis statistical procedure, the results of which are summarized in Table 4.3 to 4.5.

As shown in Tables 4.3 to 4.5, these cluster analyses were undertaken to further explore and address *RQ1: What are the principal characteristics of the Thai rice milling industry?*, and *RQ1b: Do rice milling family businesses differ from rice milling non-family businesses?*. The Central region of Thailand includes 21 provinces, Bangkok, Kamphaeng Phet, Chai Nat, Nakhon Nayok, Nakhon Pathom, Nakhon Sawan, Nonthaburi, Pathum Thani, Phra Nakhon Si Ayutthaya, Phichit, Phitsanulok, Phetchabun, Lop Buri, Samut Prakan, Samut Sakhon, Sing Buri, Sukhothai, Suphan Buri, Saraburi, Ang Thong, and Uthai Thani, and comprises 2,477 rice mills. This region has two distinct clusters of rice mills, which are Cluster 1 ($n = 335$), Cluster 2 ($n = 576$). The rice mills in Cluster 1 tend to be larger in terms of rice output, number of employees, machine capacity, and capitalization. However, both clusters of rice mills are majority male owned and family business. Only a relatively small proportion of rice mills in both clusters remove rice husks, and carry out rice polishing, rice roasting, and other related activities, but no rice mills package and process rice.

There are 601 rice mills in the Eastern region, with 7 provinces, Chanthaburi, Chachoengsao, Chonburi, Trat, Prachinburi, Rayong, and Sa Kaeo. This region has five clusters, with Cluster 3 ($n = 11$) being the largest in terms of rice output, number of employees, machine capacity, and capitalization. Clusters 2, 4, and 5 are small-size businesses, with Cluster 1 ($n = 28$) rice mills being predominately of medium-size. Irrespective of cluster, the majority of mills can be categorized as family enterprises whose owners are predominately male, except for those in Cluster 2 ($n = 31$). All mills in Cluster 5 ($n = 39$) and a small proportion of mills in Cluster 1 remove rice husks. A relatively small proportion of mills in Cluster 3 pack and roast rice. However, no rice mills process, polish, or carry out other activities, other than milling.

The largest mills are located in the Northeastern region of Thailand comprising 28,583 rice mills. 20 provinces, including Kalasin, Khon Kaen, Chaiyaphum, Nakhon Phanom, Nakhon Ratchasima, Bueng Kan, Buri Ram, Maha Sarakham, Mukdahan, Yasothon, Roi Et, Loei, Si Sa Ket, Sakon Nakhon, Surin, Nong Khai, Nong Bua Lum Phu, Amnat Chareon, Udon Thani, and Ubon Ratchathani. The provinces involve Cluster 1 ($n = 10,038$), Cluster 2 ($n = 161$), Cluster 3 ($n = 2,415$), and Cluster 4 ($n = 2,596$). Other than Cluster 2 which comprises large-size business as indicated by rice input, number of employees, machine capacity, and capitalization, the majority of mills are small-sized family concerns, owned by males. Firms in Cluster 3 are owned predominately by

females. In term of rice milling activities, all 2,596 rice mills in Cluster 4, and a small proportion in Clusters 2 and 3 remove rice husks. Less than 1% of rice mills in Cluster 2 polish rice and very small proportions in Clusters 2, 3, and 4 roast rice. However, no rice mill in this region packages, processes, and carries out other rice activities (other than milling).

There are 3,418 rice mills in Northern region of Thailand, which are located in 9 provinces, including Chiang Rai, Chiang Mai, Nan, Phayao, Phrae, Mae Hong Son, Lampang, Lumphun, and Uttaradit. Of the five clusters of rice mills in Clusters 1, 3, and 4 can be categorized as small-size business. While all 21 rice mills in Cluster 5 are large-size businesses, the majority in Cluster 2 is medium-sized. Most rice mills in this region are owned by males, but all small rice mills in Cluster 4 ($n = 155$) are owned by females. In this region, the majority of rice mills business is family enterprises, and almost 10% are cooperatives. Apart from milling activity, all 344 rice mills in Cluster 1, and some of the rice mills in Clusters 2, 4, and 5 remove rice husks. Surprisingly, 52.38% and 23.81% of mills in Cluster 5, and a very small proportion in Cluster 2 roast rice and undertake other activities. No rice mills polish, package, or process rice.

In the Western region, there are 609 rice mills located in 5 provinces, Kanchanaburi, Tak, Prachuap Khiri Khan, Phetchaburi, and Ratchaburi. Of the two clusters, rice mills in Cluster 1 ($n = 152$) tend to be small-size entities but all 43 rice mills in Cluster 2 are large-size business as measured by rice output, number of employees, machine capacity, and capitalization. Most are owned by males. The majority of rice mills in this region are family business, and surprisingly, all of the large-size businesses in Cluster 2 are family owned concerns. Only 44.08% of rice mills in Cluster 1 and a small proportion in Cluster 2 remove rice husk. Almost 10% of rice mills in Cluster 2 roast rice, but no mill polishes, packages and processes rice.

Finally, the Southern region involves 13 provinces, including Krabi, Chumphon, Trang, Nakhon Si Thammarat, Narathiwat, Pattani, Phangnga, Phatthalung, Yala, Ranong, Songkhla, Satun, and Surat Thani. The 2,552 rice mills comprise two clusters, the majority of Cluster 1 mills is small-size businesses, while all mills in Cluster 2 are large-size business as determined by rice output, number of employees, machine capacity, and capitalization. The majorities of mills in this region are owned by males and are family businesses. Only a small proportion of mills remove rice husks, and a

meagre 1.6% of mills in Cluster 2 roast rice. No rice mill polishes, packages, or processes rice.

Summary

In conclusion, three regions (Central, Western, Southern) provide two distinct clusters (small versus large rice mills), predominately male owner-managed family enterprises. Large enterprises are more efficient in terms of employee per output, but less efficient in relation to machine capacity and level of capitalization. In contrast, the Northern and Eastern regions have five cluster grouping (small versus medium versus large rice mills), with the majority being male owner-managed family enterprises. Finally, the Northeastern region has four recognizable clusters: small versus large rice mills, male owner-managed family enterprises. The large enterprises are more efficient in terms of employees, but again less efficient in relation to machine capacity and capitalization.

In terms of labour capacity, the most efficient rice mills are located in Central, Northern, Eastern, and Southern regions. Less efficient rice mills are located mainly in Eastern, Northern, and Southern regions. Large enterprises (comprising a mixture of male to female owners-managed family enterprises) are more efficient than their smaller counterparts that tend to be predominately male owner-managed family enterprises.

In regard to machine processing capacity, the most efficient rice mills are located in Eastern, Western, Central, and Northeastern regions. These mills involve a mix of male and female owner-managers with a mix of family enterprises (small, medium, large). However, the less efficient rice mills are located in Northern, Southern, Eastern, and Northeastern regions. Large enterprises incorporate a mix of male and female owners-managed family enterprises that are less efficient.

With respect to investment capacity, the most efficient rice mills are small family enterprises located in the Eastern, Northeastern, Western, and Northern regions. However, there are less efficient rice mills located in the Northeastern, Northern, Western, and Southern regions. These clusters have a mixture of large, male and female owner-managed family enterprises.

Table 4.3 Cluster Analysis by Region in Term of Rice Input Per Employee, Per Machine Capacity, by and Capitalization

Region	Cluster	Rice Input / Output (\bar{x}) (kg/day)	Number of Employess (\bar{x}) (ppl.)	Rice Input / Output per Employess	Machine Capacity (\bar{x}) (HP)	Rice Input / Output per Machine Capacity	Capitalization (\bar{x}) (Baht)	Rice Input / Output per Capitalization
Central	1 (N=335)	181,110.9	10.8	16,769.5	718.8	252.0	29,161,219.75	6.21
	2 (N=576)	18,991.2	2.1	9,043.4	57.2	332.0	1,925,006.47	9.87
Western	1 (N=152)	8,685.5	2.0	4,342.8	16.6	523.2	207,494.28	41.86
	2 (N=43)	95,072.1	7.9	12,034.4	283.6	335.2	21,621,511.63	4.40
Southern	1 (N=496)	4,047.0	1.4	2,890.7	12.3	329.0	137,193.50	29.50
	2 (N=61)	35,770.5	6.0	5,961.8	200.5	178.4	8,980,032.80	3.98
Northeastern	1 (N=10,038)	3,915.4	1.2	3,262.8	13.0	301.2	119,514.64	32.76
	2 (N=161)	74,815.0	9.7	7,712.9	359.9	207.9	32,960,571.15	2.27
	3 (N=2,415)	4,339.5	1.3	3,338.1	14.5	299.3	146,926.43	29.54
	4 (N=2,596)	4,949.0	1.4	3,535.0	14.5	341.3	91,555.66	54.05
Eastern	1 (N=28)	15,035.7	3.6	4,176.6	80.0	187.9	1,979,964.29	7.59
	2 (N=31)	10,180.7	1.9	5,358.3	15.3	665.4	134,500.00	75.69
	3 (N=11)	182,909.1	14.1	12,972.3	981.9	186.3	26,418,181.82	6.92
	4 (N=109)	3,427.8	2.0	1,713.9	12.1	283.3	120,038.53	28.56
	5 (N=39)	4,282.1	2.1	2,039.1	13.2	324.4	136,500.00	31.37
Northern	1 (N=344)	3,494.2	1.3	2,687.8	16.4	213.1	88,862.69	39.32
	2 (N=186)	22,460.9	3.9	5,759.2	99.2	226.4	3,645,165.97	6.16
	3 (N=534)	3,888.8	1.4	2,777.7	15.6	249.3	112,405.62	34.60
	4 (N=155)	3,922.6	1.3	3,017.4	16.1	243.6	105,114.19	37.32
	5 (N=21)	312,857.1	22.0	14,220.8	2,111.8	148.1	100,472,842.86	3.11

Table 4.4 Cluster Analysis by Region in Term of Gender and Type of Business: Size, and Family versus Non Family versus Cooperative

Region	Cluster	Gender		Type of Business (Size)			Type of Business (Family vs. Non-family vs. Cooperative)		
		Male (%)	Female (%)	Small (%)	Medium (%)	Large (%)	Family (%)	Non-Family (%)	Cooperative (%)
Central	1 (N=335)	88.96	11.04	-	0.30	99.70	97.91	2.09	-
	2 (N=576)	65.80	34.20	67.71	14.41	17.88	96.70	3.30	-
Western	1 (N=152)	83.55	16.45	87.50	12.50	-	96.05	3.95	-
	2 (N=43)	79.07	20.93	-	-	100.00	100.00	-	-
Southern	1 (N=496)	84.68	15.32	97.18	2.82	-	96.57	3.43	-
	2 (N=61)	90.16	9.84	-	-	100.00	95.08	4.92	-
Northeastern	1 (N=10,038)	100.00	-	100.00	-	-	100.00	-	-
	2 (N=161)	86.34	13.66	32.92	2.48	64.60	100.00	-	-
	3 (N=2,415)	12.96	87.04	91.47	8.45	0.08	92.17	7.83	-
	4 (N=2,596)	100.00	-	100.00	-	-	100.00	-	-
Eastern	1 (N=28)	96.43	3.57	-	57.14	42.86	100.00	-	-
	2 (N=31)	-	100.00	90.32	9.68	-	96.77	3.23	-
	3 (N=11)	63.64	36.36	-	-	100.00	90.91	9.09	-
	4 (N=109)	100.00	-	100.00	-	-	100.00	-	-
	5 (N=39)	79.49	20.51	100.00	-	-	100.00	-	-
Northern	1 (N=344)	100.00	-	100.00	-	-	98.84	1.16	-
	2 (N=186)	89.78	10.22	4.30	58.06	37.63	93.01	6.99	-
	3 (N=534)	100.00	-	100.00	-	-	100.00	-	-
	4 (N=155)	-	100.00	100.00	-	-	99.35	0.65	-
	5 (N=21)	80.95	19.05	-	-	100.00	90.48	-	9.52

Note. “-“ denotes no company undertakes this issue.

Table 4.5 Cluster Analysis by Region in Term of Rice Milling Activities

Region	Cluster	Milling (%)	Husking (%)	Polishing (%)	Packaging (%)	Processing (%)	Roasting (%)	Other (%)
Central	1 (N=335)	100.00	1.50	0.30	-	-	13.73	3.58
	2 (N=576)	100.00	19.27	-	-	-	-	-
Eastern	1 (N=28)	100.00	17.86	-	-	-	-	-
	2 (N=31)	100.00	-	-	-	-	-	-
	3 (N=11)	100.00	-	-	9.09	-	9.09	-
	4 (N=109)	100.00	-	-	-	-	-	-
	5 (N=39)	100.00	100.00	-	-	-	-	-
Northeastern	1 (N=10,038)	100.00	-	-	-	-	-	-
	2 (N=161)	100.00	19.25	0.62	-	-	1.86	-
	3 (N=2,415)	100.00	19.50	-	-	-	0.04	-
	4 (N=2,596)	100.00	100.00	-	-	-	0.04	-
Northern	1 (N=344)	100.00	100.00	-	-	-	-	-
	2 (N=186)	100.00	13.98	-	-	-	1.08	0.54
	3 (N=534)	100.00	-	-	-	-	-	-
	4 (N=155)	100.00	32.90	-	-	-	-	-
	5 (N=21)	100.00	14.29	-	-	-	52.38	23.81
Western	1 (N=152)	100.00	44.08	-	-	-	-	-
	2 (N=43)	100.00	18.60	-	-	-	9.30	-
Southern	1 (N=496)	100.00	15.12	-	-	-	-	-
	2 (N=61)	100.00	13.11	-	-	-	1.64	-

Note. “-“ denotes no company undertakes this activity.

RQ1c: What has been the impact of the introduction government policy changes, if any, on rice milling production and employment in this industry? RQ1d: What are the key predictors of performance?

Age of firm was used as a proxy to represent the date of the policy change period. In addition, data on rice production and milling for the pre- and post-policy change periods have been included along with an explanation. Data analyses reveals no significant impact on the rice milling production and/or employment in the industry (i.e., pre versus post).

To answer these two questions, a two-step multivariate regression was undertaken. The dependent variable (DV) is rice input/output (RI/O) and independent variables (IVs) are: Number of full-time employees, machine capacity (HP), capitalization (Baht), type of business (family vs. non-family vs. cooperative), government policy (date when the

Paddy Pledging Program; PPP and the Farm Income Guarantee; FIG introduced), location (region), and rice mill activity (i.e., milling, husking, roasting, polishing, packaging, and processing). Table 4.6 shows the correlation (r_s) between variables.

A two-step approach was adopted to control for size of firm including number of employee. As shown in Table 4.7 when controlling for size of rice mill, number of employee ($\beta = 0.34, p < 0.001$) is associated positively with RI/O. At Step 2, other significant predictors of RI/O are family business ($\beta = 0.34, p < 0.001$), non-family business ($\beta = 0.34, p < 0.001$), date when the PPP and the FIG government policies were implemented ($\beta = 0.02, p < 0.001$), machine capacity ($\beta = 0.26, p < 0.001$), capitalization of the business ($\beta = 0.32, p < 0.001$), rice milling firms located in the Central region ($\beta = 0.14, p < 0.001$), the Western region ($\beta = 0.02, p < 0.001$), those mills that provide value-added services including rice polishing ($\beta = 0.03, p < 0.001$), rice roasting ($\beta = 0.18, p < 0.001$), and other rice activities ($\beta = 0.02, p < 0.001$).

Notwithstanding, non-significant predictors of RI/O include gender of owners/managers, rice milling firms located in the Eastern and Northeastern regions, and firms that only husk or package on-top of milling rice. Overall, this model accounts for 63% of the variance as indicated by the adjusted R^2 value.

Table 4.8 shows the Spearman rho correlation coefficients between rice milling input/output (RI/O), government policy and number of employee ($r_{GP,Emp}$). Although correlations are significant, values are positive but minimal or marginal as indicated by R^2 values. That is, the association between the introduction of government policy and number of employee ($r = 0.11, p < 0.001$), and between introduction of government policy and RI/O ($r = 0.09, p < 0.001$) are relatively low. Respectively, these correlations account for about 1% of the variance. These findings suggest that government policies impact significantly on rice production but the extent of impact is relatively small.

Table 4.6 Pearson Correlation Coefficients between Variables

	Mean	SD	Rice Input/Output	Machine Capacity	Capitalization	Number of Employee	Gender	Family Business	Non Family Business	Government Policy	Central Region	Eastern Region	Northeastern Region	Northern Region	Western Region	Husking	Polishing	Packaging	Roasting	Other Activities
Rice Input/Output	9,621.58	45,245.63	1.00																	
Machine Capacity	36.68	363.07	0.60	1.00																
Capitalization	1,271,869.95	11,763,457.44	0.62	0.47	1.00															
Number of Employee	1.65	2.97	0.65	0.55	0.53	1.00														
Gender	0.85	0.36	-0.02	-0.01	-0.01	-0.02	1.00													
Family Business	0.99	0.12	-0.02	-0.01	-0.02	-0.02	0.02	1.00												
Non Family Business	0.01	0.12	0.02	0.01	0.01	0.02	-0.02	-1.00	1.00											
Government Policy	0.00	0.05	0.07	0.03	0.06	0.05	0.00	-0.04	0.04	1.00										
Central Region	0.05	0.22	0.35	0.17	0.21	0.31	-0.07	-0.03	0.03	0.03	1.00									
Eastern Region	0.01	0.11	0.01	0.01	0.00	0.04	-0.02	0.01	-0.01	0.03	-0.03	1.00								
Northeastern Region	0.83	0.38	-0.23	-0.12	-0.15	-0.24	0.05	0.04	-0.03	-0.04	-0.50	-0.24	1.00							
Northern Region	0.07	0.25	0.01	0.02	0.03	0.04	0.00	0.00	0.00	0.02	-0.06	-0.03	-0.59	1.00						
Western Region	0.01	0.1	0.04	0.01	0.03	0.06	-0.01	-0.02	0.02	-0.01	-0.02	-0.01	-0.23	-0.03	1.00					
Husking	0.21	0.41	-0.02	-0.01	-0.02	0.01	0.02	0.01	-0.01	0.00	-0.05	0.00	-0.30	0.09	0.05	1.00				
Polishing	0.00	0.01	0.08	0.02	0.08	0.06	0.00	0.00	0.00	0.00	0.02	0.00	-0.01	0.00	0.00	0.01	1.00			
Packaging	0.00	0.01	0.02	0.01	0.01	0.07	-0.02	0.00	0.00	0.00	0.00	0.07	-0.02	0.00	0.00	0.00	0.00	1.00		
Roasting	0.00	0.06	0.44	0.27	0.34	0.29	-0.02	0.00	0.00	0.03	0.17	0.00	-0.12	0.03	0.03	-0.02	0.00	0.00	1.00	
Other Activities	0.00	0.03	0.18	0.09	0.19	0.10	-0.01	-0.04	0.03	0.03	0.09	0.00	-0.07	0.03	0.00	-0.01	0.17	0.00	0.25	1.00

Table 4.7 Coefficient Variables

Variable	\bar{X}	(SD)	Model 1: DV (Rice Input/Output)			Model 2: DV (Rice Input/Output)		
			B	Beta	t	B	Beta	t
Controls								
Number of Employee	1.65	(2.97)	9,911.44	0.65	114.91***	4,163.89	0.27	44.62***
Main Effects								
Family Business	0.99	(0.12)				130,302.95	0.34	6.45***
Non Family Business	0.01	(0.12)				131,707.75	0.34	6.50***
Government Policy	0.00	(0.05)				20,782.87	0.02	5.35***
Machine Capacity (HP)	36.68	(363.07)				30.69	0.25	43.30***
Capitalization (Baht)	1.3m	(11.8m)				0.001	0.27	46.59***
Central Region	0.05	(0.22)				28,912.86	0.14	19.09***
Polishing	0.00	(0.01)				143,776.77	0.03	7.23***
Roasting	0.00	(0.06)				128,398.94	0.18	34.97***
Other Activities	0.00	(0.03)				26,738.12	0.02	3.84***
Western	0.01	(0.10)				6,642.02	0.02	2.89**
Gender of Owners/Managers	0.85	(0.36)				413.36	0.00	0.71
Eastern Region	0.01	(0.11)				1,313.33	0.00	0.59
Northeastern Region	0.83	(0.38)				1,090.69	0.01	0.92
Northern	0.07	(0.25)				392.38	0.00	0.28
Husking	0.21	(0.41)				-604.56	-0.01	-1.19
Packaging	0.00	(0.01)				-21,059.35	-0.00	-0.76
Adjusted R²			0.42			0.63		

Note. Dummy coded variables: male =1, female = 0; family business = 1, non-family business and cooperative = 0; non-family business = 1, family business and cooperative = 0; government policies (PPP, FIG) implemented in 2008 =1, government policies not implemented =0; central region = 1, non-central region = 0; eastern region = 1, non-eastern region = 0; northeastern region = 1, non-northeastern region = 0; northern region = 1, non-northern region = 0; western region = 1, non-western region = 0.

*** $p < 0.001$. ** $p < 0.01$.

Table 4.8 Spearman Correlation Coefficients between Government Policy, Rice Output, and Number of Employee

	Government Policy	Rice Output	Number of Employee
Government Policy	1.00		
Rice Output	0.09	1.00	
Number of Employee	0.11	0.29	1.00

Note. Government policy is dummy coded where 1 = government policies (PPP, FIG) implemented in 2008 and 0 = government policies not implemented.

4.3 Summary and Conclusion

RQ1: What are the principal characteristics of the Thai rice milling industry?

- All regions of Thailand specialize only in milling and removing husks.
- No region specializes in roasting, polishing, packaging, and processing of rice. In other words, not only does no region specialize in adding value to their milled rice, but overall an extremely small proportion of millers go beyond milling rice and husking.

RQ1a: What are the key drivers and barriers of rice milling output?

- The most efficient rice mills are located in Central and Eastern regions, which are the drivers of rice milling output.
- Less efficient rice mills are located predominately in Northern, Western, Northeastern, and Southern regions, which are the barriers of rice milling output.
- Large enterprises, which are the drivers of rice milling output, are more efficient than their smaller counterparts that tend to be predominately male owner-managed family enterprises.

RQ1b: Do rice milling family businesses differ from rice milling non-family firms?

- Family business and non-family business tend to focus only on milling and removing husks.

- Cooperatives are more likely to roast rice, on top of milling and husking.
- On average, non-family businesses are aged less than 10 years and located in the Eastern region. In contrast, family based mills are more long-lived.
- In term of labour capacity, family businesses predominate in the Northern, Northeastern, Western, Central, and Southern, parts of Thailand, and are older than their counterparts.
- In relation to machine processing capacity and investment capacity, the most efficient rice mills are small family enterprises.

RQ1c: What has been the impact of government policy changes, if any, on rice milling production and employment in this industry?

- Government policies impact significantly on rice production but the extent of impact is relatively small.

RQ1d: What are the key predictors of performance?

- When controlling for size of rice mill, number of employees is associated positively with rice output/input. Other significant predictors are type of enterprise (family business, non-family business), date when government policies were implemented, machine capacity, capitalization of the business, region of mill (Central, Western), and those mills that provide value-added services including rice polishing, rice roasting, and other rice activities.

In conclusion, Study 1 identifies the principal characteristics of and key drivers and barriers of the Thai rice milling industry; the impact and influence of type of business and government intervention; and significant predictors of performance (i.e., rice input/output). These findings are discussed in depth in relation to those of Study 2 in Chapter 6.

Chapter 5
Study 2
The Enablers and Barriers to Growth and Sustainability of the Thai Rice
Milling Industry

Overview

Study 2 aims to identify the enablers and barriers to growth, and the sustainability of the Thai rice milling industry. Chapter 5 presents the philosophical assumptions underpinning Study 2, and introduces the present research strategy and empirical techniques adopted. This Chapter also defines the scope and limitations of the research design, and situates the research within the management research tradition. Subsequent sections also provide an outline of the research objectives and the assumptions that underpin this investigation; and describe the methodology comprising the selection of the present sample, and data collection and data analytic procedures. Study 2 employs a qualitative paradigm for the purposes of obtaining breadth and depth of understanding (Johnson, Onwuegbuzie & Turner, 2007), through the participants' stories (Glesne & Peshkin, 1999; Merriam, 1988). This exploration was achieved through field interviews and comparison of dimensions across business. Participants are key workers and owners/managers of rice mills. Data were analysed using thematic content analysis. Five in-depth case studies are reported along with five vignettes.

5.1 Case Study Research

The main objective of Study 2 is to identify the enablers (drivers) and barriers to growth of the rice milling industry. A qualitative approach attempts to understand human thought and behavior (Holloway & Wheeler, 1996), and explores the people, their life experience, their perspective in their situation, as well as stressing uniqueness of the individual without preconceived ideas (Wilson, 1997; Teddlie & Tashakkori, 2009; Potter, 1996; Maxwell, 2012). In other word, researchers use the qualitative approach to explore participants' behavior, perspectives, experiences, and feelings in order to understand these elements in their condition. Snape and Spencer (2003) stated that

qualitative research is consistent with the philosophy of shared experiences, interrelatedness, and human interpretation of reality. Creswell (2012) argued that the fundamental of qualitative research is to create meaning of each individual studied in social actions, and also supports the notion of multiple realities.

A case study design was adopted. Briefly, case study is a qualitative research approach which involves collection of personal experiences, life stories, interview material, observational data, historical accounts, and interactional information. In addition, case studies can also describe routines and problematic moments, and meaning in the lives of individuals (Yin, 2013). According to Yin (2013, p. 7), *the case study is preferred in examining contemporary events but when the relevant behaviours cannot be manipulated*. In other word, multiple case studies is an appropriate method when it is difficult to separate the phenomenon under study from the context (Yin, 2011). An objective of case studies is to re-tell the story from a participant's point of view (Yin, 2011). Two additional resources can be explored in case studies which are interviewees involved in the events, and the direct observation of the events. Evidence from interviews and observations are used to formulate conclusions (Ary, Jacobs, Sorensen & Walker, 2013). The strength of the case study approach is the ability to investigate a full variety of evidence such as documents, artifacts, observation, and material derived from interview and conversations (Yin, 2013). Thus, the case study method is further in keeping with epistemology, as the goal is to describe a participant's world (Yin, 1993).

As part of the qualitative research, this study started by reviewing relevant literature and gathering related information. The next step involved conducting semi-structured in-depth one-to-one interviews with key persons to obtain an in-depth understanding of people's views (Rowley, 2012, Ryan, Coughlan & Cronin, 2009; Jennings, 2005) and experiences (Moch & Gates, 2000). Within this context, the subsequent sector reports on the present methodology.

Method

Participating Rice Mills

The target population is the Thai rice milling sector. Participants are 33 randomly selected rice mills, classified as either small ($n = 24$), medium ($n = 2$), large ($n = 7$), cooperative ($n = 3$) or family-oriented ($n = 27$). Interviewees are experienced owners, senior managers or key employees. Participants were chosen because of their level of understanding and experience in this area (O'Brien, 2002; Jenkins, 2006). Initially, 40 participants were contacted by telephone requesting a meeting. However, there were last minute cancellations by participants due to unforeseen circumstances, including times when the current researcher had already arrived at the place of interview to find that the interviewee was unavailable. A second appointment was arranged as long as it could be scheduled within the interview-window time frame (August-September 2014).

As shown in Table 5.1, firms were founded between the early 1900s and 2005. Family businesses were either second, third, or fourth generation, and located either in Central or in the North-eastern regions of Thailand. Owners were predominately male with one firm involving a co-preneurial partnership. Only the one large family business and cooperative exported their milled rice. Input capacity ranged between 3,000 kg/day and more than 100,000 kg/day.

For the five reported case studies, 8 interviews were conducted with either the current CEO, former CEOs, managers, or members of a cooperative. Information was also gathered from company reports and observations.

Interview Protocol

The present semi-structured interview schedule consists of 19 questions (e.g., *Could you tell me a little about your rice milling business?*). Interview questions started with a general guiding question (i.e., company demographic information) and allowed the respondents to talk freely (Eisenhardt, 1989). Later, the interview took shape as themes emerged from the information given by the informants. A topic guide, which included themes to be covered, was designed (Witzel, 2000) and the informants were then asked questions pertaining to the guide, although these were completely semi-structured, which are developed from Contingency Theory, Neo-Institutional Theory, RBV, and Dynamic Capabilities

Table 5.1 Case Study Demographics

	Wankam Rice Mill	Aee Rice Mill and Trading Company	Somboon Rice Mill	Chook Wattana Rice Mill	Organic Rice Cooperative
	Case 1	Case 2	Case 3	Case 4	Case 5
	Small Family Business	Large Family Business	Life-Style family Business	Medium Partnership Business	Cooperative
Founded	1997	Early 1900s	1989	1983	2005
Location	Chom Phra, Surin (North-Eastern Region)	Ayuthya (Central Region)	Chat Nat (Central Region)	Ampur Mueang, Chat Nat (Central Region)	Ampur Meuang Surin, Surin (North-Eastern Region)
Type of Business	Second generation small family business	Fourth generation large family business	Third generation small-to-medium family business	Partnership medium-size business	Small cooperative business
Description of Business	This business is usually hired to mill white and glutinous rice of village farmers	This business processes parboiled rice, in bulk or bag packages, then shipped via conventional vessels or containers to the US, South Africa, Nigeria, and various countries in Asia and Europe	This business processes jasmine rice, in bulk , which is then sent to exporters	This business processes jasmine rice, in bulk , which is then sent to exporters	This business mills, packages, retails, and exports organic rice, white jasmine rice, brown rice, and coarse rice.
Gender of Owner	Male	Male	Male	Male and Female	261 Males and 63 Females
Machine Capacity (HP)	9	1,073	18	8	15
Capitalization (US\$)	2,100	400,000	25,000	2,300	2,700
Number of Employees (ppl)	2	more than 100	4	9	13
Input Capacity (kg/day)	3,000	more than 100,000	6,000	3,000	3,000

Questions tended to be open-ended, neutral, singular, and clear, and also involved different question categories, from background and demographic questions to experience questions (Patton, 2002). For the purposes of this thesis, an interview schedule was developed on the basis of an extensive literature review, theoretical conceptualization, and methodological imperatives as well as experience, behavior, and opinion. The present protocol comprises three main parts: Introductory questions, personnel and company demographics, and questions relating to enablers and barriers to growth (see Table 5.2).

Table 5.2 Semi-Structured Interview Questions

Semi-Structured Interview Questions

Part 1: Introductory Questions

1. Could you tell me a little about your rice milling business? (rice output, number of employee, marketing capital, age of mills, capacity of machine, and family or non-family businesses)
2. Are you interested in growing your business or maintaining it at its current size?
3. If your business is growth oriented, how would you describe the growth of your mills over the previous three years?
4. What rate of growth has your business had over the previous 3-5 years?
5. Have you diversified your rice mill business? If so, how?

Parts 2 & 3 Exploring the Enablers and Barriers to Growth in the Thai Rice Milling Industry

1. What internal-business and external or factors have helped you to grow your business?
 2. How have these factors helped/made things difficult?
 3. How have you financed the growth of your business?
 4. What are key resources that your business has to enable growth the business?
 5. What have been the main barriers to growth in your business?
 6. Do you want to export your products - why?
 7. What percentages of revenue come from exports?
 8. What government legislation has helped or obstructed the growth of your business - how?
 9. How does your business respond to the advent of technology or new equipment in your industry?
 10. Who are your main competitors? Why?
 11. Who are your customers? In what ways, have you developed new markets?
 12. Is innovation an important feature of your business? Why?
 13. What are the short-term and long-term strategies for your business?
 14. How many family members work in your business?
 15. Other relevant comments/matters
-

The first five questions in Part 1 (Introductory Questions) seek company demographic information such as a description of the business, rice output, number of employees, marketing capital, age of mill, capacity of rice milling machine, and whether the enterprise is regarded as a family or non-family business.

Parts 2 and 3 explore the enablers and barriers to growth. Broad areas covered by these interview questions included: Institutional factors, organizational factors, market orientation, use of and attitudes towards technology and innovation, personal factor, supply chain, and partnership issues.

Procedure

As noted earlier, the unit of analysis is the rice mill, randomly selected from 38,241 mills. Representatives of these mills including families and siblings employed in the business, managers, owners, and relevant employees were interviewed for up to 2 hours on the premises of the respective rice mills. With the permission of interviewees, all interviews were tape recorded.

The period of data collection was August and September 2014. The interview questions were distributed in the Thai language for the respondents and translated into English and analysed.

In the end, 33 rice mills agreed to be interviewed. Participants were recruited through telephone. The phone call briefly explained the study's purpose and asked for a response whether or not they were able to participate. If the response was affirmative, a follow-up telephone was made to confirm date and time for interview. Every rice miller who was willing to participate received a letter with information about the study, a consent form and a questionnaire.

As noted, an interview session lasted for about two hours. The sessions were tape recorded and hand written notes were taken concurrently. All their words, statements, comments, and opinions were noted down. The interviews involved a level of interpretation and paraphrasing for the purpose of obtaining in depth information. The translations of all their answers were grouped, themed, analysed, tabulated, and later merged in the forms of supportive elements either in the discussions or recommendations.

Data Analytical Procedures

The analysis began from the time the current researcher listened to descriptions of the phenomena (Streubert & Carpenter, 1995). All tape recorded interviews were managed in Thai and for the purpose of this thesis, data were translated into English by the present investigator. All interviews were transcribed in *word* format (In Thai) and extensive notes were also taken during the fieldwork. The information gathered from these interviews was individual, covering different perspectives and levels within each organization. Interview transcripts and written notes were analysed to identify major and minor themes, and keywords, for content. In the process of reading, coding of data was done using manually color codes. Re-reading of material made it possible to gain an increasing understanding of each interviewee's viewpoints and perspective, leading to the development and write-up of five cases.

Content Analysis

According to Sarantakos (1998), interview data can be analysed by thematic content analysis, which comprises the following five steps: transcription, checking and editing, analysis and interpretation, generalization, and validation. Content analysis of the interview material continued until the point of saturation, such that no new information emerged.

In regard to transcription, all information in the field notes, together with the recorded information was read and listened to, and then transferred onto paper. The Thai version of interview was translated into English. Re-reading helped to establish the meaning of data. In terms of checking and editing, data were divided into smaller sections and coded for themes. Analysis and interpretation involved the examination of themes. In relation to generalization, summaries in each unit were identified, locating differences and similarities. Similarities were grouped into related paragraphs. Differences, however, were grouped into individual paragraphs. Finally, data were checked for validity by comparing transcripts and also allowing one colleague to read the information.

5.5 Case Studies

Case Study 1 (Summary)

Wankam Rice Mill

Founded in 1997, the Wankam Rice Mill is a second generation family business. Currently, the father (Wankam) and second eldest son (Sornchai) work in the business. Approximately 3 acres are used to sow rice with a further 1 acre devoted to growing bananas and raising poultry. The overall capitalization of the enterprise is about US\$ 2,100. The capacity of the milling machine is 9 HP, which is utilized to process white rice and glutinous rice for home consumption and for hire by villagers.

There were early signs that Sornchai would like to take over management control in order to grow the business. The Wankam Rice Mill has access to new rice milling technology and innovation because Pitak, the eldest son, is a lecturer at the Surin School of Technology which has a history of inventing new rice milling machine components.

Sornchai has expressed an interest in focussing on different ways to market the business, and build relationships with customers in order to facilitate both the exchange of relevant information and improve communication. He also believes that building an in-depth knowledge of the market with help to identify new market opportunities that will lead to business growth.

Family members have expressed ambivalence about business continuity because the founding generation is ageing and the parents are finding the business burdensome. The adult children have careers outside of the business. Difficulties competing with other private rice mills and middle trades, a failure to use e-business technologies partly in response to the village trading context of white rice, uncertain government policies and not having an adequate supply chain are further factors that compound this conundrum.

In depth interviews with Sornchai (Son of the Owner of Rice Mill) provide the context of this case study.

Wankam Rice Mill Case Study

My father has a rice milling business for villagers and nearby, but this business was on the verge of closing almost 11 years ago. We still have rice milling machine to mill our own rice and distribute to some customers, relatives, and friends (Sornchai).

Company Demographics

Location: Chom Phra, Surin (Northeastern region)

Description of Business: Milling white rice and glutinous rice

Founded: 1997

Gender of Owner: Male

Type of Business: Second generation small family business

Machine Capacity: 9 HP

Capitalization: US\$ 2100

Number of Employees: 2

Input Capacity: 3000 kg/day

Wankam Rice Mill is a micro service rice mill. They do not sell rice but they have milling machine for hire by nearby villagers. In 1997, Wankam, a 64 years old village farmer, established a rice mill and retailed business in Chom Phra, Surin, in the Northeastern region of Thailand. The Wankam Rice Mill is one of 4,700 small family business located in this region. Wankam worked predominately on the retail sale of the enterprise overseeing the merchandizing, finance, and accounting responsibilities. Even he had a few businesses, and he almost did not have time to do rice mill. He still had a strongly passionate to do it because it was his life of which he grew up with agricultural environment. Of his four sons, Pitak, Sornchai, Sumet, and Tanate, aged 43, 41, 38, and 34 years, respectively, only Sornchai worked with him. Sumet and Tanate moved

to Bangkok, with their own families. Wankam and indeed other members of the family expected Pitak, the eldest son, to succeed in the management of the business once Wankam retired. However, Pitak left the business to pursue his dream of becoming a teacher in a school of technology. With authoritative leadership, Wankam effectively managed and grew the business with the support of his son in Ampur Chom Phra. The Wankam family enterprise not only produces rice planted on approximately 3 acres, but also farms bananas on approximately 1 acre of land, and raises poultry for commercial sale.

Not all paddies on the farm are used concurrently, each year. When paddies are selected, sowing of seeds is done using a manual probe. All seeds used for planting are an outcome of the previous year crop. Following harvesting, the milled rice is packed and stored for family consumption.

The capitalization of this business is approximately US\$ 2,100, including a 9 horsepower rice milling machine. There are no non-family employees, only Wankam and Sornchai work in this business. Their clients and customers are nearby villagers. Rice milling costs is about US\$ 0.5 per sack of paddy rice (40 kg.) enabling the family to generate a profit of approximately US\$ 100-150 per month. It is noteworthy, however, that the family have not contemplated milling rice produced by other farmers. Sornchai, the second son of Wankam provided in-depth interview for this case study on August 2014.

Wankam rice mill is located in rural area of the Northeastern region. The rice mill is in the backyard of Wankam's house. Around the area, there are farm of bananas and poultry building. With a 9 horse power machine, it is a small machine and not up-to-date. Wankam bought this machine since he started this business, he has never updated and changed before. However, he has never forgot maintenances and repairs when it had problem. It has a lot of dust in the area because machine does not have the dust protection. In addition, the machine cannot separate rice bran and rice husk. Wankam cannot sell rice bran and rice husk in reasonable price, which it should be. Business hours start from 9am. to 6pm., seven days a week. Customers are nearby villagers, it is rare customers from other villages.

Wankam rice mill has service for white rice and glutinous rice Paddy rice has to be ready before mill, because Wankam does not have roasting service for customers. Some of rice outputs are not beautiful because they have high percentage of moistness. Overall, the quality of rice output is not bad but they do not reach the standard of premium product, still have dust and husk mix in rice output. Wankam does not have own brand, just has rice milling machine for hire. All of his customers also do not have their owned brand, because the amount that they bring paddy rice to mill to Wankam's, it is not big amount. It should be consumed in family.

In 1990, Wankam and his former classmate, Surat, first founded a rice mill business in Lopburi Province, a town in a central part of Thailand. Surat placed his family members and relatives in junior management positions. Both Surat and Wankam led the enterprise in partnership, with the strategic and operational management being in the domain of extended family. In 1996, Wankam sold his shares in the partnership and founded his current business in his hometown. Wankam's rice mill is well-positioned in Surin because of strong culturalties and same spoken Thai dialect, which facilitated the cultivation of interpersonal and business relationships.

Dad has long experience in this business. He used to be in partnership with his former classmate, rice milling in Lopburi Province before ... But he decided to sell shares and set up our family business in our hometown (Sornchai).

During six years, Wankam worked in rice mill with Surat. He learnt a lot in this business. They built their business from start, put a lot of effort in their business. Sornchai elaborated: *My father came back home (in Surin) not so often, once a month, and told us that he was tired from work. Many times my mother told him to come back and worked in our hometown.*

The rice mill was located in rural area of Lopburi, which has a lot of rice fields. This rice mill provided machine for hire. The local farmers and nearby are the major customers of rice mill. About 95 per cent of customers are locals; the rest are nearby farmers. Because of high competition in Lopburi, Wankam and Surat tried to provide a diverse range of products to their customers. They provided white rice, jasmine rice, and brown rice. They also sold rice in package (2kg., 9kg., and 49kg.) without brand.

Wankam and Surat contributed the required start-up capital for the business, but only Surat was responsible for the financial management of rice mill. Wankam was responsible for the day-to-day operation in business because of his knowledge and experience in rice production and machinery. In addition, Surat spent less time on operating the business because he had another job. In this reason, Wankam felt, it was not fair for him, and withdraw his share at the end.

Experiences are important intangible assets as is the access to innovation and new technologies. According to Sornchai, his father, Wankam, is known for enjoying the good times rather than growing the milling business. In 2003, the business took a turn for the worse with rice milling production being predominately to for family, relatives, and friends. Since childhood and during his teenager years, Sornchai has expressed a strong drive to work in the business. He adopted a disciplined approach to his work, which set him apart from his brothers. In fact, he has been the only sibling to work in the family business. In recent times, he has expresses a desire to grow the business.

I used to work with Dad when I was in high school, just only me who work with him ... I want to grow this business again because I have my own experience in business and our family business still have ability to do rice milling business. We also have rice field, rice storage barn, and rice milling machine, and I will make it happen again (Sornchai).

Sornchai hopes to develop Wankam Rice Mill into profitable and sustainable rice milling business that provides for locals and nearby towns. He also has a vision of using his business to support the local community. Although, the family firm operates in a local community, it has the potential to build a local reputation, as he stated: *I wish that our rice mill could be an example of small business in our town. I want to be inspiration to someone, who would love to be entrepreneur. And if our rice mill will big enough, I'll employ someone in our village and give them opportunity.* In the long run, he hopes Wankam Rice Mill will be successful enough to provide employment opportunities to locals in the future.

Wankam Rice Mill is able to access new technologies and innovations through Pitak's work at a School of Technology. Despite such access, both Wankam and Sornchai believe that they would find it difficult to adapt to technological change because of their poor level of education, training, and knowledge the factors of which they recognize are critical for small family business success and performance in today's competitive environment.

Technology is very important for this business. I think that Pitak [his eldest brother] can help me because he has knowledge about technology. In his free time, he always spent time with the new technology books on innovation ... I think because he teaches in the School of Technology, he is aware of new technology and innovation, all the time. Sometimes, Pitak comes back home with new machines invented by him and his students. I can't believe that those machines can be used for many different things, and they do really good work (Sornchai).

An increasing number of Thai small family agribusinesses are utilizing mobile technology to enhance their commercial viability. The benefits of mobile technologies for farmers include access to agricultural information concerning stock piles and prices, data visibility for value chain efficiency, and having a conduit for tapping into new and existing markets. Unfortunately, the Wankam Rice Mill is located on the outskirts of Surin Province, where mobile phone and Internet reception is poor. Cost of connection is also relatively high. Perhaps surprisingly in this era, a high proportion of farmers and villagers have a preference for using landlines rather than mobile technologies.

I know that mobile phone and Internet have important role in this time. They have the benefits for farmers and our business but we live in the country side and the reception isn't that good like in Bangkok. We use the phone mainly to contact each other. Most villagers don't have an idea how to use Internet, computer, or even mobile phones (Sornchai).

According to Sornchai, He stated that Wankam has never believed in e-business. He always thinks it does not work. He said, *I don't understand why people buy things from*

Internet without seeing real products. How can we trust the sellers, I'm the one that I will never buy something from Internet.

Technology provides tools, which entrepreneurs can use to guide their business through the start-up and growth stages. Entrepreneurs of small business have to do works, which relate to accounting, marketing, or even communication. All of these works should adopt the advance technologies, network, and communications technology.

The Internet is also importance for small business. Entrepreneurs can take advantage from Internet, which can reach thousands or millions of viewers online, to develop video, graphics advertise, or professional marketing materials. Entrepreneurs also can spread targeted marketing messages to a broad audience or a select channel. Several small businesses can share expensive advertising space online through banner- and traffic-swaps.

Access to technology, knowledge, and innovation could be important drivers for the success of Wankam Rice Mill, leading to the profitability of their small-size family rice milling farm and ultimately its viability and sustainability.

Sornchai is also aware of the importance of building relationships with customers in order to facilitate both the exchange of relevant information and communication. Market knowledge helps to identify market opportunities.

In my opinion, education is the key factor of doing business, because modern technology is changing fast. If the villagers don't have knowledge, they won't understand the new technology and how technology has been used. Business knowledge and marketing are very important and can increase business opportunities for rice mills but I don't have an opportunity to study in that area, and still don't have planned to study (Sornchai).

Thai government always organizes agricultural training and they have invites some of agriculture business, not cover every businesses. Sornchai has never attended because invited letters never sent to him. He felt a bit inequitable because he thinks he has small business and Thai government just ignored him: *Never got letter, never got invited. We aren't large company, no one want to pay attention to us. It's just unfair.*

In relation to the barriers to growth of this family farm, Wankam bears the feeling that Sornchai never will be man enough to run the business, and he never tried to hide that feeling. On the contrary, Sornchai still yearns for his chance to run it and waits impatiently. Sornchai made reference to family conflict,

Dad and my brothers, Pitak and Sumet, would dispute every day. Every day there would a fight. Sometimes Mum would get involved and if she took my brothers' side then there'd be an even bigger fight. There were fireworks all the time. I don't think it was really all one person's fault. There were definitely two sides to the story (Sornchai).

It was not uncommon for disputes to spill over onto other family members. Wankam had always assumed all of his sons would be involved in the rice mill business. The other two brothers, Tanate and Sumet, left the business for good and went to live in Bangkok with their families.

In traditional Thai family culture, there is much stronger company in family compared to western culture. Often live several generations under one roof. The oldest man of a Thai family is the leader, the other family members have to act in accordance with his decisions.

Wankam felt difficult to pass his business to his son, Sornchai, and he also refuses to retire despite repeated promises to do so. According to Sornchai; *My father still wants to work, even he did many promises of retirement to us. Sometimes, it makes me frustrated because I don't have freedom to do business. He thinks I always be a little boy in his eyes. Some of my ideas have been stop from my father, but he never think his ideas isn't up-to-date too.* Wankam lacks of confidence in the father's attitude, which looks on Sornchai as ungrateful and unappreciative, and Sornchai feels both hostile to his father and guilty for his hostility.

Sornchai thinks he can look after this business and he asked Wankam *"Why don't you pass this business to me?"* and Wankam answered him *"I am only one can look after business in this time. I'll wait until Pitak is ready. You just listen and follow me."*

"Occasionally, I want to give up. My father won't give this business to me. He is still waiting for my eldest brother, Pitak" Sornchai said. If the pressures become so severe

for Sornchai that he thinks of leaving, he feels disloyal but, at the same time, he also fears to lose the opportunity that would be his if he could only wait a little bit longer.

Currently, many small Businesses cannot continue business and one of the reasons attributed for the failure is their inability to beat the competition. Since 2003, Wankam Rice Mill has found it very difficult to compete in the face of other private rice mill and middle traders. Sornchai is aware of the importance of having clear business strategies and understanding his competitors. White rice does not fill a unique gap in the market, there are other companies offering the same or similar products. Sornchai believed that identifying and meeting customer needs is another important step.

The villagers preferred to sell their paddy rice to large rice mills than to our small rice mill. But they would then have to buy white rice from the market. Most of the farmers don't want to have responsibility to sell their white rice to many different customers because they don't have knowledge of the market and they also can't compete with middle traders.

A small business owner should create business strategies for marketing, sales, customer service and internal accounting functions. A business strategy is an outline plan which guide business how to manage business. As noted earlier, Sornchai is aware about business strategies, but he has no idea to start it, *We never have plan. We just do our work every day, and when it has problem, we fix it day-by-day. I don't know how I can start it.*

Small business can have an immediate leg up on competition with service. Wankam Rice Mill lacks to show their personal relationships and human touch to make your customers feel special, as stated by Sornchai: *We don't have other services excepting milling service. Other rice mills have roasting machine, storage bran, or delivery service. I told my father many times, but he just ignored it.*

In term of customers, Wankam Rice Mill does not have marketing plan to get new customers. They use word-of-mouth advertising, which is critical for their business, as each happy customer can steer dozens of new ones their way. Sornchai said, *Only one advertising we have, that is, we do good jobs, make customers happy, and they will tell their friends to come to our rice mill.*

Finance is an unavoidable problem for small business promotion. In normal situation without the Small Support Policy, Sornchai said, *We can't do any businesses with bank because we don't have properties or someone to be our guarantor.* Access to insufficient capital is importance factor for growth and has been a concern for small Thai agribusiness. Large- and medium-sized firms are able to raise funds from commercial banks, financial institutions, and other sources. Small-sized firms rely predominately on family and friends.

Actually, Thai Banks have one amount of fund to support small and medium enterprises (SMEs). According to Thai bank policy, current financial structure consists of small business support system by private banks and public financial institutions. Services for small business by private banks are in trend of expansion, but Thai bank policy has unclear criterions for borrowers. As Sornchai said: *I don't know what they want if I want to borrow money from them. I and my friend do the same thing, but they gave him money, not me.*

Uncertain, unclear, and changing government policies are yet another concern to growth. Millers express a need for support when it comes to competing with middle traders to buy the paddy rice from farmers and selling white rice to customers. Sornchai stated that:

The Thai government has uncertain policies to support small rice mill owners and persons who want to start a new business, especially access to the capital to start a business, which is my big problem. For small rice mills, the Thai government should assist in determining and set a standard price for rice to help the small rice mills, so that they can't be exploited by middlemen.

For the Paddy Pledging Program and the Farm Income Guarantee, they do not have any impacts to Wankam Rice Mill. Sornchai said, *those polices don't relate to our business. We only have rice milling machine for hire, not sell rice.*

Having a small acreage has implications for supply chains, marketing of rice, and markets.

Now, we do supply chain for our own family. We have our own farmland and members in family do rice farming. In the future, it I want to return back to rice milling business again, I probably don't have the whole supply connections because the rice paddies of our farm aren't enough and we also don't have the market to sell (Sornchai).

Small family agribusinesses are starting to realise the sourcing potential of smallholder-based supply chains. Wankam Rice Mill might benefit from developing their supply operations including integrating and coordinating the systems, involving customers, suppliers, information, productions, inventories, transportations, quality, prices, partnerships, and related interdependencies to meet the requirement of speed of delivery and flexibility of supply.

In conclusion, the potential drivers of growth for this family farm are Wankam's prior business experience; family members expressing a strong drive to work in the business, and access to new technologies and innovation through Pitak's work at a School of Technology. Building relationships and partnerships with customers and supply chain members and further education are also critical. It is noteworthy that the Wankam Rice Mill is starting to realise the potential benefits of sourcing smallholder-based supply chains. The main barriers that inhibit the development and success of this enterprise include family conflict between generations, particularly that involving father and son. In addition, Wankam Rice Mill has found it very difficult to compete in the face of competition from other private rice mill and middle traders. Moreover, uncertain, unclear, and changing government policies are other important barriers. Cost of mobile technology connections has led to a high proportion of farmers and villagers having a preference for using landlines. Finally, the limited financial support for small business is getting a further barrier.

Case Study 2 (Summary)

Hua Song Tai Rice Mill and Trading Company

Founded in the early 1900s, Hua Song Tai Rice Mill and Trading Company is a large fourth generation family business that produces only parboiled rice. Currently, the fourth generation, Saranpop, Jirayuth, Kamonrat, and Thitima work in the business. The overall capitalization of the enterprise is about US\$ 400,000. Hua Song Tai is one of the top 200 Thai companies by revenue, employing more than 100 personnel across three rice mills and rice trading companies. The capacity of the milling machine is 1,073 HP, which processes parboiled rice, in bulk or bag packages, then shipped via conventional vessels or containers to the US, South Africa, Nigeria, and various countries in Asia and Europe. The Mediterranean and the Middle East are the major markets.

The founder, Jia, is of Chinese descent and was originally an employee of the rice milling business. He saved his earning and borrowed money to found his business. In 1949, the business was succeeded to Suu, the second eldest son. And in 1981, the baton was passed on to Leeng and Boo, the two sons of the third generation. In 1998, Leeng and Boo started trading in rice. Rice was packed in bags and shipped to customers overseas. In 1999, Sarapop returned to join the business and concentrated on technologies used in the parboiled rice sector.

Leeng has two sons, Saranpop and Jirayuth. Saranpop, the eldest studied for a degree in IT at an English university, while Jirayuth, Leeng's second son, undertaking an international marketing degree in the United State. Jirayuth completed his apprenticeship and began working alongside his father. His initial role focussed on international marketing, and he quickly established partnerships with customers in Europe.

Boo has three children, two daughters (Kamonrat & Thitima) and a son. Kamonrat, Boo's eldest daughter, works in this business but does

not respect Leeng's leadership, contributing to family disharmony and conflict. Thitima, Boo's second eldest daughter, understands the benefits of family values and family culture, adopting the role of peacemaker and mediator of family conflict.

E-business has been adopted to build their product's brand, attracting customers via their website. In 2001, the Thai government introduced the Paddy Pledging Program as a policy to benefit producers. The paddy price has reached its highest level, contributing to a substantial proportion of private rice mill closures because of purchasing affordability. Private rice millers have not been able to compete effectively with government buy-back.

This case study is based on interviews with Boo and Saranpop who hold the positions of former senior production manager, and CEO of company, respectively.

Thai Parboiled Rice is the only rice produced for export-oriented purposes, and Thailand is now the world's largest supplier. Parboiled Rice is produced by a process of soaking, pressure steaming, and drying prior to milling. This process modifies the starch content and permits the retention of much of the natural vitamins and minerals in the kernels. The rice is usually slightly yellow although the color largely fades following cooking.

Hua Song Tai Rice Mill and Trading Company Case Study

Hua Song Tai is a large fourth generation family business that produces parboiled rice. Our company packages rice using company's brand and we export our parboiled rice to the United States, Europe, and Middle East. We don't sell our parboiled rice domestically because it isn't popular. We have three rice mills and also a rice trading company (Saranpop).

Company Demographics

Location: Ayuthya (Central region)

Description of Business: Producer of parboiled rice, in bulk or bag packages, then shipped via conventional vessels or containers overseas

Founded: Early 1990s

Gender of Owner (s): 5 Males and 3 Females

Type of Business: Large fourth generation family business

Machine Capacity: 1,073 HP

Capitalization: US\$ 400,000

Number of Employees: More than 100

Input Capacity: More than 100,000 kg/day

The four major steps of the process are briefly described below.

Step 1 Reception of Raw Material: Following receipt of the paddy, the moisture level of the incoming paddy is measured. The rice is pre-cleaned then stored in silos.

Step 2 Parboiling: This step involves four major stages, soaking, cooking with steam, drying, then tempering.

Step 3 Milling: Husks and bran are removed as well as the broken rice, and color sorting to ensure faultless quality of the milled grain.

Step 4 Loading for Export: The final step entails ensuring that the rice is export ready, and then it is either packed, loaded into freight boats, or stored in silos for further loading.

This case study is based on in-depth interview material involving Boo and Saranpop, family members of the 3rd and 4th generations, respectively. The Hua Song Tai family business has been involved in rice trading for four generations. Leeng and Boo, aged 75 years and 71 years, respectively, are the third generation owners of the Hua Song Tai rice trading chain operating in Ayuthya, a city located in the central district of Thailand. Both Leeng and Boo have been working in the business since 1981.

The enterprise was founded in the early 1900s, originally as rice millers. Today, the company supplies milled parboiled rice, in bulk or packaged in bags, then shipped via conventional vessels or containers to the US, South Africa, Nigeria, Asia, Europe, the Mediterranean, and the Middle East. Rice input is more than 100,000 kg/day. The capitalization of this business is approximately US\$ 400,000, including the ownership of a 1,073 horsepower rice milling machine system. Hua Song Tai is ranked in the top 200 Thai companies by revenue, employing more than 100 employees across three rice mills and a rice trading company. Annual sales volumes are consistently in the region of 300,000 metric tons of rice. For the many years, the company has been ranked among the top 5 Thai exporters of parboiled rice by volume, and among the top 15 Thai rice exporters.

According to Boo, a 71 year old former assistance CEO, the business started shortly after Jia, Grandfather of Leeng and Boo, left China in search of a new beginning. Jia had been an employee of the rice milling business. He would return home with dirty clothes and rice husks up to his armpits. The Hua Song Tai family is a typical example of the many immigrant families who were engaged to ensure that their children had a better life than what they had. Actually, having a roof over their heads, warm house, food on the table, and good job was deemed as a better life for them.

My grandfather came from China. He had nothing – no money, no house – he had just a mat and pillow. His best friend worked as a general laborer in the rice mill, he didn't have much choice, and he worked there with his best friend. ... It was the hardest work of his life. My grandfather promised himself that he'll make his family's life better than his (Boo).

Jia had 14 Children, 6 sons and 8 daughters, but only 3 sons and 1 daughter came to work with him in Thailand. Jia left his remaining 10 children with his cousin and ex-wife in China.

My grandfather had a lot of kids. In that time, he thought that if he had many kids, they would all help him at work. But, he was wrong. He was unable to look after all of his children. He moved to Thailand with only 4 of his children, he left the rest in China (Boo).

Jia saved his earnings and borrowed from a financial institution, enabling him to start-up his business in early 1900s. Jia's rice mill began as a micro family business in Ampur Mueang, Ayuthaya the central part of Thailand. Jia and his four children worked together in evident harmony towards a common goal to establish an apparently successful business. In 1949, the business was succeeded to one of his son, Suu.

I can't remember when my grandfather started this business, let's say the early 1900s. He put his saved and borrowed money to create a very very small rice mill and he worked with my father, uncles, and aunty. Finally, this business passed to my father (Boo).

Suu fathered two sons, Leeng and Boo, and four daughters. Overtime, his firstborn son, Leeng took over the helm of the family business. Suu was hard working, didn't suffer fools gladly, and had definite expectations for his own six children. He never considered his daughters as a potential successor and made it clear that his two sons, Leeng and Boo were expected to take care of the business and the family. Boo accepted his role in sales, transport, and purchasing, and reported directly to his older brother, Leeng.

My father has two sons, my older brother [Leeng] and me, and he also has four daughters. He wanted Leeng and me to take over this business. In the Chinese culture, we don't pass on the business to girls because when they marry, they have to change their family name and our business will no-longer belong to us, anymore. ... I do all the documentary and administrative work and send the reports to Leeng. He'll cross check it all again (Boo).

Leeng's two boys spent most of their school holidays working in the business, driving the delivery trucks, but Leeng made it clear that they were free to make their own choice with regards to their future. His eldest, Saranpop was studying for a degree in IT in England, while Jirayuth was undertaking an international marketing degree in the United State.

Leeng has only two boys. He is a good father. He always tells his sons that they can do anything that they want to do, and not to worry about anyone taking over our business. His sons spent the school breaks working here. When his son finished high school, he sent them overseas to study. He wants them to have overseas experience (Boo).

According to Saranpop, the 52 years old CEO of the Hua Song Tai rice mill company, overtime, Leeng realised that although his younger son, Jirayuth, had been given an opportunity to seek his own career, he was in fact a natural successor. Jirayuth completed his apprenticeship and began working alongside his father. His initial role focussed on international marketing, and he quickly established partnerships with customers in Europe. In 1998, Leeng and Boo started trading in rice. Rice was packed in bags and shipped to customers overseas.

My younger brother [Jirayuth] came back to Thailand first. He joined the family business immediately. He established connections with potential customers while he studied in the United States. He started to work and focus on developing the overseas market and presented a proposal to my father and uncle. Surprisingly, they loved it and they established the rice trading company for him (Saranpop).

When Saranpop returned from the England to join his family business in 1999, he noticed that most of the parboiled rice produced in Thailand did not meet the high quality requirements of high-worth customers. He believed that if the quality of Thai parboiled rice could be significantly improved, it would definitely be possible to market the produce to high-end rice consumers throughout the world.

I came back here in 1999. The first day that I worked here, I felt like I was living in the 70s. Everything was super old and out-of-date. With the type of equipment we had, I knew immediately that we could not improve the quality of parboiled rice to meet customer needs (Saranpop).

With that in mind, Saranpop undertook a study tour of the US, concentrating on the technologies used in the parboiled rice sector. He introduced overseas-based processing technology to the family mills and set-up the Hua Song Tai Rice Trading Company as the marketing arm of the family business operations.

I discussed with my younger brother [Jirayuth] the necessary technology and innovation improvements that we needed to introduce to the family business. He suggested that I should go to the United State and visit the agri-business machinery exhibition. I spent 5 months in the US where I trained and enrolled in short courses in agri-technology and innovation (Saranpop).

Boo has three children two of whom are daughters, Boo's eldest child, Kamonrat, was proving to be a natural business woman and on the basis of her studies in food science, she began creating a separate line of packaging. In addition to her natural aptitude for

product development, Kamonrat appeared to be astute when it came to business. However, she did not respect Leeng's leadership. Kamonrat was of the opinion that Leeng failed to grasp many business fundamentals and she found his behavior towards staff erratic, leading to an untenable turnover of trainees.

My uncle [Boo] has three children. His eldest daughter, Kamonrat, studied food science. She has a very high level of confidence. In the first month that she worked here, she had conflict with my father. She didn't like my father. ... She said to me once, that my father couldn't control his emotions. He is hot tempered. Actually, I think my father is okay. He is just a typical Chinese, working man (Saranpop).

Since her appointment to the business, the relationship between Leeng and Boo became strained, to the point where Leeng believed that Kamonrat was unsuitable for a senior position in the company. Being a woman also placed her at a disadvantage. But, Boo totally supported his daughter in a senior production manager position. The once close family began to skip their regular Sunday dinners together, making excuses at first, and then simply not bothering to come without giving a reason. This behavior did not help to allay any anxiety and tension between the families. Seeing each other seemed to stress some individuals.

Everything became worse. My father wasn't close with my uncle anymore. My uncle, Boo, came to see me once, and asked me to help him to talk with my father about my cousin, Kamonrat. My uncle still wanted her to work in a senior position in company. When I talked with my father, he totally disagreed. He said that woman can't work in high positions. That view made everything worse. We always had dinner together every Sunday, but I think we won't have it anymore, because no one wants to come (Saranpop).

Boo's middle daughter, Thitima, was taking a business management course at an university in Thailand. During one of her elective subjects on family culture and business, she realised that their family was not too different from others she read about in case studies. What stood out for her was the description of cases revealing that there

are times when running a successful business, family ties that had once bound members together could splinter. She also began to understand the real benefits of family values and family culture, matters that were so important to her father and uncle.

One of my uncle's daughters, Thitima, studied business management. She explained to me a lot of things, particularly the differences between normal businesses and family businesses. She gave me some example of case studies based on her lecturer's research. She told me that the family culture and values are so important for the business. ... Everything changed during my father's 72th birthday celebration. On this occasion, all of my cousins came together in celebration. Everything went very well, until Thitima asked if she could make my father a wish. She began by wishing my father well and hugging him. When she had his full attention, she then started to tell him what she was learning at university and how as a family they owed it to themselves to get help before they lost rare opportunities and ultimately paid a high-price for the loss. Finally, she went on to describe how important family was to her and how much she respected and regarded our grandparents for the sacrifices they had made (Saranpop).

Increasingly, enterprises are using e-commerce for the purpose of conducting their business. The Hua Song Tai Company has an online presence for advertising and selling their products and services. Owing to the heightened competitiveness in the parboiled rice market industry, e-business adoption has helped companies gain competitive advantage, and increased revenue and customer satisfaction.

We've worked very hard to build our product which is well-known overseas, make our brand recognizable through a great website, and create captivating product pages to attract overseas customers. It's just as important to design a plan that maximizes payment options for overseas buyers. Also, we want to ensure that we are gathering the appropriate information from our overseas customers, take responsibility, and

communicate with all the buyers, who might have any online enquiries or transactions (Saranpop).

The Thai government introduced a new Rice Price Policy that has been implemented on-and-off since its introduction. The major tool for helping paddy farmers has been the Paddy Pledging Program which provides Thai farmers with a loan, and they do not have to sell their crop immediately after harvesting when prices tend to be low. The idea is that the loan can be used to pay for the farmers' costs and their crop is used as assurance on the loan. The farmer has the choice, up until the end of the loan period, to either redeem or forfeit their crop which they would usually decide upon, depending on the difference between the price they can get for their crop in the market and the pledging price of the loan they received.

Since 2001-2002, the objective of the Paddy Pledging Program has grown in importance. Increasingly, it is used as a tool to help increase paddy farmers' income. This program allows the value of the loan to equal and sometimes exceed the market price of the crop. Since they now receive more attractive pledging prices, more farmers prefer to forfeit their crop which means that the amount of rice the government procures has risen sharply over the previous decade. This approach has made the Thai government by far the largest stockholder of rice in the country. Offering such attractive prices to such a large number of farmers has meant that the program incurs large fiscal costs to the economy. The behavior of the government has been to hold large stocks rather than to sell its stock of rice at a price that is lower than the pledge price. Through the Paddy Pledging Program and its use of stockholding, the government is able to distort domestic prices by keeping them high, which means the pledged price the farmers receive from the Paddy Pledging Program can be higher and therefore allow them to earn a higher income. Ultimately, the policy functions not only distort prices but also favor producers. When the Thai government reintroduced the price policy for the 2012 crops, the pledging price was the highest it had ever been. In the past, exporters were the biggest proportion of participants in the Thai rice market. Their high bargaining power helped to control prices. But now, exporters have to contend with the government buying rice from farmers.

The rice pledging policy is definitely popular with rice farmers. ... The paddy price proposed by our company and even others is only 10,000 to 12,000 baht a tonne depending on the paddy quality, while the price proposed by the government is 15,000 baht or more. It has seriously hurt us and other rice mills. A lot of private rice mills are closing down one-by-one because they cannot afford to buy paddy at the same price as the government (Saranpop).

Saranpop now runs three rice mills business with Kamomrat who holds the position of senior production and quality control manager. Jirayuth runs the rice trading business predominantly focusing on trading with Europe, the United States, and the Middle East markets. Thitima is a consultant to the company. Although only four of the five cousins of the fourth generation are actively involved in the day-to-day running of the businesses, all cousins have a shareholding. The company has eight shareholders involving cousins of the fourth generation. At present, the family owns and operates three rice mills in Thailand, producing parboiled rice.

In conclusion, Hua Song Tai is a large fourth generation family business that produces parboiled rice, operating in Ayuthya, a city located in the central district of Thailand. The company mills parboiled rice, in bulk or packaged in bags and shipped via conventional vessels or containers to the US, South Africa, Nigeria, and various countries in Asia, Europe, the Mediterranean, and the Middle East. Hua Song Tai began as a micro family business but is now ranked in the top 200 Thai companies. There are a numbers of drivers of growth. The founder had extensive experience in rice milling and also held a strong positive perspective of this sector. Tertiary education of the up-in-coming generation and a study tour which focused on technologies has played a pivotal role. Indirect consequences led to the establishment of partnerships with overseas customers. Members understand the real benefits of family values and the family culture. Adoption of e-business has helped the company to gain a competitive advantage, increased revenue, and customer satisfaction. Barriers to growth include family conflict, gender bias, and not considering woman as potential successors. The Thai government Paddy Pledging Program, and government purchase and stockpiling of rice has affected exporters who now have to contend with competing with the Thai government when buying rice from farmers.

Case Study 3 (Summary)

Somboon Rice Mill

Somboon Rice Mill is a small-to-medium size third generation family business that processes jasmine rice. The overall capitalization of the mill is approximately US\$ 10,000, and includes an 18 horsepower rice mill, and 4 employees. The annual rice input is approximately 1,100 tonnes. Jasmine rice is processed in bulk, and then sent to exporters. This mill is currently owned by Rungrooj who also works in the business. In 1989, Rungrooj's grandparents, Daeng and Fai, become the owners of the land associated with their agricultural business. In 1994, they retired and passed on the family farm businesses to Rungrooj's mother, Tim, who established a small rice mill in 1998. In 2007, Tim succeeded the businesses to her eldest son, Rungrooj, who was an employee at the time. He had more business experience than his sibling. In 2008, Rungrooj married, Sirimon, and subsequently saw his family's future in the business. Rungrooj and Sirimon appear to manage their family farm and rice milling business as a lifestyle enterprise rather than one that focuses on generating incremental growth in revenue and profit. This case study explores these developments and some of the principal reason behind their decision not to grow the business

Somboon Rice Mill is a small-to-medium size third generation family business that processes jasmine rice. This case study is based on in-depth interviews with Rungrooj, 41 years of age, and owner manager of the mill in Chai Nat province, a city located in the central district of Thailand. He has been working in the business since 1998. As indicated below, Rungrooj has no current plans to grow his business.

Somboon Rice Mill Case Study

We are small-medium business with 4 employees and an 18 horsepower rice mill. We have no brand, all of our rice is sent to exporters ... We don't have plans to expand our business ... I'm satisfied with everything that we have now (Rungrooj).

Company Demographics

Location: Chai Nat (Central region)

Description of Business: Milling jasmine rice, packed in bulk and sent to
Thai exporters

Founded: 1998

Gender of Owner: Male

Type of Business: Small-to-medium size third generation family business

Machine Capacity: 18 HP

Capitalization: US\$ 10,000

Number of Employees: 4

Input Capacity: 3,000 kg/day

Rungrooj's grandparents, Daeng and Fai, were the original owners of land associated with their agricultural business, which involved three farmlets: a rice field, a flower farm, and a pomelo farm. In 1994, Daeng and Fai retired and passed on the family farm businesses to their three children, each of whom received one of the small farmlets.

Our family has had a few small agricultural businesses since 1989. Starting with my grandparents, they owned a rice field of approximately 3.6 acres, a flower farm of approximately 1 acre, and also a 2 acres pomelo farm. All of these farms were passed on to my mum's generation, in 1994. My grandparents gave the rice field to my mum, the flower farm to my aunty, and the pomelo farm to my uncle (Rungrooj).

This rice mill was established in the 1998, originally as small rice trader. Today, the Somboon Rice-Mill supplies exporters with bulk, milled, jasmine rice. The capitalization of the family farm business is approximately US\$ 11,000, and includes an 18 horsepower rice mill, and 4 employees. The annual rice input is approximately 1,100 tonnes.

We have a total of four full-time employees and a network of rice companies around the country including exporters (Rungrooj).

This rice mill business was established because Rungrooj's mother, Tim, did not know how to farm rice. Consequently in 1994, the family leased the rice fields to another farmer on a three-yearly contract basis. In 1998, Tim purchased a rice milling machine which operated on the family farm. Unfortunately, the rice milling machine was virtually absolute producing a low quality output, at a low cost.

My mum didn't have an idea about how to grow rice and she had never worked on the farm before. So, she tried to save her inheritance from my grandparents [Deang and Fai]. She managed a lease agreement with farmers who wanted to use our farm for rice growing. The contracts with the farmers were for every 3 years. Then, we started our rice milling business and we received rice from our tenants. But not many farmers bring the rice to our rice mill. They said our rice mill is too small and our machine isn't that good. It broke their rice. But my mum was happy with her business. She didn't change the machine but she reduced the milling cost to compete with other rice mills (Rungrooj).

In 2007, Tim succeeded the businesses to her eldest son, Rungrooj, who was an employee at the time. He had more business experience than his sibling. Rungrooj had more than ten years' experience in the business and was high school educated. Tim thought that the business could be the principal source of income for Rungrooj. In 2008, Rungrooj married and subsequently saw his family's future in the family business.

Both businesses [rental of the rice field and rice mill] passed to me in 2007. During that time, I think, these businesses became my whole life. I didn't finish high school because I had to help in my mum's businesses. But my two sisters went to school and completed their university studies ... That's why my mum passed all of her businesses to me. She said she felt sorry for me that I didn't have an opportunity to study. Only her businesses could help me to support myself and my family ... I promised myself that I'll grow my mum's business as much as I could (Rungrooj).

When estimating revenue or profit projections, the owners need to analyse past business performance and take into account industry trends. Rungrooj frequently estimates revenue projections following sales or after customers have paid. He has tended to be conservative when estimating earnings and costs.

The first month when I came to manage this business, I made a mistake, which I will never forget. I was overestimating how much revenue and profit that the business was generating because I had just received big amounts of money from my clients. At that time, I was struggling to pay the bills, and I had other problems (Rungrooj).

Despite this attitude, Rungrooj and Sirimon appear to manage their family farm and rice milling business as a lifestyle enterprise rather than one that focuses on generating incremental growth in revenue and profit. It seems that Rungrooj and Sirimon's lifestyle work is influenced by their passion and personality. As a lifestyle business, any commercial goodwill is limited, owing to the constrained economy of scale and low potential for growth. Rungrooj and Sirimon's personal objectives focus on attaining an optimal work/life balance.

Rungrooj's wife, Sirimon, does not help him in the running of the family business because of her relatively heavy household routine. Especially in rural areas, women have children, and there are more demands on them to perform their traditional role of being responsible for housework and child care, and therefore they have fewer hours of free time than men, both during the weekend and on weekdays. In the Thai rural society, women are expected to comply fully with their primary duty as their husband's partner and housewife, they rarely have free time to undertake their own businesses or develop their own careers.

When I started my business, I had a plenty of energy. The biggest mistake I ever made was I sold my soul to my business. Doing all of the work. I needed to turn around the fact that I spent up to 90% of my time in my office. One day in 2011, my wife [Sirimon] called me and asked me to come back home early. She had something tell me. I never thought she wanted a divorce and she brought my two years old daughter [Nook] with her for the reason that I never gave the family much time. I couldn't let this happen, so I thought to myself which one is the most important: family or business. My answer was family. I changed my business so that I could have enough to eat and live ... Now, I'm not focused on making lots of money or even profit. I just want my business to suit my lifestyle, and with one small kid, spending time with my family and taking holidays is a very high priority to me (Rungrooj).

When a company looks to establish itself in the marketplace, it often turns to branding to help. The concept of branding and identity is to create a look and feel that is immediately identifiable and recognizable in the marketplace. Good branding can increase the value of the product and the company itself. A company's identity in the marketplace can easily make or break its profitability as a whole. But Rungrooj indicated that he did not want to spend more time working on the business making more money. Besides, he currently appears pleased with his lifestyle business.

It started out with me wanting to create our company's brand. I spent months trying to make it real. In the end it failed. I simply couldn't develop the company brand that I wanted and I didn't want to start it all over again as it would have taken considerable money and time (Rungrooj).

Business owners or managers are always on the lookout for ways to improve their business performance by increasing sales and increasing their customers base. This is one way of growing the business but it seemed not to be the case for the Somboon Rice Mill. They are not targeting new clients nor extracting more business out of their existing customer base.

We focus on our usual and loyal clients. I have always considered this to be more important than new clients and have been very selective of the clients I choose (Rungrooj).

To a large extent, business performance determines future expansion and sustainability. Education and training of the business owners is one factor found to predict business performance. Much of that training comes from continuing education programs. Comparative entrepreneurship studies (Peterman, 2003; Honig, 2004; Kuratko, 2005) exploring the influence of training and education reveal that people who have received entrepreneurship education perform better at running their businesses than those who are less qualified.

As a business owner, I think that it doesn't matter what is the size of your business, having some training is a secret key. I've never stopped learning – reading newspapers, and asking questions to my customers, suppliers, or even my employees. They are a rich resource of information that has helped me to apply my plans for the future ... Unfortunately, I only join the training in 2008-2010 during our peak period ... I still try to keep up-to-date with what is happening in the Thai rice community (Rungrooj).

Rungrooj always pays attention to employing people who have relevant experience. He thinks that having the relevant skills is a more important selection criterion than anything else when recruiting employees. He regards employee attitudes and appearance as a secondary priority. Everyone, who applies to work in the Somboon Rice Mill, needs a job, but promising too much to an employer can have its disadvantages.

I have interviewed many people who apply for a job. Most of them just over-intellectualize themselves. I have to listen to so many people who say: "I have an idea and it'll make the big change for your company". But I know, it's nonsense. One thing that I look for when hiring an employee for our company is whether the person has experience, experience, and experience. I can't go wrong with those persons. I always hire the persons who have worked in a rice business before, and after that I make sure they fit in our organization (Rungrooj).

HRM practices and employees are critical, enabling businesses to meet customer demand, and to reach performance indicators. Employees can be regarded as one of the best asset of business, highlighting the importance of hiring the right person for the job. However, consideration needs to be given to the support and welfare of employees.

I would like to say, my family and all staff in my company are equally important. Please follow what I say, business is the big wheel and if one of the cogs in the wheel can't work properly, of course this wheel won't turn. Each cog represents the business and everyone has to play an important role (Rungrooj).

Many new ventures that are created fail during the start-up phase. Some businesses fail because the original business concept was poor or lacked customer value. Others fail because of external factors such as economic fluctuations. However, most business failures can be attributed to the decisions made by owners. Owners need to be knowledgeable about many different aspects of business, have the requisite skills, undertake an analysis of the market and industry, have an ability to hire the best people who have the appropriate skills, amongst other capabilities.

I knew that owning a business would be hard, but it's much harder than I expected. The hardest thing when you own a business is that you have to be good at everything. I have to know everything in my business, from the mechanical side, to stock, to management to accounting, to marketing. You not only have to know everything, but you also have to understand them too (Rungrooj).

In principle, the rice pledging Thai government policy seemed conceptually well-intentioned to solve the problems associated with market prices associated with rice production when rice yields are in oversupply. Rice farmers pledge the sale price of their rice prior to rice grain price changes, then redeeming revenue prior to resale. The rice pledging policy has not affected Rungrooj because he has established and maintained strong relationships with farmers who rent their rice field. As well, he has contracts in place with exporters. These contracts are renewed every three years, and expire in 2016. Subsequently, contracts will be up for review and renegotiation.

The rice pledging policy doesn't impact much on our business because the paddy that come to our rice mill is mainly from farmers who rent our rice fields. In the same way, I also have good contracts with exporters who receive jasmine rice from our rice mill ... Our rice mill doesn't have much output and we produce rice mainly by order (Rungrooj).

According to Rungrooj, the Thai government policy is important, and any uncertainty relating specifically to this policy impacts on his business.

Thai government always changes. This change in government always brings uncertainty to government policy. I don't want to follow the policy. Sometimes, I studied the policies and tried to fit my strategies to those policies. I was about to start, but then the government changed and new policies were announced that were totally different. It wastes my time. My new strategy doesn't follow any policies or politician's party policy. I'll follow myself (Rungrooj).

Despite the advantages granted by modern technology, drawbacks remain with respect to the business world. One such drawback concerns the increase in expenses for small business. In Thailand, if not globally, most small businesses, do not have employees who have indepth technological knowledge.

The machines that we use in our rice mill haven't been changed or upgraded since 2009, and I still do not have a plan to change them. Our machines are still in good condition. I've heard about new technologies in rice milling machines that come from Germany. My clients said that these machines are very good. There is one such machine in another village which is far from here around 3 km. ... but I don't think it's time for us to change our rice milling machines. I think no one wants to spend money especially if your machine still works. We can't follow the technology and innovation all the time. We just choose the technology that suits our business, my budget, and my clients (Rungrooj)...

Training in the application of modern technology is usually called for. Mobile, cloud, and internet technology make it easier for business owners and employees to connect with customers and suppliers than ever before. Despite small businesses shying away from new technologies and innovation, many are keen to use technological services that help them to reduce business cost.

I try to avoid using electronic devices or the internet to connect with my clients and suppliers. It isn't necessary at all and I've never seen someone around here using technology. I don't want to be the first person. If I introduced electronic devices or the internet, maybe my friends will think I am trying to show off. The telephone is more than enough ... I'm also lazy to start learning something new again. I haven't grown up with these gadgets. I don't want to waste my time to learn more. ... But if the electronic devices or internet become more popular in the future, I might consider using them (Rungrooj).

In conclusion, Somboon is a small-to-medium third generation family business that produces and mills jasmine rice, operating in Chai Nat, a city located in the central district of Thailand. The company mills rice, in bulk, which is later transported via containers to exporters. Somboon began as a small family business and has expanded. There are a numbers of drivers associated with its growth, including previous experience in rice milling, paying attentions to the importance of training and education, appreciating the real benefits of employee values and the culture of the organisation. Barriers to growth are associated with tension and conflict between Rungrooj and his wife, not being able to establish a satisfactory work-life-family balance, not having his own brand or product label, not having developed a business plan which focuses on increasing his customer base, limited managerial skills, shying away for the adoption and application of new technologies and innovation, and uncertainties associated with the Thai government policy.

Case Study 4 (Summary)

Chook Wattana Rice Mill

In 1983, Sompon, a village farmer, founded a micro rice mill business, Chook Wattana Rice Mill, in Ampur Mueang, Chai Nat, in the Central region of Thailand. From the outset, Sompon's rice mill was hired to mill the rice of village farmers. The rice output was approximately 105 tonnes per year. The initial capitalization of the mill was US\$ 2,300, which operated 7 days a week. In 2009, Sompon succeeded the rice mill business to his children, Udom and Wisaa, with the hope that they would grow the business.

Udom indicated that he did not have sufficient financial resources to continue the business on his own, once his sister exited. In order to deal with his ambition to continue running the family business and to enable his sister to exit the firm, the siblings decided to sell her shares to Praewpan, a person whom they both trusted. Praewpan had wanted to be an owner of a business for as long as she could remember. She and Tiaanchai joined this business in 2011.

Currently, Chook Wattana Rice Mill can be regarded a medium-size enterprise that produces jasmine and white rice. This company is registered as a Limited Partnership with 9 employees. Jointly, Udom, Praewpan, and Tiaanchai commenced with US\$ 16,000 start-up capital, and a 20 horse power rice milling machine. The business processes rice, which is then packed in bulk and sent to Thai exporters. Output is approximately 1,500 tonnes per year.

Chook Wattana Rice Mill Case Study

Chook Wattana Rice Mill is a medium-size business that produces jasmine and white rice. Our rice mill started off as a family business, but after my dad's generation, we sold some of shares to someone outside our family. Now, our rice mill is registered as a Limited Partnership with 9 employees with 20 horsepower of machinery. We only produce rice, which is sent only to exporters (Udom).

Company Demographics

Location: Ampur Mueang, Chai Nat (Central region)

Description of Business: Milling jasmine rice and white rice, packed in bulk and sent to Thai exporters

Founded: 1983

Gender of Owners: 2 Males and 1 Female

Type of Business: Medium-sized partnership business

Machine Capacity: 20 HP

Capitalization: US\$ 16,000

Number of Employees: 9

Input Capacity: 6,000 kg/day

Respectly, Udom, and Preawpan are 34 and 32 years of age. Each of whom own shares in the Chook Wattana Rice Mill. Both Udom and Paewpan were interviewed for this case study. In 1983, Sompon, a village farmer, founded a micro rice mill business in Ampur Mueang, Chai Nat, in the Central region of Thailand. From the outset, Sompon's rice mill was hired to mill the rice of village farmers. The rice output was approximately 105 tonnes per year. The initial capitalization of the mill was US\$ 2,300, which operated 7 days a week. Sompon has one son, and a daughter, Wisaa, aged 28,

both of whom worked in business since commencing high school. In December 2009, Sompon succeeded the rice mill business including the 8 horse power milling machine to his children with the hope that they would grow the business.

My father [Sompon] started the tiny rice mill business in our backyard. He did not have many customers but he could earn enough money for everyone in our family. He worked in this tiny rice mill for 25 years. Before New Year day of 2009, he passed this rice mill to me and my sister [Wisaa], and he had a long talk with us. He reiterated to us that he'd like to see his business grow. He had a lot of ideas but he didn't have time and money to do this. My father set an excellent example. He ran his own business with a strong vision. In that time, being the owner of business was popular. I have learnt a positive method of business transaction from him and continue to enjoy his original business (Udom).

When the time comes, many family business owners cannot avoid situations when family shareholders decide that they want to do something else with their time and money, such as converting their investment into assets that are liquid in order to meet personal and business needs. In other words, it is not uncommon for shareholders to decide to exit and diversify their assets to avoid relying heavily on the performance of the company. Others may tire of the business. There seems to be a number of possible decisions and associated choices. Depending on the distribution of shareholding or the size of corporate wealth for a possible cash buy-out for those seeking liquidity, sometimes such a decision to exit can leave individuals or a company burdened with debt. Alternatively, exiting might lead to selling the company. In relation to the Chook Wattana Rice Mill, Udom indicated that he did not have sufficient financial resources to continue the business on his own, once his sister exited. In order to deal with his ambition to continue running the family business and to enable his sister to exit the firm, the siblings decided to sell her shares to a person whom they both trusted.

My sister decided to leave the family rice mill business and she asked me to apportion to her, her share of the business. First, she asked me to buy her share, actually, I wanted to, but I didn't have enough money ... I had an idea to sell the business share to friends from outside our family. I separated the shares into three parts. I would hold 49% of share, Tiaanchai, my best friend, 2%, and the third party 49%. Tiaanchai is also a friend of Praewpan. He told me that Praewpan wanted to start-up her cosmetic business but faced a few problems ... Because of her interest in business, I decided to talk with her. At first, she seemed uninterested in my business as she still wanted to start her own cosmetic business. But one day, she changed her mind and said that she was happy to work with me and Tiaanchai (Udom).

Sustainable business growth is part of the challenge and managing cash flow effectively is absolutely essential, and for many, the very key to business growth. Cash flow forecasts can help predict upcoming cash surpluses or shortages, and help owners to make the best decisions. Managing incoming and outgoing cash flow can keep the business going. The owners need to make sure that their business can still make a profit and will have enough cash circulating in their business at the right time to pay employees, suppliers, and outgoings.

As with most businesses, cash flow is always the biggest challenge for us. The delay between the time we have to pay our suppliers and employees, and the time when we collect payments from our customers is one of the biggest problems we have. In 2013, we lost a large amount of money because a few of our suppliers broke their contracts, and we are still in recovery mode. Okay, we lose this amount, and we need to make-up the shortfall. We have to make more than we loss (Praewpan).

Praewpan has wanted to be an owner of business for as long as she can remember and has considered herself as “a bit of an entrepreneur” since her early twenties. In 2006 at the age of 24 years, she started work as a marketing employee in a Food Company. Praewpan elaborated below:

I worked in the food industry in the department of marketing and was in direct contact with rice mills in the Central and Western regions of Thailand. I wasn't happy with my employment at the time. I wanted to get away from people who worked in businesses or organizations that had an unending need to feed their own egos rather than focusing on clients and other members of staff. I made an offer to buy a cosmetic business but it was rejected. One day, Udom contacted me because he wanted to sell 49% of his business. I thought a lot about it, but in my own mind, I wanted to pursue my project in cosmetics. On the other hands, I thought it would be a great start. Finally, I decided to grab this chance (Praewpan).

Currently, the Chook Wattana Rice Mill is growing. Jointly, Udom, Praewpan, and Tiaanchai commenced with US\$ 16,000 start-up capital, and a 20 horse power rice milling machine. The business processes white rice and jasmine rice, which is then packed in bulk and sent to Thai exporters. Output is approximately 1,500 tonnes per year.

The Chook Wattana Rice Mill holds a fair share of staff meetings in order to set targets and goals, to see how everyone is doing, and discuss any problems that employees and the organization are facing. At these employee meetings morale is encouraged, any employee concerns and frustrations are addressed and alleviated. New ideas are also discussed and supported, where appropriate. These meetings have helped to enhance performance and overall, have had a positive effect on employees, helping to improve morale. Praewpan stated:

We started our business with nine employees, in May 2011 ... During the first six months, we had meetings every fortnight to help us address the many problems and issues are faced as a start-up business. We were facing problems, such as how to control our costs, planning, managing our time, and making a profit (Praewpan).

Growing a business is not easy. Entrepreneurs must be prepared do the hard works, anticipate the future, and invest their financial resources wisely. Added to these issues are the sound decisions that have to be made, and the associated plans that must be followed in relation to setting up new systems, reviewing the paperwork, and recruitment of new employees. All of these processes take time and effort.

The cash flow issue is the biggest issue that I faced before I started to grow the business with Paewpan. I was not concerned with this issue when my business was small. Now, there are a lot of things to think about and which we need to get involved in. Both of us lack experience in management. When times are good we spend our money quickly and we don't think about the tough times ahead (Udom).

Praewpan concurred with this view, adding:

Before I decided to buy into this business, I wish I had known how difficult it is to manage a business, how to guide employees in an organisation, and how much energy it takes to keep and grow a good reputation. I never stop (Praewpan).

Usually, business partners work together, sometimes with little planning. However, partners can also clash on certain matters relating to work roles, financial goals, respective roles in the business and leadership styles. Communication between partners is an imperative. A not uncommon mistake for business partners is for individuals to jump into the business before really getting to know each other. Ideally, partners' professional skills should complement one another, but not overlap too much. For example, one may be an expert in management, marketing, and sales, while the other

might specialize in the operational areas including the production line and overseeing the machinery. Udom noted:

I think my best decision was that I decided to sell part of the business shares to someone with a different skill [marketing, management]. We can greatly complement each other in the business. And another great thing is that I have the best business partners ever. We respect and listen to each other (Udom).

The most important persons in the business are both my family and my business partner, Udom ... Because for me, I'm the document and sale's person a critically important factor in business. Udom is the production person, who oversees the machinery and he is also the brains behind the manufacturing. Together, we are both the matched business couple and we can make it all come together. We spend our time on the bigger vision of business, such as setting up the business, increase the number of customers, and train our employees (Preawpan).

In many ways business partnerships are like marriages or any other committed relationship – and along with the potential positive aspects of a relationship, come all of the potential conflicts and problems. Even in the best of circumstances, business partnerships can be fraught with conflict. The basis of the conflict between partners can happen over something small. People will always differ on what needs to be done, or how it is to be done, and often with feeling.

Customers or suppliers need to be satisfied with the products. Customers have expectations, particularly about the value they receive. Communicating with customers is a significant component of customer service for small-to-medium businesses. In dealing with customers, communication is essential, whether it is face-to-face, over the phone, via email or, increasingly, through online channels. Furthermore, customer service is designed to ensure the prompt and efficient delivery of quality products and services, as well as the effective recovery from any service-related issues that may arise.

We go above and beyond expectations and requirements of our customers. We also let them know that we can produce whatever they want ... And we constantly communicate with our customers and listen to their feedback. For now, we may be a small rice milling business, but we offer large company product (Praewpan).

The business world is dynamic and competitive. Remaining competitive can be challenging.

There are hundreds of rice mill in Chai Nat, so it is reasonable for me to say that the rice milling business competition is so tight. We are fair, honest, on time, reliable and trustworthy, which seems to be working in our favour (Praewpan).

Some friends warned them about some of the pitfalls associated with working in this industry, but initially, they just ignored that warning signs. Now, Udom and Praewpan pay heed to the information and advice received from suppliers and employees, checking their referees resumes, and references to ensure that the people with whom they engage are ethical and have not been involved in criminal activities.

We hired one lady who promised us that she could do big things for our business. We ended up employing a deceitful person. This lady told me she had worked in a big company before and claimed to be the salesperson, promising us that she could deliver on big orders. But she couldn't deliver, nothing ever happened. In the end, we fired her because we found out that she had told other employers the same story. We lost quite a lot of money hiring her (Praewpan).

Technology provides a wide range of tools entrepreneurs can use to guide their new companies through the start-up and growth stages. Small-to-medium businesses rely on technology to help them operate on a daily basis. Technology has the potential to affect business in both positive and negative ways, because their needs to be an alignment between the goals of the business, the products, customers, suppliers, and technology.

Despite the advantages gained by using technology, businesses continue to face challenges. One such challenge is the initial start-up expense for the business.

I don't respond to change in the latest technology. Changing technology always impacts on our business ... Technology changes quickly and is expensive. We don't want to carry too much debt ... Because of the financial predicament of the business costs associated with the changes, I was forced to take on a partner and get a fresh equity injection into the business (Udom).

Praewpan added an alternative perspective starting:

For my future plan of the business, I want to upgrade our IT system and hire one more staff member to assist us operationally. This plan will free up more time for me and Udom so that we can spend time growing our business. I know that Udom doesn't agree with me, but I'll try to convince and show him how important modern technology is for our business. (Praewpan)

In a business organization, communication is a key to effective working relationships among employees and between management and staff. Business owners need to spend time listening to their employees; as well as observing nonverbals such as body language, the behavior of co-workers, or when an employee is just quiet. According to Praewpan, placing an emphasis on the company culture and atmosphere, and communication is a key component of their business.

One way of making the team feel like they are a part of the company is by having a management team that is friendly and supportive. I try to make friends and be close with my employees and listen to them. I try to sort out the line between boss and friend. I can be their boss but also friendly and joke around. I just treat them like the way that I want to be treated. I've never put my employees down when they made a mistake. Only a few minutes of attention can make a great deal of

difference to how they work, and in my experience people just want someone to listen them (Praewpan).

Strategic planning has an important role to play in fostering business growth and benefits for employees, an issue not lost sight of by Praewpan who stated:

We always have business plan for the future. This is one thing that I learnt from my previous workplace. The planning allows me to make strategic decisions preparing me for what I will face in the future. If we don't have this type of planning, we can't grow and achieve our goals over three years (Paewpan).

The Ministry of Industry and Ministry of Agriculture and Cooperatives provides entrepreneurs of agricultural businesses with training opportunities across a varieties of fields, such as machinery maintenance, production yield improvement, marketing, and introduction to new technology, amongst other topics. Despite such opportunities to up skill his qualification and develop his knowledge, Udom has failed to attend any free training in the agri-business area provided by Thai government. He elaborated below:

I've never done any agricultural training ... I don't want to waste my time. I heard some of my friends say that it was nothing new, and they just train people in the basics, providing us with information that we already know. In my view, experience is more important than education and training. Last year, Paewpan hired one young man who just graduated in the field of agricultural business. He couldn't do anything in our rice mill. I asked him what did he study? He answered me lots of theories, which he didn't understand at all ... There was only one thing that I knew, I could do my work but he couldn't (Udom).

According to Udom, Thai government policies are both advantageous and disadvantageous. His comments concerning policies and related practices were short and to the point:

We don't have any opinions about government policies, they do not impact on our business (Udom).

To sum up, Chook Wattana Rill Mill can be regarded as a medium-size business, that produces white rice and jasmine rice, operating in Chai Nat, in the Central of Thailand region. Rice is milled in bulk then transported to exporters. The mill was founded originally as a family business, prior to the legal structure changing to a partnership in 2011, when 51% of the shares were sold to two other partners. There are a number of drivers of growth. First, Udom and Praewpan have developed a company culture that focuses on communication, holding regular staff meetings where goals and targets are set, and where any problems and issues can be addressed and resolved. Employees are also given support and encouragement. The partnership has provided a number of benefits as the partners complement each other's skills which have contributed to help to grow the business. A focus on communicating with customers has played a significant role in delivering a high standard of service and meeting customers' requirements. Effective communication has helped the business to develop its workforce, and enhance relationships within the firm and with customers. Finally, according to the owners strategic planning has played no small part in improving the overall organizational performance. Notwithstanding, there are a number of barriers to growth faced by the Chook Wattana Rice Mill. First, both, Udom and Praewpan lack managerial experience and management of cash flow have been an issue. Second, there are more than 200 rice mills in Chai Nat province, with over 39,000 rice mills in Thailand. Competition is tight. Third, HRM practices is another constraint as evidenced by their reported experience of hiring unsuitable persons as a result of failing to check references and due diligence. Fourth, changing technologies and minimal emphasis on innovation has impacted the business because today's business environment is moving at a faster pace than ever before. Finally, differences in the partnership relationship have been the basis of some conflict, which on the whole has been manageable.

Case Study 5 (Summary)

The Organic Rice Cooperative

The Organic Rice Cooperative produces organic white jasmine rice, brown rice, and coarse rice. The Cooperative packages rice using each customer's brand, who then exports their products. The Cooperative also retails their product using their own brand.

A small group of farmer villages in Ampur Meuang Surin, Surin, in the Northeastern region of Thailand, established the Organic Rice Mill Cooperative. This Cooperative is one of 40 organic rice millers located in this region. In its first year of establishment, over 9 years ago, the Cooperative boasted only 41 members. By 2014, membership had risen to 324 organic farmers who abide by agricultural methods that detail the ways in which seeds are to be planted, soil conditions, and the non-use of pesticides and insecticides. The Cooperative is capitalized at approximately US\$ 2,700, including a 15 horsepower rice milling machine. Of the 13 employees, four operate the rice mill and nine are office staff. Customers are predominately nearby villagers. The Cooperative generates a profit of approximately US\$400-\$2,600 per month.

The Organic Rice Cooperative has provided farmers with a high level of power in the marketplace, control over their products as they make their way to consumers by allowing them to bypass middlemen along the market channel. As well, the Cooperative delivers intangible benefits for members, such as increasing their skills for collective action (e.g., trust) and strengthening their political capacity. These benefits often transcend the Cooperative to the whole rural community. Additionally, the integration of several small farmers into one collective has provided members with superior bargaining power relative to agents who are downstream and upstream of the supply chain, such as retailers and packers, and producers of seeds and fertilizers, respectively. Moreover, organic rice, a worldwide growth industry trend, can be a profitable and sustainable business for farmers who

have gone through the certification process necessary for registration and entering this market.

In relation to the barriers to growth, this Cooperative made reference to the poor quality of farm land which is not permitted to use chemical fertilizers to increase yields. Spraying and water run-off from neighbouring farms and the impact of stringent farming methods associated with the organic certification process have posed further barriers. Historically, high interest rates have made sourcing capital too expensive for farmers who do not receive subsidized credit. Market failures in the financial services sector for farmers have generated problems associated with access to savings, credit, and transfer services. A common obstacle in the implementation of new technologies and farming techniques in the countryside concerns low levels of human capital. In spite of the fact that education in rural areas has improved significantly, particularly in regard to primary and secondary education, the proportion of educated people remains unimpressive.

In 2005, a small clutch of village farmers in Ampur MeuangSurin, Surin, in the Northeastern region of Thailand, established the Organic Rice Mill Cooperative which is one of 40 organic rice millers located in this region. In its first year of establishment, the Cooperative boasted only 41 members. Membership of the Cooperative has grown each year, the growth of which can be attributed to word-of-mouth about the health benefits associated with organic foods. In 2007, the Cooperative established a retail shop for the sale of rice products. By 2014, membership had risen to 324 organic farmers who abide by agricultural methods clearly specifying the way seeds are planted, necessary soil conditions, and the non-use of pesticides and insecticides. The Cooperative also monitors farmlands under organic cultivation by measuring the moisture levels of seeds and the extent, if any, of chemical contamination. Seeds and farming processes have to pass strict and regulated standards, and the Cooperative oversees staff providing certification, which must be renewed annually. Each year, members elect 11 committee members who can represent the Cooperative on only 2 occasions. In its first year of operation, the Cooperative produced organic rice only for members.

Organic Rice Cooperative Case Study

Organic Rice Cooperative produces only organic white jasmine rice, brown rice, and coarse rice. We do the packaging using customers' brand, and export our organic rice to United State and Switzerland ... We also sell our organic rice domestically using our brand at the Cooperative's shop ... Some customers buy our organic rice and sell it in their shop in other areas (Nattida).

Company Demographics

Location: Ampur MeuangSurin, Surin (Northeastern region)

Description of Business: Milling organic rice (white jasmine rice, brown rice, and coarse rice), packaging, retail rice shop, and rice export

Founded: 2005

Gender of Owner: 261 Males and 63 Females

Type of Business: Small cooperative business

Machine Capacity: 15 HP

Capitalization: US\$ 2,700

Number of Employees: 13

Input Capacity: 3000 kg/day

The Cooperative is capitalized at approximately US\$ 2,700, including a 15 horsepower rice milling machine. Of the 13 employees, four operate the rice mill and nine are office staff. Customers are predominately nearby villagers. The Cooperative also exports to a number of countries, including the US and Switzerland. The Cooperative buys all of its rice from members and packages the organic rice either under the Cooperative's brand or that of its customers. The Cooperative generates a profit of approximately US\$400-\$2,600 per month. Members receive an annual dividend. Interview material from Nattida (Marketing Manager) and Somkuan (Member of Cooperative) forms the basis of this case study.

Thai Organic Rice is considered to be one of the most important crops of Thailand, which is grown and processed without the use of any synthetic chemicals as found, for example, in fertilizers, insecticides, preservatives, seed treatment, hormones, no gene editing and the like. Currently, only especially selected high-quality Thai rice is planted organically in a very limited area, although this type of agricultural practice is becoming more widespread as the number of health-conscious consumers grows rapidly.

Organic Thai jasmine rice has been referred to as the most delicious rice in the world. Many countries have tried to grow this unique rice, but no country has been as successful as Thailand. Thai Organic Rice is grown, mostly in Phayao Province, Chiang Rai, Buriram, Ubon Ratchathani, Roi Et, Amnat Charoen, Sisaket, Yasothon, Surin, Phetchabun, and Maha Sarakham. Predominately, the organic rice comes from capital rice, which is of premium quality and meets all EU standards. To guarantee the finest quality, the complicated production process requires intensive care, as well as close cooperation between Thailand's Department of Agriculture and some overseas organic survey institutions, such as, Bioagricert (an expert reviewer of organic products from Italy), a member of IFOAM (International Federation of Organic Agriculture Movement), USDA Organic certification, and the Organic Agricultural Certification Thailand (ACT). Organic jasmine rice can be exported to overseas markets with the highest market value, such as the EU and US markets, followed by Japan and Singapore.

Thai Jasmine Rice is also known as *Thai Hom Mali rice* as well as *Thai Jasmine Rice* and *Thai Fragrance Rice*, which is long-grain sweet aromatic fragrance rice. The superior quality of jasmine rice from Thailand, combined with fully organic farming technology, results in organic jasmine rice that is truly safe from chemical, according to organic international standards.

As noted earlier, the Organic Rice Cooperative is owned by farmers with the expressed purpose of collectively selling their products. It allows producers to accomplish collective functions that they could not achieve on their own. Joining with other producers in an Organic Rice Cooperative has provided farmers with greater powers in the marketplace, more control over their products as they make their way to consumers by allowing them to bypass middlemen along the market channel. Somkuan, 52 years of age has been one of the Organic Rice Cooperative members, for three years, stated that:

This Cooperative makes our community stronger than before. If we sell our paddy to a private rice mill or middleman, we cannot negotiate with them ... Sometimes, we have to sell the rice at lower than market price, but how can we do that. My bills are waiting for me to pay them. I have to sell my paddy even in low price. It's better than nothing.

According Nattida, the marketing manager of the Cooperative, the Organic Rice Cooperative represents the opportunity for smallholder producers to become part of an organization that renders economic advantages. As well, the Cooperative delivers intangible benefits for members, such as increasing their skills for collective action (e.g., trust) and strengthening their political capacity. These benefits often transcend the Cooperative to the whole rural community. In this sense, the Cooperative contributes to building social capital with their community. The members' collective action skills are enhanced through their learning process in management and interaction within the Cooperative and its members. For example, a new collective skill might consist of developing an ability to resolve conflict through democratic procedures and processes.

Our Cooperative can help members to get better opportunities in the economy. And also stimulate stronger social bonds, solidarity, partnerships, and trust among the members. I think that the Cooperative can produce spill-over benefits to non-members. ... It can show to everyone even, to non-members of our Cooperative, that we're a democracy (Nattida).

The integration of several small farmers into one collective has provided members with superior bargaining power relative to agents who are downstream and upstream in the supply chain, such as retailers and packers, and producers of seeds and fertilizers, respectively. Registered farmers benefit from the establishment of a Cooperative.

We pay attention to the supply chain. We do everything from start-to-finish, selecting the seeds to sow, preparing the fertilizer, growing the paddy, harvesting our paddy, milling the rice, packaging, and of course, selling our products to customers. Cooperative staff don't have to do it all by themselves, but the farmers, who are the members of Cooperative do their own farm work. The Cooperative monitors and verifies every step to make sure that there are no differences in the end results (Nattida).

In relation to the barriers to growth of this Cooperative, Nattida made reference to the poor quality of farm land soil which is not permitted to use chemical fertilizers to increase yields. Spraying and water run-off from neighbouring farms, impact on organic certification. Uneven quality of land tenure reflects the low coverage of drainage and poor irrigation infrastructure.

The main problem that we always face is the very strict standard of the percentage of chemicals permitted in our paddy. This standard is out of our control because neighbouring farmers use chemical fertilizers, and we cannot control the direction of wind, or even the direction of water flow. Some of our registered farmers give up doing organic farming because of these factors (Nattida).

Historically, high interest rates have been too expensive for farmers who do not receive subsidized credit. Market failures in the financial services sector have generated problems associated with access to savings, credit, and transfer services. Furthermore, limited access to formal credit from private financial institutions is often related to the lack of appropriate collateral as a guarantee for the repayment of loans, as noted by Somkuan:

Thai government has never given us financial support. I have a lot of debt. Sometimes, I'd like to give up doing farming. If someone came and asked me to sell my farmland, maybe I'd sell. Some of my friends borrowed money from private financial institutions who charge very high interest. I don't know why they borrowed money from them. No way! We couldn't pay the money back. But my friends said, they don't have any choice. They don't have any property left to use as security with the bank and when the farming season comes, they have to farm (Somkuan).

Organic rice, a worldwide growth industry, can be a profitable and sustainable business for farmers who have gone through the certification process necessary for registration and entering this market. Over the previous several years, the industry has continued to expand, with agricultural experts forecasting steady high growth. Growth in the organic rice sector has highlighted a number of issues that need to be addressed because of the shortage of organic raw material, competition from rice markets associated with the use of new-age chemical fertilizers, and the ever increasing higher farming standards.

The organic rice market is becoming bigger and bigger. Early indicators show positive growth in the organic market, over the last years ... showing strong appetite among consumers for the environment, animal welfare, and the health benefits related to organic produce. As the popularity of organic food has increased, the more we have been able to support our growers and suppliers by investing in research. This investment has provided shoppers with even better-tasting produce (Nattida).

In Thailand, the Cooperative movement is regarded as an important determinant of economic and social development, especially in the rural sector. Its activities receive both technical and financial support from the government, which has established a regulatory body that oversees such ventures cooperatives. Despite its establishment, there are apparent deficiencies in the tracking process and uncertainties in policy development and implementation.

In 2004, we petitioned the Thai government for funding to establish an organic rice mill cooperative. We developed a fantastic business plan and presented it to the officials in the government. We received money eight months later. We established the cooperative but faced a lot of problems. We asked for further help from the government but no help came! We had to do everything without support. Sometimes it was right, sometimes it was wrong. At the time, we didn't have the knowledge as to how to establish the Cooperative or even how to manage it. ... But we are proud of ourselves that our Cooperative has survived and still makes a profit that we share among members (Nattida).

A common obstacle in the implementation of new technologies and farming techniques in the rural areas concerns low levels of education, knowledge, and experience.

We don't have much knowledge about technology and innovation. We just know how to use the machines in our cooperative. Once, the government officers from the Ministry of Industry came to the village to train and provide us with technological knowledge, but it was the biggest fail are ever. The villagers found out that the knowledge was too difficult to understand. The learning materials were full of English words. It was impossible to understand those learning materials. Some of them can't even read Thai language because they didn't go to school (Nattida).

In term of communication processes, the Cooperative contacts their international customers mainly via email. Nattida, the Marketing Manager, is solely responsible for

this role. Education level and age are regarded as important considerations when undertaking internet transactions. It is no surprise when the cooperative loses customers because of late response and language barriers.

We have 3 computers in our office, but only one has an internet connection, and that is mine. I'm the only person who deals with overseas customers. It is so difficult because I have to check and respond by email all the time, even after working hours. No one wants to do this job. They always have excuses about their language ability and technological knowledge. Some of them are too old and unable to include much information ... Unfortunately, my language skill isn't very advanced. Many times, we misunderstand the customers' messages (Nattida).

All financial transactions deal with bank processes, which is slow.

Money transactions have to be transferred via our Cooperative bank account. It takes about 5-14 business days to declare the overseas customers' money ... Most transactions have exchange currency rate issues (Nattida).

In spite of the fact that education in rural areas has improved significantly, particularly in regard to primary and secondary education, the figures remain unimpressive. Only 23.5% of members have completed a primary education and a meagre 4% having completed a secondary education.

Not many of our members have completed primary or secondary school education ... From our records, only 76 members have completed primary school and 13 members have completed a secondary education (Nattida).

In conclusion, the potential drivers of growth for this Cooperative involve having more power in the marketplace, delivering intangible benefits for members, such as increasing their skills for collective action (e.g., trust) and strengthening their political capacity. Additionally, the integration of several small farmers into one collective has provided members with superior bargaining power relative to downstream and upstream supply chain agents. Finally, organic rice brand, a worldwide growth industry,

appears to be a profitable and sustainable business for these farmers. The main barriers to development and success of this enterprise include the poor quality of farm land which is not permitted to use chemical fertilizers to increase yields, high interest rates and the cost of credit, and a lack of subsidized credit. Furthermore, a common obstacle in the implementation of new technologies and current farming techniques concerns low levels of human capital such a poor educational attainment. In additional, age and language barriers are also important considerations.

Vignette 1

Ayutthaya Rice Trading Company

Our company succeeds because we pay attention to and focus on the quality of our products, technology, production equipment, as well as having a strong marketing plan ... We have built a robust network of selling and distribution of our products around the world ... Our strategic emphasis has created a brand recognition of our products of especially-selected rice, and other food products (Wit).

Company Demographics

Type of Business: Large Second-Generation Family Business

Founded: 2012

Description of Business: Improving the genetic quality of rice seeds, milling, and retailing and wholesale of their own branded products in domestic and overseas markets

Location: Nakorn Luang, Ayutthaya

Gender of Owner: Male

Machine Capacity: More than 1,400HP

Capitalization: US\$ 100,000,000

Number of Employees: 62

Input Capacity: 1,200,000 kg/day

The Ayutthaya Rice Trading Company supports registered farmers who buy their rice seeds and adopt the planting methods recommended by this company. Registered farmers comprise 30% of their customers. The other 70% are either unregistered farmers or middle traders. Rice is checked according to strict guidelines, ensuring that

the percentage of chemicals and moisture content are within established limits. Batches of rice over the presented standards are rejected outright.

The quality assurance program begins with the selection of rice types, the production process, quality control functions, and rigid inspection processes. This program of quality assurance is evident across all processes resulting in high quality products following international standard, including GMP, HACCP, and ISO 9001: 2008. The company has in excess of 1,400 horsepower milling capacity. Ayutthaya Rice Trading Company's 5 production lines culminate in a total volume of more than 1 million tons of rice per year.

The Ayutthaya rice trading company is controlled by a parent company. Established in 1979, the parent company was an outgrowth of an investment by the Board of Investment of Thailand. The initial operation focused on providing services relating to international trade including importing and exporting a range of rice products. Founded in 2012, the Ayutthaya Rice Trading Company is capitalized at over US\$ 100,000,000. In terms of size, the company has 62 employees full-time, with 40 employees working on the production line, 20 employees in the laboratory, and 2 employees are clerical staff. Today, the Ayutthaya Rice Trading Company is regarded as one of the leading international trade companies in Thailand involving a worldwide network of trade.

Drivers of Growth

Strategic planning involving the setting of long-term business and company goals form an integral component of the Ayutthaya Rice Trading Company's growth aspirations. According to Wit, the rice plant manager: *We develop a long-term business strategy by understanding our business, and deciding where we want our business to be in the future.*

Brand management helps to deliver uniqueness to products. Customers are much more likely than not to remember products and businesses. In other words, a strong brand helps to keep a company's image in the mind of actual and potential customers. Normally, people usually associate branding with large companies that have the marketing and advertising resources, and promotion spend. The Ayutthaya Rice Trading Company appears to have created an effective brand, making their business appear to be much bigger than their comparable competitors through the effective use

of advertising on a range of media channels and through exhibitions and stalls at forums.

Adoption of up-to-date technology is critical for gaining a competitive advantage and increasing efficiencies. The Ayutthaya Rice Trading Company has employed advanced technology with global standards. Plant equipment is considered to be the most modern in their region. Wit stated that:

We introduced the latest technology to our business ... Not all business has the same type of technology ... We examined what our company needed most and which business technologies we needed to adopt and implement to satisfy our customers and to improve business efficiency.

In this company, advanced technology has been used for communication, manufacturing, packaging, quality control, accounting, human resource management, data security, and business marketing purposes.

The Ayutthaya Rice Trading Company is involved both up-and-down stream of the supply chain. Rice growers and farmers are encouraged to register with the company and to grow high quality paddy. This company offers to buy rice from registered paddy farmers, at prices higher than the market. The company mills the rice to a specific standard, and also buys milled rice from middle trades, who have formal contract agreements with the company.

It is noteworthy that the Ayutthaya Rice Trading Company has built its own marine to handle the transportation of rice across different regions with direct connections to production plants. This transportation system is the first of its kind in Thailand and has a strong environmental conservation emphasis: *We use motor cargo ships to export and transport our products to domestic warehouses, instead of trucks (Wit).*

Barriers to Growth

The Ayutthaya Rice Trading Company comprises many departments, some of which undertake overlapping work culminating in inefficiencies and redundancy. Slow and poor decision making is another failing which at times is hindered by problems associated with communication between departments.

The business environment in which companies operate is ever changing. In the rapidly changing rice market, external competition and pressures faced by the Ayutthaya Rice Trading Company come from new low-cost procedures, changing customer demands and requirements, new laws, traditional sources of supplies of raw materials from small family farm holders and sole traders, and forever changing new technology.

The Thai government's the Paddy Pledging Program (PPP) has had a relatively large impact on the company. Government policies, including the PPP, have made it difficult for the Ayutthaya Rice Trading Company to buy high quality paddy rice because most of Thai farmers and rice millers sell their paddy and milled rice to the Thai government. According to Wit,

We can say that the Thai government is our competitor. Since 2011, the company has been faced with a shortage of raw materials, including paddy and milled rice, to produce our rice product ... We are happy to pay more money to encourage farmers and middle trades to sell their rice to us, but it still isn't enough ... Luckily, we have some farmers, who are registered, and still sell their products to us.

Wit noted that, *the low quality of raw materials has made it difficult for the company to work efficiently. We have to do more work than before ... We have to keep more samples.*

In conclusion, the drivers of growth involve having a strategy for setting long-term goals for the company, placing an emphasis on brand management, using updated technology to gain a competitive edge and increase efficiency in the face of barriers, having a strong focus on the supply chain in order to manage the rice process both downstream and upstream, and having affiliated companies that share similar markets and contribute to the strong financial power. Barriers include complicated organizational departments and organizational culture, the changing external environment, government policy, and sourcing a low quality of raw materials.

Vignette 2

Gaseet Thai Rice Mill

I work hard and try my best to save my father business ... I introduced new technology and equipment, educate myself and employees, and I also have future plans ... But outside factors always make problems to us (Wachira).

Company Demographics

Type of Business: Large Second-Generation Family Business

Founded: 2003

Description of Business: Milling white rice and sent to exporters via middle
traders

Location: Chat Nat

Gender of Owner: Male

Machine Capacity: More than 1,000 HP

Capitalization: Not Applicable

Number of Employees: 35

Input Capacity: 500,000 kg/day

The Gaseet Thai rice mill was established in 2003. The mill has 35 employees with more than a 1,000 horsepower rice milling machine. Input capacity is at approximately 500,000 kg/day. Despite the relatively large output, the company does not export its rice, directly. Yai, the founder of the rice mill started in agribusiness as a rice farmer. As a farmer, Yai had problems with middle traders and rice millers. Within 3 years, Yai founded a rice milling business which is in the process of being passed onto his son, Wachira. However, Wachira remains the principal decision maker.

All raw materials come from local farmers. Employees check paddy rice to ensure that company standards are met, which is then sent for roasting prior to milling. Output is sent to middle traders.

Drivers of Growth

The founder appears to have an appreciation and understanding of customer needs, the current business environment, and milling skills necessary to produce quality rice producers.

There are so many things I have to do to run my business effectively. On top of that, of course, I have to understand the rice milling industry and rice market, the skills required to produce quality rice products, services, and also the trends in rice industry (Wachira).

Adoption of modern machinery is vital for quality rice mills. Wachira is prepared to adopt new technology machinery, and he expressed welcoming suppliers who introduce and provide him with the relevant information. Prior to adopting any new technology, he considers whether his workers are capable of using any new machines, and any possible benefits or limitations.

Business plans can help entrepreneurs to focus on their goals and visions. They can range in size from a few simple sentences to more than 100 pages with formal sections. The Gaseet Thai rice mill has formulated yearly plans, establishing goals in term of profit, output products, and efficiency of machinery, financial targets, and in-depth marketing analysis. Each year, Wachira and member of his executive team revisit and revise the plans.

According to Wachira, particular attention is paid to education and training, as he believes that education is a key factor for the survival of his business.

If there is something I don't know, I educate myself to find an answer ... Talk to other entrepreneurs, talk to customers and middle traders, find a website, or get a book ... I keep increasing my business skills by attending classes, training, or seminars. It's not just only me, I always give these opportunities to all of my employees.

Information technology provides a powerful tool to help gain the best knowledge. Wachira makes appoint of adopting systems that are not complex to set-up and time consuming to maintain, choosing systems that fit with his business and help to improve efficiencies without costing too much money.

Barriers to Growth

Passion can be an effective motivator for business, helping to keep one's vision and direction fresh and exciting. Wachira highlighted that he has lost his passion for his work because he does not have family and children who will succeed him in his business when he retires.

Uncertain government policies make are another barrier:

The policies, which relate to agriculture, always change when government changes. Sometimes they announce unclear policies, and I don't know what should I do (Wachira).

The Paddy Pledging Program set the buying price lower than the average price. Profits fell following the announcement and introduction of this policy. In the first year of its introduction, Wachira registered with the Thai government, but 12 months later he left the scheme owing to a lack of benefit.

Wachira has considered exporting his milled rice as part of an overall strategy. He believes that his rice mill is not ready to export their products because he has not done the necessary planning and preparation. Wachira said: *We are not ready. There are numerous factors I need to consider before exporting, such as time, knowledge, experience, workers, and money.*

Farmers in the area grow paddy, but there is very little variety. The lack of variety has led to an excess supply of that variety of rice.

Farmers don't care what variety of rice they grow because they can put their rice in to the government's Paddy Pledging Program ... They just grow the easiest one ... But this problem stays with us and other rice millers ... We produce the same type of rice and we have to compete in the same market (Wachira).

In conclusion, the drivers of growth involve the experience and understanding of the unique aspect associated with the rice mill business, having a strategic plan which is revisited regularly, seeking new knowledge and attending relevant training programs and seminars, and using suitable information technology and up-to-date machinery. Barriers concern the uncertainties and lack of clarity associated with government policies, not being export and an oversupply of rice products caused by farmers growing the same variety of paddy.

Vignette 3
Sano Community Rice Mill Case Study

Sano community rice mill doesn't do the whole rice business. We have only rice mill machine for hire by members ... Most of members are happy with the size and dividend (Jan).

Company Demographics

Type of Business: Small Cooperative

Founded: 2006

Description of Business: Milling all of member paddy rice

Location: Sri Narong, Surin (north-eastern region)

Gender of Owner: Not applicable

Machine Capacity: 14 HP

Capitalization: US\$ 8,300

Number of Employees: 2

Input Capacity: 1,000 kg/day

The Sano community rice mill supports only its village cooperative members. This cooperative owns a 14-horsepower milling machine for use and hire only by members. Every four year, members elect 9 committee of management.

The Sano community rice mill was founded in 2006 with US\$ 8,300 capitalized support from the Thai government. All members live in the surrounding area. In 2014, the cooperative involved 53 members, holding more than 100 shares. Input capacity is approximately 1,000 kg/day, and provides work for 2 part-time employees whose roles concern document secretary and rice production, respectively.

Drivers of Growth

According to Jan, the chairman of the community rice mill, a part-time employee, who works on the rice production line, believes that he has developed excellent skill through his job experience, know how, opportunities to learn the trade, and how things are done, through mentoring.

Our employees have worked in rice business more than 40 years ... They know exactly what is the output quality when they see paddy from members ... Sometimes, they warn them that their paddy isn't of good quality, and that the output will be of poor quality too ... It depends on members to decide whether they still want to continue with the process of milling their paddy, or not (Jan).

The Sano community rice mill appears to have a clear long-term plan, including opening a retail store to help to generate and increase their members' income by 2016.

Communication technologies, especially mobile phones, have an immediate role in business. There has been an increase in contact between farmers and advice delivered via the internet is helping to educate members about the most effective rice-agriculture techniques. Communication has been enhanced through the use of SMS and news and events are communicated through online forums and chats which are proving to be effective.

Barriers to Growth

Technology allows rice mills to expand quickly and efficiently. According to Jan, new technologies, such as an updated rice milling machine, a roasting machine, and also the equipment for checking paddy rice, would benefit their rice mill, He also believes with these technologies, the cooperative would be able to target a wider customer base and grow to higher levels. However, the cooperative has not been able to source the finance the purchase such technology.

In Rural Areas of Thailand, the provision of computer-science education is deficient. There is an apparent lack of computer skills. According to Jan,

No one here knows how to use computer to do e-business ... If you ask me, do I want to learn? Of course, yes. But I still don't have an idea who I can contact ...

Most cooperative members are in it for the lifestyle rather than focusing on generating revenue and profit. Furthermore, there has been dissent concerning expanding undertake more work both downstream and upstream of rice supply chain. Jan stated that

Members, who are active in the community rice mill, are happy to keep this rice mill small ... They don't want to do the whole business of rice production because they think this rice mill can't compete with others and they don't want to spend time on it ...

In 2006, the Sano community rice mill received capital support from the Thai government. However, since that time requests for financial for investments in machinery and to obtain business-related training and knowledge have been largely ignored.

Community rice mill members do not meet on a regular basis. Committee members meet to make decisions only when there are pressing issues. Sometimes, decisions are made too late. It also appears that the committee and the cooperative members tend to evade responsibility.

Other private rice mills seem to have big purchasing power and strong financial backing to invest in rice mill buildings and machinery. The rice milling machines of competitors tend to be modern and have up-to-date in technology, to enable millers to not only mill but also roast, and package rice. It is no surprise that the Sano Community Rice Mill has lost market share in recent times.

Although, Jan realises the importance of training, further education, seminars, and business knowledge provided by government agencies, universities, and private institution, other members do not hold the same view.

Jan stated that:

We have never made any plans to maintain our markets and customers. How can we understand the feelings of our customers ... No one wants to spend money with out-of-date rice milling machine ... And we always make decisions slowly, too slowly!

In conclusion, the main drivers to growth of the Sano community rice mill are the long-established skills and job experience, holding a future plan, and the benefits associated with the use of mobile phone technology. Notwithstanding, the main barriers involve the use of non-updated technology of rice milling machines, the life-style attitudes towards business, the absence of government support, conflict between members particularly in relation to growth, and slow decision making processes associated with the governance structure of the cooperative.

Vignette 4

Tha Tum Organic Rice Cooperative

We do only organic rice, with our own brand. This cooperative isn't the only organic rice mill in this province ... Cooperative members are proud that we are part of the organic market and that we want to grow our cooperative ... But we don't have any support from government (Saeeng).

Company Demographics

Type of Business: Medium cooperative

Founded: 2011

Description of Business: Organic rice (white jasmine, brown rice) miller, sell their own organic rice brand

Location: Tha Tum, Surin (the Northeastern region)

Gender of Owner: Not applicable

Machine Capacity: 30 HP

Capitalization: US\$ 6,500

Number of Employees: 3 (with 76 cooperative members in 2014)

Input Capacity: 2000 kg/day

The Tha Tum Organic Rice Cooperative produces organic white jasmine rice and brown rice. This cooperative packages premium rice using their own brand, retailing 5 kg and 1 kg packets. The company also markets a no-brand low quality rice to local villagers. Non-cooperative organic farmers have no access to hiring the rice milling machine. Each year, members elect 12 committee members who represent the cooperative.

This private cooperative, founded in 2011 with 12 members, is located in Ampur Tha Tum, Surin, in the Northeastern region of Thailand. As of 2014, there were 76 members who are registered as organic farmers certified by the Organic Crop Institute and a reputable Private Organic Institute. The cooperative is capitalized at approximately US\$ 6,500, including a 30 horsepower rice milling machine. Input capacity is approximately 2,000 kg/day. Of the 3 employees, two operate the rice mill and one is an office staff. Customers are predominately nearby villagers, and others originate from Bangkok. The cooperative generates a profit of approximately US\$ 250-\$ 400 per month.

Drivers of growth

Organic agriculture, a worldwide growth industry, can be a profitable, sustainable business. The current members are proud to be associated with organic rice farming within the cooperative members learn to work with a range of people. Interaction allows members to contribute their perspective to milling and growth despite cultural differences. The exchange of ideas helps members to understand other cultures and different points of view.

The importance of training is recognized and valued. Saeeng, one of cooperative member stated: *We went to the training program to learn how to market our business ... Training is good but I still don't understand some parts. They use difficult and English words. I asked them lots of questions but the answers weren't clear.*

The cooperative meets bimonthly to make decisions. Sometimes, decisions are made too late. This cooperative controls their products from downstream-to-upstream. Organic paddy rice is received only from cooperative members, who are registered organic farmers. As might be the case with other mills, non-members are not permitted

to hire the rice milling machine. All products are sold under their own brand, including the no brand label.

Barriers to Growth

Since the time Taksin government assumed power in 2006, organic agriculture has become a major policy theme for agricultural development. Surprisingly, The ThaTum Organic Rice Cooperative receives no government support because there is another organic cooperative rice mill in the area.

The Paddy Pledging Program has posed a big barrier for the cooperative. Policy changes have influenced some members who believe that growing normal non-organic rice is the way forward because government policy has not favored organic rice farming. If anything, it has posed as a barrier.

Never forget, the first payment that government paid to farmers who were in the pledging program ... Because of word-of-mouth, over two days meant that everyone in the village knew that non-organic farmers received government payments. As result, our Cooperative lost over 30% of its members, who changed their minds and decided to return to chemical rice farming (Saeeng).

Despite having its own brand for marketing purposes and a goal to increase their new customer base, market share is limited owing to limited output (and associated input).

Sometimes, we have to reject orders because we don't have enough organic rice ... Don't talk about exporting our products, it is impossible ... We cannot provide sufficient products for our domestic market, so how can we export? ... We can't speak good English and the exporting laws are too complicated and difficult for us to understand. But if we could, it would be great! (Saeeng).

Updating or introducing technology or new machinery is not possible, because of limited finances. Saeeng said: *If we had money, we could do many things, such as change our machines, introduce new machines for rice milk products ... We could also advertise to convince others to farm organic rice.*

The cooperative has not introduced technology for communication purposes, such as the internet and mobile phone because of the associated high costs.

In conclusion, the main drivers of growth are the unique nature of their organic product, the business perspective of the cooperative, and the cooperatives ability to influence the supply chain. The principal barriers concern the uncertainties associated with government policy, the Thai government's Paddy Pledging Program, limited output capacity and lack of understanding of export markets and regulations, restricted levels of finance to update and purchase new technology and machinery, limited application of information technology, and conflicts associated with management and decision making.

Vignette 5

Ying Yong Rice Mill

Our business produces and sells our own brand of white rice ... When we don't have sufficient orders, we have our rice milling machine for hire by farmers in the area We also have rice farm ... Sometimes, we sell our paddy to other private rice mills, which can generate more revenue than when we process the rice in our own mill. That's why we don't focus on profit from our rice mill (Guat).

Company Demographics

Type of Business: First Generation Small Family Business

Founded: 2011

Description of Business: Rice farming, milling, and selling their own brand of white rice in their brand

Location: Sang Kha, Surin

Gender of Owner: Male

Machine Capacity: 15 HP

Capitalization: US\$ 2,600

Number of Employees: 2

Input Capacity: 800 kg/day

The Ying Yong Rice Mill was founded by two brothers, Piaan and Guat in 2011 with a capitalization US\$ 2,600. The brothers own a rice farm, rice mill, and a brand of rice. Piaan works in the rice farm, delivery of rice products, and as well as being responsible for checking the quality of the raw material. Guat also works on the rice farm and in the rice mill. Company has a 15 horsepower rice mailing machine, and a small electronic rice packaging machine.

About 20% of the rice milling operation is set aside for hire by village farmers. Approximately 80% of the milled rice is sold under the company's brand. Rice products are packaged in 2kg and 5 kg bags, and sold in markets, groceries, and community retail stores in the Sang Kha area. Input capacity is at approximately 800 kg/day.

Drivers of Growth

A major goal of the Ying Yong Rice Mill is to improve customer satisfaction levels in order to build customer loyalty. Maintaining relationships with customers has helped to boost the business' cashflow. Their loyal customers have been good for business over the medium-to-long term. Customers have been prepared to not pay more. Customers are also recommended the rice mill to others potential customers.

We got new customers from word-of-mouth and recommendations from existing customers. As a result have increased profitability ... It is better than any advertising campaign (Guat).

Piann has plans to develop a new brand for their rice products. According to Guat, his brother has put a lot of effort into making their brand happen: *Branding is as important for small businesses as it is for big companies.* Although their brand is not big name, people living in the Sang Kha area, know the products from this rice mill.

As a small business owner, Guat is aware that the company has not always prioritized and kept up with the latest technology. He stated:

We have a business to build, cashflow to manage, and make customers happy all at the same time. It means we don't have time to be aware of the hottest technology trends. We still are able to produce the quality product with the technology that we have ... It is suitable with our business.

It is fast to do business and contact customers using mobile technology. Mobile technology also gives business owners the ability to reach out. Smart mobile apps are either free or cost very little when compared with most software.

Barriers to Growth

The Ying Yong Rice Mill has never done a financial statement. Both, Piaan and Guat, spend all of the revenue generated from operating activities without using any records. It is unclear what the financial health of the company is.

Life-style businesses are business created to match with owners' way of life rather than focusing on financial gain. Both brothers do not seem to be focused completely on making high levels of financial gain. Their interests appear to lie in creating a business that supports their lifestyle and goals. Guat said:

It is good to have time or freedom to operate this rice mill ... We can also pursue our hobbies or fascinated areas of interest ... But we still have some problems created by this type of business, such as, limited money, difficulties recruiting good employees, and only a small chance of making large gains.

Training programs provide the opportunity to expand the knowledge base for entrepreneurs and employees.

We've never attended any training programs. ... We receive invitation letters to attend training program ... It not only waste our time but it also wastes our money ... Training costs are too expensive, and I'm not sure whether the knowledge gained makes the cost and time a worthwhile investment ... We have run our business for more than 3 years without training, our business is still good (Guat).

In conclusion, the drivers of growth are having loyalty customers, having brand and also using suitable technology. Notwithstanding, the barriers include no financial record keeping, having a life-style business which concentrates on freedom to pursue non-business activities, and devaluing any benefits that training and education has to offer.

5.6 Cross Case Analysis and Discussion

This cross case analysis (Table 5.1) presents the qualitative findings in relation to those factors identified as influencing or posing as barriers to the growth of the Thai rice milling industry. The six principal factors recognized are: institutional factors, organization factors, technology and innovation, supply chain, market oriented, and personal and family factors. Implication and limitation are also discussed.

Institutional Factors

Institutional factors include government, bank, and standard product policies. The Thai Government policy is a sensitive topic. For this reason all case study, participants were neither eager to talk about nor prepare to provide detailed information. Relevant Thai Government policies involve the Farm Income Guarantee introduced by P.M. Abhisit Vejjajiva in 2008, the Paddy Pledging Program introduced by P.M. Yingluck Shinawatra in 2011, the Cooperative Policy, and the Government Financial Support Policy.

Successive changes in the Thai governments over relatively short periods of time have posed another problem for rice mills because each time the government changed, so did the policies to meet the needs and direction of the extent political party in power or government. Moreover, uncertainty associated with changing government policies not only impact on small rice mills and new businesses, but also most other enterprises no matter whether they are family or non-family rice mills, cooperatives, large- or medium-sized, or life-style rice mills (the Wankam Rice Mill).

It was noteworthy that no case study participant referred to the Farm Income Guarantee possibly because this policy was implemented only for the short-term and most rice millers did not expect this policy to be reintroduced because of its unpopularity. Farmers discussed the Paddy Pledging Program, in term of its benefit, helping farmers to sell their paddy. But for rice millers, the program culminated in higher costs for rice. For example, the Hua Song Tai Rice Mill and Trading Company was forced to compete with the government, even when global rice prices fell or there were exchange rate fluctuates, millers were forced to buy paddy at a high price in line with the government pledge. This policy led to reduced profit margins and issues relating to customer trust and retention. However, for some rice mills, this policy had no observable affect. For

example, the Somboon Rice Mill has strong relationships with rice exporters. This company was able to negotiate the price and quantity of rice to be shipped on a regular basis. Moreover, the production capacity of their mill is relatively small compared to larger mills. Consequently, farmers had the option of selling their paddy without having to go through the demands associated with the pledging policy.

No mill made mention of the Financial Support Policy. However, the Organic Rice Cooperative received start-up funding from the government as part of its policy to support the establishment of cooperatives and purchase of machinery. Despite attempts to secure more funds, the cooperative reported being unsuccessful.

The Wankam Rice Mill and the Organic Rice Cooperative reported being able to take advantage of the Financial Support Policy provided by commercial banks. Large- and medium-sized businesses are able to raise funds from commercial banks using appropriate security and collateral as a guarantee for the repayment of loans. In contrast, small-sized businesses, like the Wankam Rice Mill, reported finding it difficult to source this type of financial support to improve and update their business in order to compete more effectively with other mills in the region. These rice mills rely predominately on family and friends for funding for growth.

Commercial banks seem not to have informed or outlined clear criteria for securing loans by customers, increasing a sense of hesitation and uncertainty when contemplating taking out a loan transaction. An Organic Rice Cooperative member stated that he had difficulties understanding the interest rate loan process. He believed that if he had to borrow money from a commercial bank that he would be forced to borrow at a high interest rate even though the interest rate for agricultural investment loans are lower than the general loan category.

The Organic Product Policy is another important policy that sets a standard for products. This policy directly affects the Organic Rice Cooperative, and is aimed at building public confidence in organic products such as organic rice. The policy sets out the guidelines, rules, and regulations such as the non-use of chemicals or fertilizer, land quality, production, and yield.

In conclusion, it was hard to gain an in-depth appreciation of their views regarding institution or government policies because of the sensitivity of the topic area. For

example, one rice millers asked for the tape recording to be turned off. Another miller asked the interviewer which side of government she supported, and finally it is possible that millers did not practice or implement what they said at interview.

Organizational Factors

Organizational culture in family businesses is different to that in non-family enterprises and cooperatives because of the involvement of family members in the management and ownership of the organization. Family values and ethos plays a significant part as seen in the Wankam Rice Mill, the Hua Song Tai Rice Mill and Trading Company, and the Somboon Rice Mill. For example, in the Wankam Rice Mill, it is the father who is the key decision maker, children are expected to follow. Patriarchy is another feature, only men work in management positions as is the case in the Hua Song Tai Rice Mill and Trading Company.

In non-family businesses, such as the Chook Wattana Rice Mill, two partners are involved in management positions. All decisions are made jointly. Attention is paid to communication between employees and executives, regular staff/employee meetings are held focusing on the difficulties in their work, understanding and resolving problems, and ways to benefit the company.

In terms of human resource management, hiring employees is another important factor. Companies differ on selection criteria assessments Udom, one of the shareholders of the Somboon Rice mill, thought that experience was more important than education when it comes to working in rice mills. Attitude and appearance was a second priority. The Somboon Rice Mill emphasises the important role in the survival of mills. The Chook Wattana Rice Mill, in contrast, has hired staff without undertaking the necessary background check prior to employment. As an outcome, the company performed poorly and proved to be an important lesson for the company.

Two rice mills, the Somboon Rice Mill and the Chook Wattana Rice Mill, highlighted cash flow issues. Both of these companies overestimated revenue and profit, impacting significantly on the companies. Both of these owners were relatively inexperienced, unlike, the Wankam Rice Mill and the Hua Song Tai Rice Mill and Trading Company that had founding generation members still working in the business and who played an important role in decision making.

Conflict between partners, cooperative members, and family members is another consideration. As a case in point, the two partners of the Chook Wattana Rice Mill have different life experiences. Udom, for example, is only primary school educated but has worked in the field of agriculture for a relatively long time. He emphasised that experience is more important than education. His partner, Praewpan, graduated from university, and has work experience in large companies. For her, education is critical for business success and performance.

The Organic Rice Cooperative elects 11 committee members to represent the cooperative for two terms. The Cooperative resolves conflict through democratic procedures and processes. The cooperative brings with it a number of benefits, including being able to sell their products without a middleman, training and skill development for collective action, and a strengthened political capacity. These benefits would not be possible for sole owners.

The location of rice mills is yet a further factor influencing performance. For example, the Wankam Rice Mill is not only situated in a prime location but it also has a strong cultural influence. The rice mill is in Wankam's hometown, helping the owners to promote business relationships that speak the same Thai dialect. Farms located in areas that have good drainage and irrigation infrastructure also produce quality rice for milling.

In conclusion, the type of business (family versus non-family versus cooperatives), HRM practices, experience, education level, understanding of cash flow and profit and loss statements, dealing with intrafirm conflict, and location of rice mills and rice suppliers can be regarded as important determinants of performance.

Technological Capabilities

A cross-case analysis of the technological and innovation issues reveals that compared with their smaller counterparts and cooperatives, large rice mills adopt new and innovative technologies to their advantage. For example, the Hua Song Tai Rice Mill and Trading Company have dedicated personnel who are trained in IT, the company utilizes these technologies to enhance customer satisfaction and increase revenue, as well as to improve rice quality. Undertaking overseas study tours to learn about current

trends and new technologies is regarded as important and forms part of their education and training practice.

It appears that smaller rice mills and cooperatives are not adopters of new technologies because of a lack of financial resources; limited education, training and knowledge; and expressed view of being comfortable with their relatively small market share. Although the Wankam Rice Mill has not adopted new technology and innovation, the owner realises the advantages that new technologies can deliver to the business. However, this mill indicated that they will upgrade their machinery and update their knowledge when they are ready. Moreover, the Somboon Rice Mill, a life-style family business, does not have employees who have the required depth of technological knowledge. It is reasons like these that form a barrier to introducing new or even advanced technologies into their business. Other barriers relate to poor internet reception in regional areas, the high cost of connection, and a preference for using old telephone/land line connections. Perhaps surprisingly, the life-style family business owner reported not taking on new technologies because he was worried about being labelled as a “show-off” by other villagers. Middle-aged owners not only find it difficult to adopt new technologies but also express a preference for using old technologies which are suited to their level of experience and knowledge, and feelings of (in)security. Notwithstanding, adoption of new technologies and innovations requires financial resources and knowledge. In some cases, this knowledge comes from relatives and friends. For example, the Wankam Rice Mill accesses new technologies through a passive family business member employed at a School of Technology. He has introduced new milling machines developed by his students to prototype at their rice mill.

In other cases, introduction of technologies has culminated in improvements or advances in farming, the milling value chain, irrigating techniques, monitoring and cultivating, rice storage, food processing methods, and transport (Suprem et al., 2013). For example, the Hua Song Tai Rice Mill and Trading Company has concentrated on the application of knowledge and technologies used in parboiled rice sector. Moreover, the Chook Wattana Rice Mill, a medium partnership business, introduced new rice milling machines to their business, even though these assets did not have the latest technologies. The equipment, however, suited their business, budget, and clients.

The adoption of information technologies has helped a number of mills to become more marketing oriented, obtain a sustainable competitive advantage, increase revenue and customer satisfaction, advertise, and sell their products and services (e.g., through enhanced communication, accounting, human resource management, customer service, and marketing). For example, technology-based communications have been used in the Organic Rice Cooperative and have enabled this organization to contact international customers. Not surprisingly, the Hua Song Tai Rice Mill and Trading Company adopted information technology and e-business to deal predominately with overseas customers. Application of this technology for domestic market is seemingly absent.

Rice Mill Supply Chain

As noted in Chapter 3, the Thai rice industry supply chain is shown in Figure 5.1. An analysis of the interview material focusing on the supply chain suggest that the size of the rice mill, the growth (non-growth) orientation of the mill, and strategy impact different aspects of the supply chain. Thai rice mills and other segments of the supply chain are rarely supervised by government bodies.

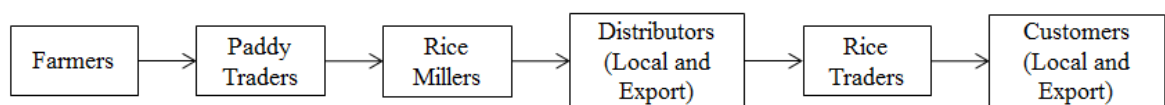


Figure 5.1 Thai rice industry supply chain

For small rice mills and mills that mill rice only for relatives and friends (e.g., the Wankam Rice Mill) are not concerned by the quantity of rice they process. Their rice milling machines are of low-capacity, and paddy yields are sufficient to support only their need, but inadequate to support their own brand. It is usual for these small rice mills to hire their mills to nearby villagers generating further revenue and helping to avoid storage of paddy and rice.

Medium- and large-sized rice mills (e.g., the Hua Song Tai Rice Mill and Trading Company; Somboon Rice Mill; and Chook Wattana Rice Mill) are reliant on purchasing paddy from farmers who meet quality standards. The Hua Song Tai Rice

Mill and Trading Company, for example, purchases paddy from farmers, produces parboiled rice, packages in the company's brand, then delivers to customers. Similarly, as identified in the strategic plans of the fourth generation Hua Song Tai family business, Saranpop plans to supervise the paddy production of the downstream rice supply chain of registered farmers. Saranpop's idea is to provide seeds and high level training in rice cultivation. In contrast, the Somboon Rice Mill and Chook Wattana Rice Mill, hold no plans to influence rice farming standard because of the inherent complications, and these two companies do not have their own brands. These two companies take the position that selling their milled rice to exporters is more stable than selling rice directly to customers, despite the relatively low level of profit.

Organic rice mills ensure quality controls throughout the supply chain. As a case in point, the Organic Rice Mill, control members' rice production throughout the entire process in order to meet the rules and regulations of the Organic Product Policy.

In conclusion, the majority of rice mills are small and are involved in only a small segment of the supply chain because of the lack of personnel and financial reasons. Medium-to-large mills as well as those companies that specialize in particular areas, such as organic rice, tend to exert an influence on a large segment of the supply chain. These rice mills have the capacity, resources, and strategic plans to target different parts of the supply chain.

Market Orientation

As noted, there are more than 38,000 rice mills spread throughout Thailand, most of which are small. In the rice production industry, besides rice mills, there is also a range of intermediary companies that form the supply chain. Given the number of companies, competition for market share is intense for small and large rice mills. A number of factors come into play when dealing with this competition. The Wankam Rice Mill is a small business but lack of funds and knowledge of the market hinders their ability to compete with other mills and middle traders. For the Hua Song Tai Rice Mill and Trading Company competition for market share extends to and from other countries, such as Vietnam, India, and Pakistan. Competition amongst producers of parboiled rice is predominately domestic based.

As highlighted earlier, the Thai government can be regarded as another important competitor because of its ability to purchase and guarantee a high price for paddy from farmers. This government intervention not only contributed to price increases but also led to an increase in rice production. In contrast, competition for organic rice production is less intense and demand is high such that supply is not sufficient to meet the needs of customers.

Brand recognition is regarded as an important market consideration. Branding of rice products can decrease reliance on the so-called middleman. Most if not all large companies, such as the Hua Song Tai Rice Mill and Trading Company, and the Organic Rice Cooperative, have their own brand making it easier to comply with Thai legal requirements, and to deal with retail customers.

Increasing market share is difficult for small-sized mills also because of their reliance on old technology and machinery, and limited financial resources. The Wankam Rice Mill has no marketing plans and their mill is regarded as not producing quality rice. Not being customer or market oriented is another factor. Communicating with and obtaining feedback from customers is not given any priority. The Somboon Rice Mill indicated not being interested in locating or attracting new customers because the company is already functioning at capacity.

In terms of strategy, large mills are oriented to increasing their market share and sales. The Hua Song Tai Rice Mill and Trading Company targets market both domestically and internationally. However, the Thai parboiled rice market unpopularity is yet to be developed fully domestically owing to its market share and sales. The Organic Rice Cooperative is not planning to increase market share because of the short-supply of organic rice. On the positive side, the health benefits of organic rice are well advertised on television, radio, and other media.

Small rice mills like the Wankam Rice Mill seem to have no set plans or strategies, functioning virtually on a day-by-day basis. Similarly, lifestyle businesses, like the Somboon Rice Mill, have no plans and are unsure for how long they will remain in business. For this type of enterprise, success is based on generating revenue to meet family needs; in contrast to medium- and large-sized rice milling companies that formulate short- and long-term business strategies to foster business growth.

Personal and Family Factors

Personal and family factors involve education and training, family culture and conflict, experience, motivations, and individual characteristics. As expected, businesses realize the importance of education and training, but not everyone has such opportunities. Most of agricultural workers, including owners/managers in Thailand have not completed secondary school because of the need to work to meet survival needs. Other reasons raised include a lack of financial resources (e.g., the Wankam Rice Mill, the Somboon Rice Mill, the Organic Rice Cooperative), being a sole-owner or business (e.g., the Wankam Rice Mill, the Somboon Rice Mill), and belief that experience outweighs education (e.g., the Chook Wattana Rice Mill). Notwithstanding, large-sized businesses, such as the Hua Song Tai Rice Mill and Trading Company, place a priority on education because of the perceived benefits.

Primogeniture plays a central role in the Thai family rice milling culture, as evidenced in the Wankam Rice Mill, and seen in the Chinese-Thai business culture, such as the Hua Song Tai Rice Mill and Trading Company. This business was not succeeded to female members because when a female marries, they change their family name and their businesses no longer belong to them or their family of origin.

As evidenced in the family businesses, there appears to be a lack of role clarity (e.g., the Wankam Rice Mill), unequal ownership (e.g., the Hua Song Tai Rice Mill and Trading Company), gender bias (e.g., the Hua Song Tai Rice Mill and Trading Company), failure to resolve business conflicts (e.g., the Wankam Rice Mill), lack of confidence in the father's attitude (e.g., the Wankam Rice Mill), disrespect of family leadership (e.g., the Hua Song Tai Rice Mill and Trading Company), and unsatisfactory work-life-family balance (e.g., Somboon Rice Mill).

In both family and non-family businesses, including cooperatives, previous work experience was considered to be one of the most important personal factors. This experience relates to knowledge of the agricultural environment, rice farming and milling, range of rice products, use of technology, and markets. Employees who have had previous work experience can have a positive impact on the rice milling businesses.

Other than the life style oriented firms, family businesses displayed a level of passion and vision to grow their businesses. For example, the Hua Song Tai Rice Mill and

Trading Company is learning-oriented seeking to gain more knowledge (e.g., technology, management) and focus on generating incremental growth in revenue and profit. Sustainability into the long-term through succession is another factor. Rice millers expressed a strong wish to pass their business into their eldest male child.

To sum up, the personal and family factors of entrepreneurs play an important role in affecting business growth. Life experience, education, training, family business culture can be regarded as important endowments that define family and business systems, and business assumptions and values (Fletcher, Melin, & Gimeno, 2012).

Table 5.3 Cross Case Analysis

Issue	Wankam Rice Mill	Hua Song Tai Rice Mill and Trading Company	Somboon Rice Mill	Chook Wattana Rice Mill	Organic Rice Cooperative
	Case 1 Small Family Business	Case 2 Large Family Business	Case 3 Life-Style family Business	Case 4 Medium Partnership Business	Case 5 Cooperative
Institutional Factors					
Government Policy	✘	✘	-	✘	✓
Bank Policy	-	✓	✘	✘	-
Organic Product Policy	-	-	-	-	✓, ✘
Organization Factors					
Organization Culture	-	✓	-	✓	✓
HRM	-	✓	-	✘	-
Cooperative	-	-	-	-	✓
Partnership Conflict	-	✓	-	✓, ✘	✓
Technology and Innovation	✘	✓	✘	✘	✓
Supply Chain	✓	✘	✘	✘	✓
Market Orientation					
Competitors	✘	✘	✘	✘	✓
Business Strategies	✓	✓	✘	✓	✓
Having Brand	✘	✓	✘	✘	✓, ✘
Unique of Product	✘	✓	✘	✘	✓
Personal and Family Factors					
Education	✘	✓	✘	✘	✘
Family Culture	✘	✘	✓	-	-
Family Conflict	✘	✘	✓	-	-
Experience	✓	✓	✓	✓	✘

Note. "✘" = Denotes Barriers
 "✓" = Denotes Enablers
 "-" = Denotes Not Applicable

5.7 Limitations

Study 2 involves two main limitations: Acquiescence or social desirability response, and possible issues concerning the generalizability of finding (i.e., threats to external validity). First, in relation to social desirability, it is possible that the Thai rice millers provided the present investigation with responses that portrayed their mills in a good light or what they believed this researcher might have wanted to hear or be interested in. To minimize this issue, researcher asked the same question several times with different situation to assurance their answers.

Second, a relatively small random sample of 33 rice mills. Despite this size, information obtained appeared to reach a point of saturation as following the analysis of data of the cases no new information emerged.

Chapter 6

Conclusion

Overview

This thesis maps the characteristics (Study 1); and identifies the enablers and barriers to growth (Study 2) of the Thai rice milling industry. The current chapter conflates the findings of these two studies; highlighting their significance and contributions to research, practice, and policy.

This thesis involves two inter-related studies. Study 1 aimed to map the characteristics of the Thai rice milling industry. The aim of Study 2 was to identify the enablers and barriers to growth in the Thai rice milling industry. Each of these investigations employed methodologies that not only complemented each other but derived data from different sources, and culminated in an in-depth understanding of the Thai rice milling. Taken together, a confluence of the finding emanating from these two investigations identifies five key elements that affect this industry in no small way. As discussed below, these elements include: Rice milling activities, regional location of mills, size of business, type of business, and government policy.

Rice Milling Activities

In recent years, the Thai rice industry has dropped in ranking from Number 1 in the world to Number 3, in terms of volume and quality (Amir, 2014). This industry needs to enhance its international comparative advantage in the light of the increasing global competition from other emerging economies such as India and Vietnam.

Despite being one of the largest rice producing countries in the world, the predominant activity is milling to the virtual exclusion of other value-added activities such as removing husks, roasting, polishing, packaging, processing, and other activities. It is troubling that only 13.3% of Thai rice mills remove husks. Moreover, only 0.6% of mills roast, 0.1% polish, 0.1% package, and 0.4% undertake other activities.

Surprisingly, small number of Thai rice mills process rice. These statistics beg the question: *What are the major barriers to rice processing?* Less than 15% of rice mills demonstrate diversity in their rice processing activity. Clearly, the Thai rice industry, which generates most of the nation's GDP, is not functioning at full capacity. There are opportunities for the processing and development of a wide range of rice products that can be sold nationally and internationally.

Processing rice and adding value to milled rice is not only an opportunity to rise through the ranks but also a way of contributing to the Thai economy. Emerging economies appear to have taken this direction as in the case of Japan, the country of which produces germinated brown rice and rice bread along with a broad range of other rice products that are sold commercially throughout the world (Patil & Khan, 2011; Ito & Ishikawa, 2004). These products, as well as others, are sold back to Thailand. Ghana has added value to their rice through the production of rice flour, noodles, biscuits, and porridges (IRRI, 2012); Similarly, Sri Lanka is a major producer of rice bran oil in (Value-added rice products: NCE, 2015). Are these examples of possible solutions for the Thai paddy crisis?

A lack of investment in technology and knowledge are considered to be major obstacles to adding value to products which requires advanced machinery, trained employees, and knowledge *inter alia*. This finding is in line with previous studies (e.g., Shaffril et al., 2009; Samah et al., 2009; Chi, 2008) which show that education, perceptions of the value of technology, and financial support help to foster the introduction of new technology to business. Government and related institutions should encourage rice millers to introduce advanced technologies and innovations to add value in rice products through low interest loans, tax concessions, and educational support programs. Future research could investigate reasons underlying the low value placed on technology and innovation. Notwithstanding, previous investigations (Anderson & Feder, 2007; Foster & Rosenzweig, 1995; 2010) highlight that the type of technology, personal preferences, risk preferences, and access to information and learning can be formidable barriers for rice millers.

Regional Location of Mills

The majority of the Thai rice mills are located in the Northeastern region: only 6.5% are located in the Central region, and 1.6% in the Eastern, 8.9% in the Northern, 1.6% in the Western, and 6.7% in Southern regions. It would be expected that rice mills would be located in productive rice planting areas which have the necessary infrastructure to reduce time and cost (e.g., transporting paddy to mill, and enhance efficiencies inter alia).

Rice is a hydrophilic plant that needs to be cultivated in appropriate areas to ensure production, volume, and enhance quality. It would seem that the Central region of Thailand is the most suitable area to farm rice because it has an adequate irrigation system that enable rice farming several times a year, resulting in high levels of farm productivity compared to other regions. The Northeastern, possibly the largest rice planting region in Thailand, has a conducive environment for cultivated jasmine rice. Given the regional advantages, jasmine rice farmers need to be encouraged and supported by the government that also needs to provide support in relation to rice seed selection and cultivation methods. Therefore, introducing high quality rice seeds to farmers is an important step which the Thai government needs to consider, seriously.

Size of Business (Capitalization of the Business, Machine Capacity, and Number of Employees).

It is surprising that only 3.5% of the Thai rice mills are medium-sized (with between 20 HP to 50 HP machines), with a further 5.4% being large (greater than 50 HP machines). Medium- and large-sized mills package their own brand of rice for export and by pass middlemen. Brand is critical for marketing purposes, helping to differentiate and identify products or services from competitions and helps to maintain and even gain market share.

As noted earlier, the majority (91%) of mills are small and involve sole traders, most of whom own rice farms with less than 20 HP machine capacity. The main purpose of these mills is to produce rice for home consumption and for hire by other farmers. Most do not trade, deal with middlemen, or store paddy or milled rice. Small mill owners usually operate other businesses on the side (e.g., grocery stores, banana farms, poultry farms) to meet their lifestyle. These alternate or complimentary businesses are not

associated with the rice industry and fail to support development and growth of their mills.

More than 34,000 small rice mills are scattered across the country. Most are located in regions where the quality of education and educational opportunities are limited. In contrast, larger rice mills prioritize education, training, technology, and innovation. In regard to this view, Fayolle and Gailly (2015) noted that education and training has a positive impact on entrepreneurial intention both in the short- and long-term. In addition, Chi (2008) stressed that low levels of education and weak perceptions of the value of technology were barriers to the small businesses. These findings raise the question: *Given the low educational levels, what is the best form of education and training to enable rice millers to adopt new technologies and innovations into their businesses?*

Type of Business (Family Businesses, Non-Family Businesses, and Cooperatives)

The majority (76.2%) of Thai rice mills are family businesses most of which are lifestyle oriented. As reported earlier, a high proportion experience difficulties managing family conflict across the generational divide, competition from other rice mills and middle traders, limited financial support, use of old-world technologies, and low level of training and education. These factors contribute to difficulties with succession and sustainability. This finding is reflected by Davis and Harveston (1998), and Ward (2004) who demonstrated that family business succession to second generation is a critical aspect of sustainability and business growth. Thus, helping family businesses to survive for the long-term is a critical consideration for the Thai government and relevant authorities as growth will help these enterprises to become larger companies that can value add to rice milling and export grain, rather than relying on undertaking unrelated side businesses. Studies (Stiglbauer & Weiss, 1999; Kimhi & Nachlieli, 2001) identify farm size, family size, age of owners/managers, and age of the oldest child as other key factors that affect the growth of rice mills. Other important drivers of growth include family culture (Chua et al., 2003) and family experience (Lobley et al., 2002; Wilson et al., 2013).

Surprisingly, there is an extremely small proportion of non-family businesses (1.8%) and cooperatives (0.3%). Rice milling experience, knowledge, firm capabilities, and skill level of partners in non-family business and cooperative are considered to be important drivers of growth. Other important considerations include integration of non-family employees, social, and environmental factors, concerns regarding the future directions of the business, type of strategy, having processes in place to deal with this conflict, and communication between key stakeholders. Although these considerations can help family enterprises to develop a sustainable competitive advantage, so to can shared experiences, skills, and knowledge of members who form cooperatives.

Government Policy

Rice is the main staple food and drives the Thai economy. Thai people are acutely aware of its significance to life, exporting, and Thai culture. The Thai government ensures that rice production is in the forefront of the minds of its population, songs, and slogans. The government also provides limited legal and statutory support to Thai rice producers.

Rice production is the main occupation of Thai people, but producers do not have the same level of job security, tenure, and protection as do government officers, police, doctors, or lawyers. Their bargaining power is weak and they are often exploited by middlemen and to some extent by government agencies or officials. Financial problems are not uncommon, posing significant barriers for development and growth of their businesses. These issues raise the question: *What might be the best government policies for supporting growth of this sector?*

The Thai government's 5-year strategic plan (2011-2015) focuses on exporting quality rice to increase value, rather than volume (National Economic and Social Development Plan No.11, 2010). In recent times, the Thai government has been promulgating cooperation between ASEAN countries with the objective of making Thailand the rice trading centre of the region (National Economic and Social Development Plan No.11, 2010). Despite the strategic plan, it seems that Thailand's present situation is no different from the past. Many rice producers are not able to rely on their rice farms and mills alone. Many families seek other occupations, which later appear to become the family's main source of income. Consequently, a number of rice farm areas have been abandoned or used for real-estate developments.

Today, the Thai government needs to develop integrated solutions, which involve planning and developing the rice industry sector, in terms of trade, legal and fiscal support, and living conditions of rice producers. These strategies need to clearly articulate the role of government and be long-term in nature. Food security and exporting are other considerations.

In recent years, the Thai government introduced the Paddy Pledging Program and the Farm Income Guarantee to fix rice prices. There has been little, if any, robust research on the effectiveness and outcome of these programs on volume, quality, and growth. The Thai government needs to consider supporting such research, focusing on identifying new markets, ways to develop the rice industry sector, and how to increase rice quality.

Laws concerning exporting of rice are complicated and complex, discouraging farmers and cooperatives from participating. As a result, rice producers choose to store their milled rice or sell to rice exporters. Consequently, the Thai government needs to explore ways of reducing stockpiles of rice, increase the Thai global export rice market, while at the same time helping farmers to grow their businesses.

In conclusion, this thesis is possibly the first to investigate the drivers and barriers to growth of the Thai rice milling industry. Findings demonstrate that regional location of rice mills, size of business, type of business (e.g., family business), rice mill activity (e.g., roasting), and government/institutional factors pose as formidable considerations. Limited investment in education, technology, and modern machinery are barriers to growth.

On the one hand, while the more than 34,000 small rice mills help to generate income and employment, on the other hand this vast number of small millers fragments the industry. The establishment and amalgamation of these small mills into cooperatives is considered to be one option for helping this industry to grow and remain sustainable in the long term.

Family rice mills predominate. Family experience and culture provide real benefits. But, despite being one of the largest milled-rice producers in the world, adding value to milled rice is virtually non-existent. In spite of well-meaning intentions, government intervention appears to have failed to support the development and growth of Thai rice

mills. It is now time that interventions should focus on helping to build capabilities through training, education, technology, and innovation to enable this industry to regain a sustainable competitive advantage and move up the global rankings in this sector.

In conclusion, there appears to be many opportunities for future research in this area. Findings of this thesis suggest a number of research questions for future consideration including reasons why rice-milling firms have the proclivity to remain small; what are the underlying factors preventing rice millers from developing technological capabilities and introducing new technologies and innovation into their businesses; what capabilities will assist rice millers to realize and capture the importance of technology and innovation from a growth perspective; and what might be the best type of government policies to ensure the long-term sustainability of this sector, such as those that foster value-adding to rice production and manufacturing. It is clear that in general Thai rice millers require increased training and higher levels of education, that there are opportunities for the adoption of new technology and innovation, leading to the development of a diverse product range and refinement of marketing techniques, and that there is a pressing need for the introduction of high quality rice seeds.

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