



SCHOOL OF
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Master Thesis

Challenges Rice-Farmer Entrepreneurs Face in
Agricultural Entrepreneurial Ecosystem,
in Northeast Thailand



by

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Abstract

Thailand's reign as the world's top rice exporter for three decades has come to an end since 2011, as the country experienced a decline in market share without recovery. Despite this, empirical studies on the rice agricultural entrepreneurial ecosystem in developing nations, especially in Thailand, remain scarce. Our research examines the interconnection between challenges faced by key elements within the entrepreneurial ecosystem and their impact on overall performance. Through semi-structured interviews with six teams of rice-farmer entrepreneurs, complemented by an interview with a government officer from Thailand's Rice Research Center in Sakon Nakhon, and analysis of publicly available online information, we employed the Gioia Research Methodology to identify common themes and aggregate dimensions using first- and second-order categorization. Our findings and analysis shed light on the interconnected nature of challenges within the current rice-farmer entrepreneurial ecosystem and their influence on Thailand's rice industry performance. Furthermore, we present anticipated outcomes resulting from addressing these challenges, along with proposed avenues for further research and actions to invigorate the Thai rice industry and regain its global market-leading position.

Keywords: entrepreneurship, entrepreneurial ecosystem, entrepreneurial activities, agricultural entrepreneurial ecosystem, entrepreneur, rice-farmer entrepreneur.

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1. INTRODUCTION

There is a growing interest in understanding entrepreneurship within its specific context (Zahra, 2007). The range of opportunities, activities, and outcomes in entrepreneurship is influenced by the surrounding context (Stam, 2016; Welter & Gartner, 2016). While entrepreneurship fuels economic growth, the success of entrepreneurs depends on their environment (Hwang, 2019). Although the context has been critically studied in various research, certain important contexts, such as the sector, have received limited attention (Fitz-Koch, Nordqvist, Carter, & Hunter, 2017). While empirical studies include a control variable for industry or sector, they rarely embrace the sector as the primary contextual feature in entrepreneurship studies (Shane, 2007).

Given the research gap in contextualized understanding of entrepreneurship and the limited focus on sector-specific variables, this study aims to focus on a particular sector—the agriculture sector. The goal is to address the challenges in an interconnected manner and contribute to a better understanding of entrepreneurship within this relevant sector.

Agriculture, one of the world's largest sectors, employs over one billion people and contributes to three percent of global GDP, as reported by FAO (2016). However, according to Olabisi (n.d.), agriculture faces numerous challenges in today's world, including globalization, market liberalization, demographic changes, climate change, fluctuating production and consumption patterns, natural resource depletion, rapid urbanization, and food price crises. These challenges have directly and indirectly impacted markets, creating both opportunities and risks for farmers, especially smallholders. Björklund and Johansson (2020) also highlight the criticism faced by agricultural advisors for their inability to adequately support agricultural entrepreneurs in the ongoing industry transformation.

In Thailand, the agriculture sector plays a crucial role in the country's economy, employing approximately 30% of the labor force (Digital Economy Promotion Agency, n.d.). Despite its significance, the agriculture sector contributes only six percent to Thailand's GDP, as reported by the International Trade Administration (2022). This highlights the disparity between the sector's employment rate and its economic output.

With the importance of the agriculture sector in Thailand, it is essential to explore the entrepreneurial ecosystem within this industry. Such exploration can benefit various stakeholders, including government policymakers, farmers, and the overall economy. By

analyzing the challenges and their impact on farmers' performance as entrepreneurs, a better understanding can be gained, leading to informed decision-making and potential improvements in the sector.

Rice holds a prominent position in Thai culture, being a staple food that has been consumed for centuries and remains popular today (Thai Cuisine, 2023). However, despite the daily consumption of rice in Thailand, the quality of life for Thai rice farmers has not seen the expected improvement (Suksawat, 2020). This raises questions about why rice-farmer entrepreneurs in our home country continue to struggle with their rice businesses, despite longstanding government support for the industry. When rice farmers transition to becoming rice farmer entrepreneurs, what factors contribute to their success or hinder the growth of their rice businesses? Exploring the drivers of success and the factors that impact their rice ventures is crucial in understanding the challenges and opportunities faced by these entrepreneurs. By gaining insights into these dynamics, we can identify strategies to support and enhance the growth of rice farming as a business in Thailand.

This research aims to investigate the entrepreneurial phenomena within the agriculture sector in Thailand, specifically focusing on the rice-farming industry in Thailand. The study examines the government's policies, programs, and practices that support the development of rice farmers and promote equitable access to entrepreneurship. By adopting the perspective of rice farmers as entrepreneurs, the research will explore the challenges and factors that these Thai rice-farmer entrepreneurs in northeast Thailand, the largest region for rice cultivation, perceive and encounter within the entrepreneurial ecosystem.

1.1. Theoretical Problematization

Certain important contexts, such as the sector, have received limited attention (Fitz-Koch et al., 2017). According to Shane (2007), sector is rarely embraced as the primary and most relevant contextual feature in entrepreneurship research.

Kansheba and Wald (2020) point out that research on entrepreneurial ecosystems has predominantly focused on technology-based industries in developed countries, resulting in a lack of research on ecosystems in other economically and strategically important sectors. This includes the agricultural sector, which has received less attention in research. There is a need for a better understanding of agricultural entrepreneurship dynamics from an entrepreneurial theory perspective, and further exploration of how

entrepreneurial ecosystems can be fostered within the agricultural industry is proposed (Cheriet, Messeghem, Lagarde, & McElwee, 2020; Kansheba & Wald, 2020; Fitz-Koch et al., 2017).

In recent decades, entrepreneurship in agriculture has gained attention among scholars (Adobor, 2020; Fitz-Koch et al., 2018; Palmås and Lindberg, 2013). Fitz-Koch et al. (2017) emphasize that the agricultural sector's recent vertical integration and rationalization offer a dynamic environment for investigating entrepreneurship theory and practice.

However, research on agricultural entrepreneurship remains relatively limited. Recent systematic literature reviews (Dias et al., 2019a; Fitz-Koch et al., 2018) indicate that the agricultural sector has received less attention compared to other sectors, despite a recent increase in research on agricultural entrepreneurship (Dias et al., 2019)

1.2. Practical Problematization

Kahan (2012) presents two key aspects of entrepreneurship in agriculture. Firstly, there are the managerial skills required to establish and operate a profitable farm business, which can be taught. Secondly, there is the entrepreneurial spirit, which cannot be taught but is essential for success.

The challenges faced by farmer entrepreneurs in Thailand's agricultural ecosystem are multifaceted, as revealed by previous studies on Community Enterprises. Management-related issues emerge as the most critical factors, including insufficient experience in organizational management, high production costs, limited working capital, weak information systems, subpar product design, and a lack of entrepreneurial knowledge and skills (Khodphue & Sreshthaputra, 2008; Sakolnakorn & Naipinit, 2013; Purateera, Khmanarong, Phanarata & Khamanarong, 2009). Petcho et al. (2019) also highlight challenges such as limited access to credit services, inadequate infrastructure, dispersion of smallholders, high transaction costs for accessing input and output markets, technical limitations, and evolving consumer preferences.

Farmers in Thailand are facing challenges with rising production costs, resulting in increased investment costs and limited productivity improvements (Prachachat, 2022). Moreover, although Thai rice has a reputation for its exotic image, the yield rates have

stagnated or even declined due to slow research and development efforts aimed at enhancing rice productivity and quality (Sowcharoensuk, 2022).

With the global population projected to reach approximately 10 billion by 2050, there is a need to increase food production by 56 percent to meet the growing demand (World Resource Institute, World Bank, and United Nations, 2019). As a rice-producing country, Thailand has significant export opportunities. However, Thailand is struggling to leverage this opportunity, as its competitors are gaining strength with lower investment costs and better technologies (Poapongsakorn & Buranakij, 2022).

The farming sector in Thailand is further exacerbated by global warming and weather fluctuations, as highlighted by the World Bank (2022). The absence of adequate technology and innovation to adapt farming practices to these changing conditions poses challenges for Thai farmers. The current farming methods also do not sufficiently consider sustainability and the impacts of climate change, necessitating a significant shift for Thai farmer entrepreneurs to quickly and sustainably adjust their practices (Poapongsakorn & Buranakij, 2022).

Another significant issue in the agricultural sector in Thailand is the decline in the workforce, as the country is experiencing an aging population, with an average age of over 50 years (Phongsiri, Rigg, Salamanca, & Sripun, 2017). Simultaneously, the younger generation tends to prefer a more comfortable lifestyle that is not fulfilled by farming. They are less inclined to pursue a career in agriculture, leading to a labor shortage in the sector. Phakdeewanich (2017) describes that in the coming years, the Thai agricultural sector is likely to face a general labor shortage due to the younger generation's perception that working in this sector will not provide a financially secure future.

The government's support in the agricultural sector primarily revolves around price stabilization and cash subsidies, which can also serve as a means for politicians to gain support during elections. However, these cash subsidies are not sustainable in the long term. They discourage farmers from improving their farming practices to become more competitive and instead perpetuate a reliance on farm chemicals that have significant environmental impacts (Poapongsakorn & Buranakij, 2022)

1.3. Research Aim

The aim of the study is to examine how Thailand's agricultural entrepreneurial ecosystems, specifically in the context of rice-farmer entrepreneurs, can be fostered by exploring the role of key stakeholders and adopting an entrepreneurial perspective. The study investigates how the interdependencies between the challenges faced in the agricultural entrepreneurial ecosystem impact overall performance of rice-farmer entrepreneurs in northeast Thailand.

The research question that guides the study is:

"How do the challenges related to key elements in the agricultural entrepreneurial ecosystem interconnect and affect overall performance of rice-farmer entrepreneurs in northeast Thailand?"

By exploring this research question, the study seeks to gain insights into the interconnectedness of challenges within the rice-farmer entrepreneurial ecosystem and their influence on the overall performance of Thailand's agricultural sector. The findings provide valuable information on how to enhance Thailand's agricultural entrepreneurial ecosystems.

1.4. The Research Context

The study is conducted in the context of Thailand, where the agricultural sector holds significant importance in both social and economic aspects. Thailand possesses abundant natural resources, with approximately 52 percent of the country's land (equivalent to 127 million acres) suitable for agriculture (Statista Research Department, 2023).

Despite the potential of the agricultural sector, Thai farmer entrepreneurs encounter multiple and complex challenges. These challenges include the persistent increase in the cost of investment coupled with low productivity levels (Poapongsakorn & Buranakij, 2022).

Farmer entrepreneurs face a range of challenges that restrict their potential impact (Endeavor Insight, 2021). These challenges include various risks associated with farming, such as the volatility and unpredictability of agricultural markets and product prices, escalating production costs, degradation of soil quality, the impacts of climate change and natural disasters, labor shortages, and an aging farming population (Jansuwan

& Zander, 2021). These obstacles create significant hurdles for farmer entrepreneurs in their efforts to grow and succeed in the sector.

According to the Statista Research Department (2023), rice holds great significance in Thailand's agricultural sector and cultural traditions. It serves as a staple crop for Thai households, a vital cash crop for the country, and plays a pivotal role in the livelihoods of the Thai people (Watcharapongchai, 2019; Petcho, Szabo & Kusakabe, 2019). Out of the total 5.6 million farming-related households in the country, approximately 3.7 million households, accounting for 66%, are involved in rice farming (Kusanthia, 2012). This highlights the dominant presence and importance of rice farming in Thailand's agricultural landscape.

The Northeast region of Thailand, commonly referred to as 'Isan,' has historically been and continues to be the primary area for rice business in the country. According to statistics from the Thai Ministry of Agriculture and Cooperatives (n.d.), approximately 57 percent of the land in Isan is dedicated to rice cultivation (Figure 1). Moreover, there have been discussions and debates regarding the quality of rice production across Thailand, and it has been observed that the rice produced in Isan is highly sought after in terms of quality. This holds true for both domestic and export markets (Phakdeewanich, 2017).

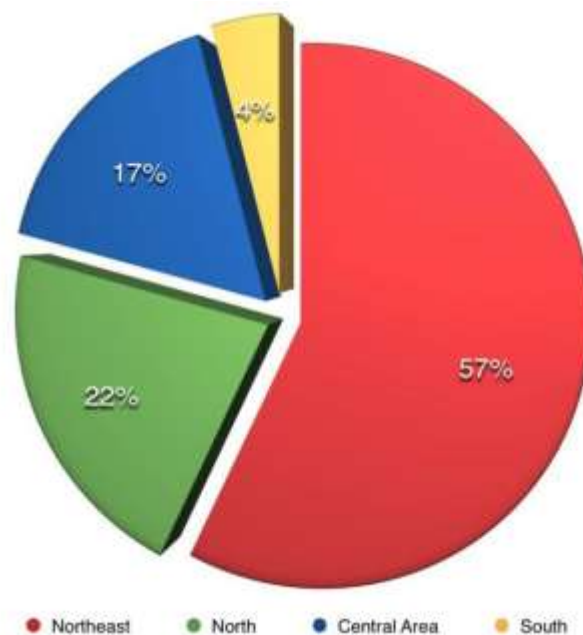


Figure 1 Rice Thailand Cultivation Area in Year 2013/2014
(Rice Department, Ministry of Agriculture and Cooperatives, Thailand, n.d.)

Thailand held the position of the world's top rice exporter for 30 years, but since 2011, other countries, particularly Vietnam, have surpassed Thailand in terms of market share for all types of rice grains (Poapongsakorn & Buranakij, 2022). Despite losing its leading position, the Thai government and farmers remain determined to regain their competitive edge and enhance the quality of rice. This is seen as essential for Thailand's standing in the global rice industry and for improving the livelihoods of farmers (Poapongsakorn & Buranakij, 2022).

Despite the rising export figures and impressive volumes of rice exports from Thailand, it is important to note that Thai rice farmers or rice-farmer entrepreneurs do not necessarily enjoy a comfortable existence or a rising income. While Thailand earns a significant amount of income from rice exports, the high production costs have led to Thai farmers having the lowest incomes among rice producers in the ASEAN region (Arunmas & Chantanusornsiri, 2014). Additionally, Thai rice farmers still struggle to surpass the poverty line, despite rice being one of the country's top exports (Panyayot, 2022).

Indeed, many rice farmers in Thailand are embracing entrepreneurship as a means to increase their income and enhance their quality of life. They are transitioning from traditional farmers who solely focus on cultivating rice and selling it to the mill, to becoming rice-farmer entrepreneurs who adopt a business mindset. By strategizing their farming practices and exploring new opportunities for innovation, these farmers aim to maximize the value of their agricultural endeavors (Panyayot, 2022). This shift towards entrepreneurship allows them to tap into new business prospects and potentially generate higher profits from their rice farming activities.

1.5. Significance of the Study

Rice holds immense cultural significance in Thai society, being more than just a staple food. It is revered as a sacred plant with its own spirit, life, and soul. However, despite the cultural and economic importance of rice in Thailand, rice farming sector is often associated with the low-income population and professions. This is despite the fact that rice cultivation is a major focus of government support and attention (Somkauna & Chumnanmak, 2019). The disparity between the cultural reverence for rice and the

socioeconomic challenges faced by rice farmers highlights the need to address the income and livelihood issues within the agricultural sector.

Rice and its significance to Thai culture has been defined as “for Thai people, rice is not only regarded as a staple food but a sacred plant with a spirit, a life and a soul of its own” (Singanusong & Mingyai, 2019, n.p.).

Even though Thai rice represents a life and a soul, the rice-farmer in Thailand has been viewed as low income occupation which presents poverty group of people in society despite rice is a main crop of Thailand which has been the main focus of the government’s support (Somkauna,& Chumnanmak, 2019).

By identifying the problems and obstacles in this particular sector - rice farmer entrepreneurial ecosystem in Thailand, this will significantly benefit farmers and imply business opportunity for farmers to compete in the increasingly competitive global markets, speeding up research, production and promoting Thai rice with new developed rice varieties (to have high yields able to withstand the changing environment, diseases and rice pests) are necessary to make the country more competitive in the world rice market (Potasuthon, 2020).

This research is motivated by the aim to explore and study challenges in the entrepreneurial ecosystem that rice farmers face in order to analyze the interplay and how the challenges affect their performance.

1.6. Disposition of the Thesis

After the introduction, the subsequent sections typically include the literature review or theoretical framework, research methodology, findings, discussion, and conclusion. In the theoretical framework chapter, the review protocol combines the explanation of theories. This is then followed by the research design in Chapter 3 where the chosen methodology, case selection, and data collection methods are elaborated upon. The results section summarizes the key findings from the literature review and data collection. It is divided into two parts: (1) main lessons from the literature on the farmer entrepreneurial ecosystem, and (2) main lessons from rice-farmer entrepreneurs. The discussion explores the interplay between these issues, examining how challenges in the agricultural entrepreneurial ecosystem impact business performance.

2. THEORETICAL FRAMEWORK

2.1. Definition of Entrepreneurship

There are various studies indicating entrepreneurship as a potential mechanism or strategy for fostering economic development and supporting the social development aspect in terms of reducing unemployment, increasing people's efficiency, resources, and ultimately raising community income (Fatemi Asl, 2020).

Herron and Robinson (1993) define entrepreneurship as the "set of behaviors that initiate and manage the reallocation of economic resources and whose purpose is value creation through those means" (p.286). Entrepreneurship is also referred to as a notion of the converting process - turning an idea or vision into an expansion of an existing or new business or venture by individuals, a group of individuals, or an established company (Olabisi, n.d.). Moreover, according to Hayes (2023), entrepreneurship is also known as the process of setting up a business, which is divided into four types based on its creation, including small business, scalable startup, large company, and social entrepreneurship. He also explains that:

"Entrepreneurship is when an individual who has an idea acts on that idea, usually to disrupt the current market with a new product or service. Entrepreneurship usually starts as a small business, but the long-term vision is much greater, seeking high profits and capturing market share with an innovative new idea" (Hayes, 2023, n.p.).

Regarding Schultz (1975), the main idea of entrepreneurship is about the ability to deal with instability and enlarge the notion to both market activities and non-market activities, including household decisions and time allotment, etc.

There are many studies of entrepreneurship in various entrepreneurial situations, one of which is known as agri-entrepreneurship, which is about entrepreneurship in agriculture. While entrepreneurship refers to the capacity to take on significant risks, manage, and set up a new business enterprise in order to make a profit, agricultural entrepreneurship refers to the manufacturing, distribution, and marketing of various agricultural inputs and products (Singh, 2022). Cheriet, Messeghem, Lagarde & McElwee (2020, p.13) describe agricultural entrepreneurship as "involving the analysis and understanding of the

strategies of agricultural entrepreneurs, particularly in response to the institutional changes and economic and technological disruptions to which the agricultural industry is subject." Olabisi (n.d.) explains entrepreneurship in agriculture as the concept supporting and improving agricultural industries through production and increasing market engagements.

Therefore, as presented in Singh (2022), the idea of agricultural entrepreneurship is initiated to assist individual farmers, groups of farmers, and agricultural industries by enhancing production techniques and boosting market engagements.

2.2. Definition of Entrepreneurial Ecosystem

The concept of entrepreneurial ecosystems has gained considerable attention from scholars, practitioners, and policymakers. However, there are significant conceptual and practical knowledge gaps in this area (Acs et al., 2017; Malecki, 2018). An entrepreneurial ecosystem is a term commonly used to describe the frameworks that illustrate how entrepreneurs and start-ups interact with other actors (Kansheba and Wal, 2020).

If we consider the statement "there is no such thing as an innovation system without entrepreneurs" (Hekkert, Suurs, Negro, Kuhlmann, & Smits, 2007, p. 421) to be true, then it becomes crucial to focus more closely on entrepreneurs (Malecki, 2018). Additionally, like a cluster, an entrepreneurial ecosystem involves several other entities, including large firms, universities, financial firms, and public organizations that support new and growing firms (Brown & Mason, 2017).

Isenberg (2010) referred to an entrepreneurial ecosystem as "a set of interconnected elements such as leadership, culture, capital, markets, human skills, and support that foster entrepreneurial development." Similarly, Stam (2015) defined an entrepreneurial ecosystem as "a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory." An entrepreneurial ecosystem can be defined as a group of actors who collaborate and trade resources within a network while operating within an institutional framework. The key components of this definition are the engagement of actors, individuals, or groups that have the power to affect entrepreneurial behavior, as well as the role that networks play in facilitating information exchange (Rijnsoever, 2020).

Different definitions of entrepreneurial ecosystems have been proposed in recent studies, with many building upon Isenberg's (2010) framework and definition (Audretsch et al., 2019; Mack and Mayer, 2015; Stam, 2015).

Consequently, it can be argued that an entrepreneurial ecosystem is an interconnected system with multiple players at both the micro-level and macro-level. These players include entrepreneurial organizations such as venture capital providers, business angels, and banks, various institutions such as universities and public sector agencies, as well as entrepreneurs at large. They formally or informally connect, mediate, and govern entrepreneurial performance (Philip, 2017; Theodoraki et al., 2018). Furthermore, an interconnected network of participants in a small geographic community dedicated to sustainable development through the encouragement and support of new sustainable businesses can be referred to as an entrepreneurial ecosystem (Bachinga, Kofler, & Pechlaner, 2020).

According to Subrahmanya (2017), entrepreneurship within ecosystems exhibits three stages. In the initial stage (conception), the entrepreneur needs to be exposed to opportunities, primarily market access and resources such as labor, technology, and finance. During the development phase, the entrepreneur further develops the business by testing new ideas and improving existing ones. In the maturity stage, the entrepreneur firmly establishes the business within the ecosystem, creating their own competitive advantages through well-established sources of resources (Galan-Muros, 2016).

Similarly, the entrepreneurial ecosystem in the agricultural sector operates within the context of value chains, which represent the full range of business activities involved in the production of a good or service (Endeavor Insight, 2021). Given the complexity of agriculture, the interdependence of individual processes, and the correlation between a good return and meticulously planned and executed labor stages, it is imperative to maintain interaction among the actors for successful agriculture (Teddell, 2016; de Olde, de Vries, Sparrenboom & Scholten, 2017; Baker, Utter, Warwick & King, 2016).

2.3. Farmer Entrepreneur

Regarding the definitions of "farmer" and "entrepreneurship" presented in the Oxford English Dictionaries as cited by Winter (2018), the term "farmer" is defined as an individual who possesses ownership or managerial responsibilities over a farm. On the other hand, the term "entrepreneur" refers to an individual who establishes one or more businesses, assuming financial risks with the anticipation of making a profit. Winter (2018) further emphasized that:

“If a farmer sets up the farm, he can then be said to be setting up a business. If the farmer has financial risk in this endeavour, through the purchase of the land, investing into property, plants and equipment (e.g. farm sheds, slaughtering houses, and tractors), has financial risk through investing into crops and/or livestock for future sale, then this farmer would be an entrepreneur” (Winter, 2018, n.p.).

In contemporary times, there is a growing desire among individuals to take charge of their own destinies and attain complete professional autonomy. In Thailand, farmers, particularly small-scale farmers, not only strive to provide sustenance for their families but also engage in the sale of a portion of their agricultural yield to local markets, thereby contributing to increased market sales. According to Singh (2022), the manner in which these farmers conduct their farming activities categorizes them as agricultural entrepreneurs, given their capacity to work independently, retain profits from their sales, or alternatively, collaborate with fellow farmers to collectively market their crops and share the resultant profits. Singh (2022) further distinguishes the small-scale farmer from the farmer-entrepreneur, highlighting that the primary divergence lies in their profit-oriented approach. While the majority of farmers worldwide primarily focus on meeting the nutritional needs of their own households, entrepreneurs prioritize profit as their foremost concern (Singh, 2022, n.p.).

According to Kirzner (1985), the entrepreneur assumes the responsibility of facilitating the adjustments required to steer economic markets towards a state of equilibrium. A genuine entrepreneur strives to develop and produce goods or services with the intention of generating profits, while also actively seeking avenues to improve production efficiency and enhance the quality of the output (Sutevski, n.d.). Furthermore, farmers establish collaborative partnerships with various actors within the value chain, including

agents, thereby employing a contractual marketing strategy that, if executed successfully, has the potential to catalyze the emergence of large-scale industries (Singh, 2022).

2.4. Model of Entrepreneurial Ecosystem

Understanding the entrepreneurial ecosystem and its various components, as well as comprehending their roles and interactions, is significant importance. It is crucial to grasp how internal mechanisms are generated within the ecosystem and how they can be effectively engaged or attracted through the establishment of pipelines (Spigel & Harrison, 2018).

Currently, several models of entrepreneurial ecosystems have emerged. For this study, the model proposed by Isenberg (2011) will be employed, which categorizes specific components into six key domains: culture, policies and leadership, finance, human capital, markets, and support. This model offers a fresh and cost-effective approach to fostering economic prosperity.

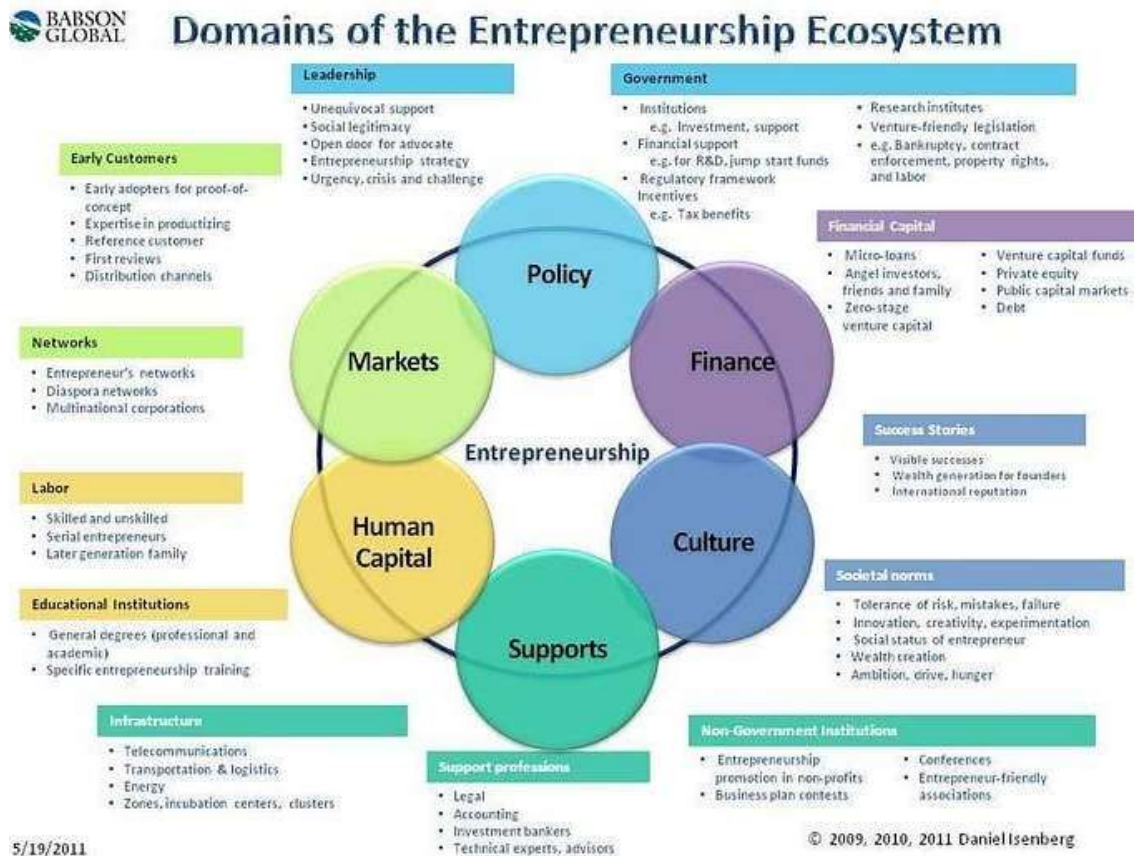


Figure 2 Domains of the Entrepreneurship Ecosystem (Isenberg, 2011)

While the framework of an entrepreneurship ecosystem often encompasses the six key domains mentioned earlier, it is important to recognize that each ecosystem is unique due to the intricate and distinct interplay of numerous elements. These elements interact in complex and idiosyncratic ways, resulting in ecosystem variations.

In our study, we specifically concentrate on the agricultural entrepreneurship ecosystem in Thailand. Our aim is to study how the individual contributions of each key domain within this ecosystem has played its role, and how they can be enhanced to effectively complement one another as well as ultimately fostering sustainable development within the ecosystem as a whole.

2.4.1. Culture

Brownson (2013) defines an entrepreneurial culture as a society that encourages the manifestation of attributes, values, beliefs, and behaviors that foster an entrepreneurial spirit among its members. Furthermore, Bischoff et al. (2018) argue that a robust entrepreneurial culture promotes collaboration among actors within an ecosystem by instilling trust and ensuring a sense of safety among stakeholders.

Corruption and bureaucracy within a society pose hindrances to entrepreneurial development within an ecosystem, primarily due to the erosion of trust and safety (de Bruin et al., 2017).

Additionally, a lack of supportive entrepreneurial culture has been identified as a significant factor impeding the growth of an entrepreneurial ecosystem (Mack and Mayer, 2015).

A supportive entrepreneurial culture is characterized by four distinct features. Firstly, it involves entrepreneurs' willingness to share both success and failure lessons openly (Roundy, 2017; Sambo, 2018). Secondly, it entails an entrepreneur's commitment to controlling internal and external environments through evaluations and research, showcasing adaptability (Subrahmanya, 2017; Tracy et al., 2018). Thirdly, it emphasizes the ability to track results, such as entrepreneurial outcomes and impacts, while rewarding positive behaviors (Volkman, 2018; Yang et al., 2018).

Entrepreneurial culture is not static; rather, it is dynamic and subject to change based on the nature of social interactions between entrepreneurs and other key actors, including those from the private and public sectors, as well as nonprofit organizations with a vested interest in supporting innovative business ideas within an ecosystem (Mack and Mayer, 2015; Malecki, 2018). Successful entrepreneurs serve as role models and exert influence on others, offering valuable information and skills on effectively managing ventures (Acs et al., 2018).

2.4.2. Policies and leadership

According to Mukiza et al. (2020), the presence of well-defined policies to regulate entrepreneurial ecosystems is crucial. A regulatory framework should possess characteristics such as simplicity, clarity, stability, predictability, and most importantly, the ability to adapt and add value as new challenges arise or innovative solutions emerge (European Commission, 2015).

In their conceptual study on the governance of entrepreneurial ecosystems, Colombo and Dagnino (2017) argue for the establishment and promotion of entrepreneurial institutions by the government, including research institutions and platforms for public-private discussions and negotiations related to entrepreneurship.

Kubera (2017) suggests that existing theories in the literature explaining the effects of regulatory policies on economic and social welfare are often a collection of assumptions. It is widely recognized, however, that well-designed regulations can bring about economic, social, and environmental benefits and support market transactions. Conversely, poorly designed regulations can have adverse effects on the market and hinder economic growth. The areas where the influence of regulatory frameworks on entrepreneurial activity is most noticeable include: (a) administrative burdens for entry and growth of entrepreneurs, which involve the time collectively spent on understanding and meeting the requirements imposed by public authorities (e.g., new business registration, tax filings, compliance with regulations); (b) regulations that shape the quality of the manufacturing process through norms and certifications, including environmental

and sanitary regulations; (c) labor market laws; (d) intellectual property regulations; and (e) general contract law.

According to the OECD (2012), one of the tools available to strengthen the ability of public policymakers to ensure that regulations achieve their intended objectives is the use of regulatory impact analysis (RIA). RIA is defined by the OECD as “a systemic approach to critically assessing the positive and negative effects of proposed and existing regulations and non-regulatory alternatives”. Kubera (2017) conducted a study focusing on the context of Poland to explore the potential contribution of regulatory impact analysis in fostering a more effective entrepreneurial ecosystem. The objective was to address the issue of "government failure" by utilizing the tools and insights provided by regulatory impact analysis.

2.4.3. Finance

Finance is widely recognized as a critical element in entrepreneurship and plays a significant role in entrepreneurial development (Frimanslund, Kwiatkowski, & Oklevik, 2022). Access to the entrepreneurial ecosystem, including financial resources, is instrumental in enhancing the overall entrepreneurial experience (Spigel, 2017). Financial access serves as a crucial asset in entrepreneurship, complementing startup formation, innovation, and overall entrepreneurial performance (Cassar, 2004; Cumming & Groh, 2018; Kerr & Nanda, 2015). The provision of financial resources facilitates increased economic activity driven by successful entrepreneurs (Armington & Acs, 2002; Benneworth, 2004; Cross, 1981; Fritsch & Mueller, 2004; Leendertse, Schrijvers, & Stam, 2021). However, it is important to note that early-stage financing, which is considered more complex than corporate financing, still lacks comprehensive knowledge (Nofsinger and Wang, 2011).

2.4.4. Human capital

According to Kenton (2023) and Østergaard & Marinova (2018), the economic value of a worker's experience and skills, which are considered intangible assets or qualities, encompasses education, training, intelligence, skills, health, as well

as attributes valued by employers, such as loyalty and punctuality. This collection of attributes is referred to as human capital, representing the accumulated knowledge, experience, and personal qualities of individuals that contribute to their capacity to work. Human capital plays a significant role in increasing the likelihood of business growth, productivity, and success. Through education and experience, individuals can improve their abilities and skills, resulting in enhanced economic value for the venture (Kenton, 2023).

Senge, Lichtenstein, Kaeufer, Bradbury, and Carroll (2007) highlight the importance of entrepreneurial knowledge and innovation in identifying opportunities for sustainable development and ensuring a more sustainable future. Entrepreneurs and individuals with an entrepreneurial mindset are considered potential drivers of sustainable development (Patzelt & Shepherd, 2011).

This form of capital, human capital, is recognized as one of the key input factors that stimulate economic growth. It embodies the entrepreneurial mindset, which is crucial for entrepreneurial success and the growth and development of ventures (Østergaard & Marinova, 2018).

2.4.5. Markets

Markets serve as the mechanism that enables businesses to access cash generated through buying and selling activities within ventures (Cummings, 2020). Kenton (2021) defines a market “any place where two or more parties can meet to engage in an economic transaction...a market transaction may involve goods, services, information, currency, or any combination of these that pass from one party to another.” In his view, the establishment of products and services is influenced by the market. The rates or prices of these products and services are determined by the interplay of supply, which is created by sellers, and demand, which is generated by buyers. In other words, the market dynamics shape the offerings and pricing in response to the supply and demand forces (Kenton, 2021). Cummings (2020) claims that “Market are critical in price formation, liquidity transformation and allowing firms to service the needs of their clients.”

Bygrave & Zacharakis (n.d.) emphasize that a venture cannot establish itself and grow without a customer market. They describe markets as the places and

positions where products are accepted, and marketing as the process of acquiring and retaining customers. For entrepreneurs, the entire marketing system, encompassing aspects such as product development, pricing, distribution, and communication, is crucial. However, Bygrave & Zacharakis note that entrepreneurs, particularly those in the early stages of startups, may struggle to fully grasp and effectively implement the various elements of the marketing system.

2.4.6. Support

Entrepreneurs require a range of support services to thrive within entrepreneurial ecosystems (Atiase et al., 2018). Nonprofit organizations play a crucial role in facilitating this by helping entrepreneurs build networks and connecting them to these networks (Acs et al., 2017). Moreover, entrepreneurs benefit from promotion services and mentorship to ensure sustainable growth (Apa et al., 2017). The media also plays an important role in facilitating access to information, which is vital for entrepreneurs (Audretsch and Belitski, 2017). In the context of developing sustainable entrepreneurial ecosystems in Cameroon, St-Pierre and Foleu (2015) identified poor access to information as one of the challenges. Isenberg (2010) further highlights the need for venture-oriented professionals such as lawyers, accountants, and business consultants, who possess the technical expertise to support entrepreneurs within the entrepreneurial ecosystem.

In his study, Cohen (2006) uncovered that entrepreneurial tax and legal support are the primary professional services that entrepreneurs frequently seek from professional advisors. This finding aligns with prior studies by Volkmann (2018), Yang et al. (2018), and Yi and Uyarra (2018), which indicate that entrepreneurs typically seek professional advice during the early stages of their ventures.

According to Atiase et al. (2018), entrepreneurs often face challenges during the initial phases of their ventures, including limited financial resources, lack of experience, and a lack of connections with potential partners such as large companies and fund providers. In response to these challenges, Audretsch and Belitski (2017) suggest that incubators can play a crucial role in bridging these

gaps and supporting entrepreneurs in achieving early breakthroughs. Incubators provide valuable support by offering working spaces, meeting venues, technical infrastructures, and advice to entrepreneurs.

Whereas, there is evidence suggesting that factors such as education, regulatory and legal frameworks, and efficient capital markets can have an impact on the level of entrepreneurship in a society, these impacts tend to be long-term and relatively weak. The significant and transformative changes in entrepreneurship that occur periodically are often the result of what statisticians refer to as "high order interactions," which involve the intricate interplay of multiple variables (Isenberg, 2011).

2.5. Outputs of Entrepreneurial Ecosystem

The measurement indicators for the outputs and outcomes of entrepreneurial ecosystems have received limited attention in research (Kansheba and Wald, 2020). Acs et al. (2018) use the term "productive entrepreneurship" to collectively refer to the outputs of entrepreneurial ecosystems. This encompasses various entrepreneurial activities such as innovative start-ups, high-growth start-ups, and entrepreneurial employee activity. These activities are generated within the ecosystem and ultimately contribute to the creation of aggregate value and societal welfare in terms of productivity, income, employment, and well-being (Theodoraki et al., 2018; Stam, 2014; St-Pierre and Foleu, 2015). Therefore, these outputs resulting from entrepreneurial activities serve as clear reflections of the dynamism and vibrancy of the entrepreneurial ecosystem, as well as its capacity to drive economic development and foster innovation.

3. RESEARCH METHODOLOGY

This thesis study aims to provide a comprehensive exploration of how the challenges related to key elements in the agricultural entrepreneurial ecosystem encountered by rice-farmer entrepreneurs in Thailand interconnect and affect their overall performance. To gain an extensive understanding of the challenges within the entrepreneurial ecosystem through the lens of rice-farmer entrepreneurs or as experienced by rice-farmer entrepreneurs, this research study employs a qualitative research method. This method allows for the exploration and analysis of non-numerical data, such as text, video, or audio, in order to gather in-depth insights into the identified problem. By utilizing qualitative research, the study aims to uncover nuanced perspectives and experiences of rice-farmer entrepreneurs, shedding light on the complex dynamics of the entrepreneurial ecosystem (Bhandari, 2020).

We employed an online semi-structured interview approach, consisting of 40 open-ended questions, to investigate the challenges faced by farmer entrepreneurs within the entrepreneurial ecosystem. These questions were designed to cover the six components of the entrepreneurial ecosystem proposed by Isenberg (2011), namely policy, culture, finance, markets, supports, and human capital. In order to gain a comprehensive understanding of these challenges, interviews were conducted with a diverse group of individuals, including farmers and government officers who play a crucial role in supporting the entrepreneurial ecosystem. The interviews took place online via Zoom, spanning seven sessions, with each session lasting approximately 60-90 minutes. The study focused specifically on Thai farmer entrepreneurs and government officers involved in supporting and incubating entrepreneurial activities in Sakon Nakhon, Thailand. Throughout the interviews, extensive notes were taken to capture the participants' responses, and with their consent, the interviews were also recorded in video format. These data collection methods allowed for the gathering of non-numerical data, including text, video, and audio, to obtain in-depth insights into the challenges faced by farmer entrepreneurs within the entrepreneurial ecosystem (Bhandari, 2020).

3.1. Research Design

In this study, the focus area is the northeastern region of Thailand, which is known for its significant rice cultivation. Despite being a major source of income for households in the region, it has also been identified as the poorest region per capita in Thailand (Srisompun, 2020). While various public supports have been implemented to improve

living conditions, the region still faces infrastructure-related challenges. Therefore, the study aims to investigate the challenges faced by rice-farmer entrepreneurs in this specific area.

Given the aim of conducting an in-depth analysis, a qualitative research strategy is considered suitable (Bell, Bryman & Harley, 2019). Since the research question has not been extensively studied before, an exploratory study design is chosen to delve into the topic (George, 2023). The inductive approach is applied, allowing for the generation of generalizable inferences from observations (Bell, Bryman & Harley, 2019).

The primary method employed is semi-structured interviews using an interview guide that aligns with Isenberg's entrepreneurial ecosystem model. However, the interviews are flexible, and questions may deviate from the guide based on important insights provided by the interviewees. This approach enables the interviewees to share their experiences and perspectives, which is a key objective of the study.

In addition to the interviews, participant observation is conducted to gain a better understanding of the overall entrepreneurial ecosystem in the specific context of Thailand and to identify potential causes for the challenges faced by the interviewees.

By combining the collection of empirical data through semi-structured interviews and participant observation, this study aims to gain comprehensive insights into the challenges experienced by rice-farmer entrepreneurs in the northeastern region of Thailand within the entrepreneurial ecosystem.

3.2. Case Selection

In order to explore and understand the impact of challenges on the business growth of Thai rice-farmer entrepreneurs within the entrepreneurial ecosystem, the study selects a sample from the main and largest rice cultivated area in Thailand. The sample consists of six representatives from different rice-farmer entrepreneur teams, who serve as the focus groups for the study.

The research design employed in this study is exploratory in nature, as described by Bell, Bryman & Harley (2019). This design allows for a comparison and contrast of findings across the selected cases, facilitating theoretical reflection on the obtained results. By analyzing the experiences and perspectives of the selected representatives, the study aims

to gain insights into the challenges faced by rice-farmer entrepreneurs and their impact on business growth.

Through this exploratory study, the researcher seeks to deepen the understanding of the complex dynamics between the challenges within the agricultural entrepreneurial ecosystem and the growth of rice-farmer entrepreneurial businesses. The findings from the selected cases will contribute to the existing knowledge in this area and provide valuable insights for policymakers, practitioners, and researchers interested in supporting and promoting the growth of rice-farmer entrepreneurs in Thailand.

The selection of the six teams for this study follows a purposive sampling method, which is a non-probability sampling technique. Unlike random sampling, which provides each individual or rice-farmer an equal chance of being included, purposive sampling focuses on selecting cases that are most relevant to the research question and the objectives of the study (Bell, Bryman & Harley, 2019). Specifically, a critical case sampling approach is employed in this study. Critical case sampling involves selecting cases that are expected to provide rich and meaningful information that is crucial for examining the theoretical framework and addressing the research question effectively. The selected cases are deemed to offer valuable insights and understanding regarding the challenges faced by rice-farmer entrepreneurs in the entrepreneurial ecosystem and their impact on business growth. By utilizing purposive sampling and adopting a critical case sampling approach, this study ensures that the selected cases are representative of the population under investigation and have the potential to shed light on the research question and theoretical framework. The findings derived from these selected cases will contribute to a deeper understanding of the challenges faced by rice-farmer entrepreneurs and their implications for business performance within the specific context of the entrepreneurial ecosystem in Thailand.

The study will specifically target rice-farmer entrepreneurs who are currently facing various challenges that hinder the operation and growth of their rice businesses. The selection criteria for these entrepreneurs will consider factors such as their farming experience, reputation, and level of business growth. By including participants with diverse backgrounds and growth capacities, the study aims to comprehensively address the challenges faced by rice-farmer entrepreneurs and analyze them from different

perspectives. By examining the challenges from various angles, the study can gain a more holistic understanding of the barriers that impact the business operations and performance of rice-farmer entrepreneurs. It allows for a comprehensive analysis that takes into account the unique experiences, capabilities, and growth trajectories of these entrepreneurs. This approach enhances the depth and richness of the research findings, providing valuable insights into the specific challenges faced by rice-farmer entrepreneurs in the agricultural entrepreneurial ecosystem.

Through the inclusion of participants with different levels of business development, the study can explore variations in challenges and identify patterns or commonalities among the participants. This approach facilitates a nuanced analysis of the challenges and enables the identification of potential strategies or solutions that can address the specific needs of different rice-farmer entrepreneurs. Overall, the selection criteria for the participants in this study reflect the aim to capture a diverse range of experiences and perspectives within the rice-farmer entrepreneurial context. By considering farming experience, reputation, and business growth level, the study seeks to provide an insight analysis of the challenges faced by rice-farmer entrepreneurs.

To investigate the challenges faced by Thai rice-farmer entrepreneurs within the agricultural entrepreneurial ecosystem, a total of six teams of farmer entrepreneurs have been selected for interviews. The selection of these teams is based on specific criteria that are relevant to the research question and aim to provide a realistic representation of the challenges experienced by rice-farmer entrepreneurs. The criteria used for selecting the teams are as follows:

- (i) The teams reside and grow their rice in the Northeastern region of Thailand;
- (ii) The teams have consistently received both financial and non-financial support from the public sector as participants in the programs provided by government - Community Rice Center Association (Thailand); and
- (iii) The teams participated in and completed the recent 2023 public project supporting large agricultural land areas in several aspects which is called “Large Field Agricultural Extension System Supporting of 2023” (*“Na-Plang-Yai”*);
- (iv) The teams either achieve or unachieved the expected outcomes under the project, but the teams have been being grown in different ways and levels.

There were a total of 550 teams of farmer entrepreneurs participating in the project in 2023 - this project is under the responsibility of the Bureau of Rice Production Extension, Rice Department, Ministry of Agriculture and Cooperatives of Thailand, totaling more than 35,000 entrepreneurs. The objective of the project is to increase rice cultivation efficiency for the teams of rice-farmer entrepreneurs that participated in the project. This objective includes enhancing the following aspects:

- (i) Lowering production cost,
- (ii) Productivity increase,
- (iii) Quality enhancement,
- (iv) Increase in market exposure, and
- (v) Management efficiency.

The expected outcomes according the project in terms of outputs include:

- (i) Having no less than 130,000 Rais of land as part of the Project;
- (ii) Lowering production cost by not less than 10 percent based on species;
- (iii) Increasing productivity by not less than 10 percent based on species;
- (iv) Increasing the price of produce by not less than 15 percent.

An overview of each participating team and their representatives (mostly are team leader) can be found in the Table 1 below:

Venture's or Team's Name	Participant's Position	Age	Rice-farming experience (Years)	Team Members
1. Pan Dee Chang Ming	Team Chairman	72	37	56
2. Hi Yong	Team Consultant	60	12	113
3. Baan Dong Sawad	Team Chairman	62	25	30
4. Baan Pone Yai Mai Chai Ya	Team Chairman	58	20	115
5. Muang Kam	Team Chairman	52	6	24
6. Huay Yang	Team Chairman	55	22	30

Table 1 List of Participants in the Interview

Furthermore, in order to gain insights from the public sector and obtain data that serves as supporting information for the study, we conducted interviews with a government officer from the Rice Research Center in Sakon Nakhon, Thailand. This individual holds responsibilities related to rice development, communication, and the facilitation of government rice policies. Their role involves providing support to rice farmers in terms of finance, knowledge, and technology adoption.

3.3. Data Collection

In the previous two Sections, an explanation of the research design and the case selection were given. This chapter elaborates on how the data from each selected case is collected.

In this study, empirical data collected through semi-structured interviews is enhanced with secondary data, according to the triangulation approach (Bell, Bryman & Harley, 2019). In addition to the interviews, the study also gathered relevant and analysed data from secondary research and existing publicly available data to support, validate or question the findings.

The application of multiple sources of data allows a broader understanding of the underlying drivers behind the responses of each interviewee (Yin, 2010). The triangulation approach to this thesis was to further enhance quality and validate generated findings (Bell, Bryman & Harley, 2019; Yin, 2010).

The interview guide for this thesis consisted of important concepts to be covered during the interviews, which has broadly followed the model of entrepreneurial ecosystems with six key domains by Isenberg (2011).

The interviewees were introduced to open-ended, general questions to understand the interviewees and their backgrounds better. The interview will avoid leading the interviewees to any particular direction, issue or domain in the model by Isenberg (2011). To address the key points that this study would like to touch upon, the general questions to the interviewees are followed by questions that address each key model in Isenberg (2011), but avoid using the terminology specific to the domain. The English version of the interview guide can be found in Appendix A.

The rice-farmer entrepreneurs from six different teams and their individual team members were introduced to us by government officers in the Rice Department of

Thailand as previous participants in their support initiatives. The interviews lasted in total approximately 60-90 minutes per individual farmer entrepreneur and were conducted through use of Zoom as they were all in Thailand. In order to accurately and properly synthesize data, and avoid misinterpretation of data from the interview, all interviews were conducted in Thai, recorded and transcribed with consent.

3.4. Data Analysis

In this thesis, the strategy of 1st and 2nd order categorization, as discussed by Goia, Corley, and Hamilton (2013), is employed as an overarching approach to analyze and interpret the empirical data. The data collection and analysis processes were conducted concurrently, allowing for the continuous refinement of our interview process. Through this iterative process, theoretical ideas began to emerge as data were collected (Bell, Bryman, & Harley, 2019).

The data analysis commenced with the coding process, whereby the data were systematically broken down into individual components (Bell, Bryman, & Harley, 2019). This initial step aimed to identify pertinent concepts for the purpose of developing theories that could inform the design and validation of constructs (Gioia, Corley, & Hamilton, 2012).

Firstly, to analyze and interpret the transcribed interviews, a thematic analysis approach was employed as outlined by Bell, Bryman, and Harley (2019). This approach is known as the 1st-order analysis. The data analysis began with the coding process, involving a thorough review of the transcripts and interview notes, followed by the identification and labeling of individual components that appeared significant or relevant. During this initial step, relevant categories were derived and assigned appropriate labels (Bell, Bryman, & Harley, 2019). The 1st-order analysis addressed and compiled the challenges faced by rice-farmer entrepreneurs in navigating the entrepreneurial ecosystem, as revealed through the interviews.

The subsequent step, known as the 2nd-order analysis, involves incorporating strategies derived from the '1st and 2nd order analysis' as a second stage in the data analysis process (Goia, Corley, & Hamilton, 2013). Through the 2nd-order analysis, the focus shifts towards theory development, aiming to explore whether the emerging themes provide insights into specific characteristics and explanations pertaining to the phenomena under

investigation (Gioia, Corley, & Hamilton, 2012). In this phase of analysis, the challenges identified in the 1st-order analysis are further organized and categorized according to specific aspects.

Once the complete set of 1st-order terms and 2nd-order themes and aggregate dimensions is obtained, it serves as the foundation for constructing a data structure (Gioia, Corley, & Hamilton, 2012). The identified themes and concepts are then coded to determine if they can contribute to explaining the diagram depicting the key challenges present in the entrepreneurial ecosystem that hinder the success of farmer entrepreneurs. The data structure plays a crucial role in organizing the data into a coherent visual aid, offering a graphical representation of the progression from raw data to terms and themes during the analysis process. This aspect is essential for demonstrating rigor in qualitative research (Pratt, 2008; Tracy, 2010).

The ultimate objective of this study is to develop a theoretical model in the form of a diagram (as shown in Figure 3, the Data Structure) to illustrate the challenges faced by rice-farmer entrepreneurs in the Northeastern region of Thailand within the agricultural entrepreneurial ecosystem and how these challenges affect their performance (Bell, Bryman, & Harley, 2019). It is our hope that this study can provide a general principle that is transferable across different settings.

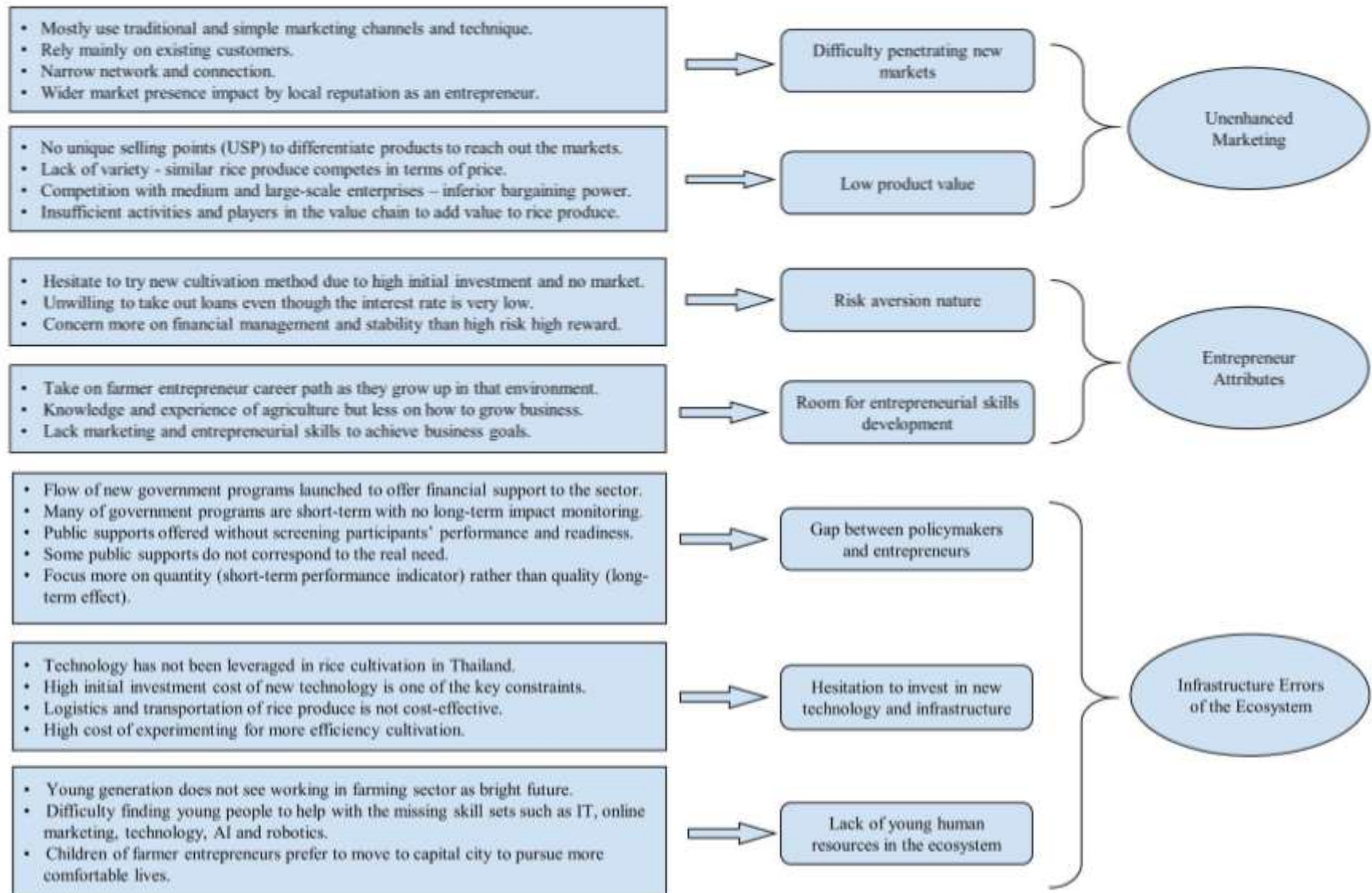


Figure 3 Data Structure

3.5. Limitation

Regarding the research objective, aims to study about the challenges faced by rice-farmer entrepreneurs within the entrepreneurial ecosystem in Northeast Thailand, it is important to acknowledge certain potential limitations that were encountered during the study. These limitations are outlined in Table 2 (Limitations in the Research).

Concern	Cause
Lack of previous studies in the research area.	There are numerous literature sources pertaining to entrepreneurial ecosystems; however, there is a significant dearth of research specifically focusing on contextual aspects, particularly within the realm of agricultural entrepreneurial ecosystems. Consequently, the credibility and scope of this research are constrained by the limited availability of comparable studies on the subject matter.
Limits of self-reported data.	Despite utilizing semi-structured interviews as the data collection approach for this qualitative research, it is important to acknowledge that relying solely on participants' responses carries the inherent risk of assuming their complete truthfulness and openness in providing information. It is rare for such information to be independently verifiable, potentially impacting the accuracy and reliability of the findings.
Equipment	To facilitate the remote data collection process, the use of suitable equipment such as microphones and cameras becomes necessary during interviews. These tools would help ensure clear audio quality and visual clarity, and enabling effective communication.
Language	Both researchers and interview participants, both concerned about language proficiency, face challenges not only with the research language (English) but also with the local Thai language and accent, despite it being their mother tongue. These concerns can impact the study results and the accuracy of interpreting findings from Thai to English.
Longitudinal effects or time.	The research employed a specific time period to ensure a manageable scope for conducting literature research, applying the methodology, and collecting and analyzing data. However, this time constraint can be considered a potential limitation as it may impact the available research forms, access to resources, and study designs. The authors made the decision to initiate the research on a new topic in mid-March 2023, with data collection taking place thereafter. As a result, approximately two and a half months were dedicated to this research study.

Table 2 Limitations in the Research

4. FINDINGS

In this section, we present the findings derived from analyzing the empirical data collected, as discussed in the previous section. These findings are presented in the form of first-order concepts, second-order themes, and aggregate dimensions.

4.1. Product-focused Value Enhancement

4.1.1. Difficulty penetrating new markets

Among the six team leaders (referred to as Participants), four of them highlighted market penetration as a significant challenge and identified it as their top priority for external support. These participants primarily rely on existing customers, their network of members, and word of mouth strategies to expand their market reach.

Participant 1's team mentioned that they recently started to have some unsold portions as they "*experience difficulty penetrating into new markets*". Participant 2 reiterated the same point that they "*could not sell much due to competition with other players selling through government's rice centers,*" and "*market is the most difficult angle.*" Participant 3 noted that, "*without access to new market, his team finds it really difficult to boost the pricing for the rice produce.*" Participant 4 said that "*there is government own organization which also sell the rice product to the same market, then we sell our product cheaper*" Participant 6 stated that "*there are some other well-known brands in the market*" so it difficult for them to "*establish trust in the eyes of potential customers.*"

Some of the Participants shared that they have a difficult time assessing which species of rice that will be in demand for each year so they can estimate their production. Participant 1 provided an example that "*they initially estimated that certain rice specie could be sold at an attractive price; however, it turns out that in the end the market preferred different specific and did not support this specie in the end, so the team could not sell entire produce.*" This is supported by Participant 2's statement that they can adjust and develop their business to meet customers' demand, quoted "*whatever quantity or quality of products the market wants, the team is confident that they can produce.*"

For the sale to companies and other private firms, Participant 3 said that his team *“sells part of rice product to the private sector; however, the quantity sold in each period is very volatile as corporates launch bidding process among several suppliers to get the cheapest options.”* Participant 6 also highlights that he *“believes that trust must be created before the private sector decides to purchase,”* which his team *“now still cannot compete with the established brands.”*

4.1.2. Slowly moving up the value chain

All of the Participants mentioned that they were exploring ways to add premium to their rice products. Participant 2 mentioned that the team wants to add value to their team’s rice products on their own so they can sell final products at premium prices and *“the team will have better living quality,”* therefore, *“if there are new methods or rice species that require investment and higher cost, the team is willing to experiment.”*

The intention to move up the value chain of rice products is partly due to the instability of the current stage of rice products produced, which may be difficult to differentiate from the products of other entrepreneurs, especially those with strong networks. Participant 6 mentioned that his team *“decided unwillingly to sell the remaining products in the stock at the discount, which is better than selling nothing.”* Participant 4 stated that the *“price stability of its products is the major challenge”*, which was the view shared by many Participants, and he also suggested that *“if the rice has reached certain quality criteria, there must be ways to ensure a certain minimum price.”*

Four out of six Participants are looking for ways to secure higher prices and margins for their current products, as a way to differentiate their products and secure higher prices after facing strong dominance by their direct purchasers such as big corporates and rice mill operators. Participant 1 shared that his team still had low bargaining power with rice mill operators, which was a problem that other teams also experienced. Participant 1 shared that the team already *“made an effort to enter into a memorandum of understanding (MOU) with rice mill operators to fix the sale price and quantity of rice produce for each period.”*

However, *“the discussion was not fruitful as rice mill operators prefer to wait and purchase at market price which tends to be lower as there is more supply than demand.”* Participant 2 shared a similar view that his team entered into MOU with rice mill operators before, but *“unsuccessful”* as rice mill operators *“did not commit on the quantity and timing that they would purchase from us.”* Participant 2 discussed with several rice mill operators but none of them decided and managed to proceed successfully. Participant 3 added that *“ensuring a certain minimum price of rice products beforehand provides them with an opportunity to expand production capacity and experiment with new rice species.”*

4.2. Entrepreneur Attributes

4.2.1. Risk aversion nature

All six interviewees are unwilling to borrow as *“he does not want to start his business with borrowing”*, said Participant 2, and *“it can cause conflict in the future among the team members”*, said Participant 3. Even though the public lender offers loans at a very low interest rate of less than 1 percent, they consider the risk involved to outweigh the potential rewards for the team. Furthermore, if the team decides to take out a loan, it will be under the team's name. In the event that any team member fails to repay the loan, the team leader has a non-binding obligation to repay the lender for the portion that the team member has not paid. Participant 5 *“heard about the bad consequences in another team from borrowing money”*, their team was unwilling to take risks.

In addition, in terms of the implementation of new technology or approach, farmer entrepreneurs also tend to be conservative. Participant 2 said that the team would *“test the new technology in a limited space first and, if it works, then it will then be shared with the team to implement.”*

Farmer entrepreneurs have a tendency to forgo growth potential or new revenue sources if the perceived risks outweigh the expected rewards. Despite having remaining production capacity and a desire for increased sales, they choose to maintain their current level until there is more certainty. Participant 5 said that *“the team avoids selling a huge amount of rice produce to private sectors for fear*

that these buyers will mix our rice produce with other lower quality rice produce from other sources, which will then damage our reputation.”

4.2.2. Room for entrepreneurial skills development

All of the participants have chosen the path of farmer entrepreneurship due to their upbringing in farming families and communities. This background has equipped them with the necessary knowledge and skills to effectively manage the economic resources available to them and create value. However, our findings indicate that while the participants recognize new growth opportunities, they struggle to find suitable means to actualize these opportunities.

They recognize the opportunities of selling to a wider audience but stumble along the process of achieving their goals. Participant 6 mentioned he *“offers the testing of the products to new customers”* which is *“based mainly on my belief that the products are very good and that they will like the products if they try.”* Participant 1 said that his team still has *“unused production capacity which can serve an increasing demand if they are to expand to the new market.”* However, they *“cannot find ways to penetrate new markets to sell more produce”*, and thus have to operate business at a slow pace even though they have ambition and production capacity to grow. Similarly, Participant 2 also shared that his team *“decides to cultivate only up to the quantity that can be sold to the neighboring areas”* as they are *“stuck with unsuccessfully penetrating new markets in further areas where the inefficient logistic system lessens their products’ pricing attractiveness.”*

4.3. Infrastructure of the Ecosystem

4.3.1. Gap between policymakers and entrepreneurs

Four out of six team leaders shared that the government offers ongoing financial support to them in various means. Participant 2 shared that the public sector *“offer strong financial support”* to the team. Participant 1 *“is not concerned about having no new funding as there are always new upcoming government programs which his team can apply to participate and get benefits.”* There is some indirect financial support from the government that was mentioned in the interviews. Participant 6 mentioned that *“some campaigns are just one-time events with no*

ongoing monitoring and assessment of the outcomes, as the campaign organizers just want to complete their tasks.” Participant 4 supported from a different angle, that “there are too many rice centers being set up in each district with less focus on their quality.”

However, many interviewees also pointed out that policymakers review the policies thoroughly before having them approved and executed. Participant 2 prefers that a “*government campaign should be well thought out first before passing the detail of the campaign to the policy implementators and farmer entrepreneurs*” as the team experienced spending time revising the plans several times to be in accordance with the new public policies being launched. Similarly, Participant 4 mentioned that the “*government should emphasize more on quality rather than quantity*” of public support as that is more long-lasting. Some policies end up benefiting people who do not need the policies, stating by Participant 4 that the “*government’s income assurance policy does not offer benefits and support to those with real need. Farmer entrepreneurs who received benefits were those with lots of cultivated lands and did not actually need such support.*”

4.3.2. Hesitation to invest in new technology and infrastructure

Our research discovers that, from farmer entrepreneurs’ aspects, technology has not been leveraged in the agricultural sector mainly due to the high initial investment cost. Participant 3 shared that his team “*is hesitated to implement new technology which they don’t know what the result will be, while they can achieve the expected productivity with more certainty if cultivating in the traditional way.*”

This hesitation in their investment decision is also seen in the case of uplifting logistic system. Participant 1 mentioned that “*long-distance transportation for product delivery comes with higher costs*”, which obstructs Participant 1 and other Participants from marketing and selling to customers in farther geographical areas. On this basis, the farmer entrepreneurs focus on selling to neighboring regions. Participant 2 said that “*customers in some areas want our products but we are not ready to transport to them in a cost-efficient way*” and this forces them to “*decide to just produce less.*” Participant 5 mentioned the “*lack of efficient*

irrigation system in their cultivated lands as the key constraints for growing their business”, as it makes rice productivity unstable. Participant 5 mentioned that his team “has to rely on rain waters as the excessive use of groundwater will lead to salty soils which is bad for rice cultivation.”

4.3.3. Lack of young human resources in the ecosystem

Five out of six Participants mentioned that they hoped there could be young generation joining their teams, but it was very difficult to find even those growing up in the community. Participant 1 mentioned that *“young generations now look for jobs in other industries”*, so it has been difficult to find new qualified team members. Participant 2 referred to some challenge tasks which would be better handled by young generations, he said *“If we have new generation who can take care of accounting, the team would plan and perform more efficiently”*. Participant 6 said that the *“young generation does not know how to farm anymore, but they have better entrepreneurial skills.”* His *“son is still unwilling to come back to the agricultural business of the family even though he is already a grown-up”* and his *“daughter is now an auditor in the city”*. The interviewees also did not know how to motivate young generations to come work in this industry. Innovation and technology can supplement the lack of manpower, but not all.

Participant 1 said that the most difficult factor in driving towards business success in the future is the *“different age gap in the business and young generation is not interested in joining this business.”* This team has been searching for the young generation, even their own children, to leverage new technology and innovation to increase brand awareness, product quality, and productivity. Also, Participant 6 perceived similarly *“there are still lack of new generation who will drive business forward because rice farming is not attractive in term of income”*

Participant 2 said that *“to have new generation into this industry, there must be new types of jobs for them that do not require them to work this hard like what they currently do.”*

5. DISCUSSION

This section provides a comprehensive analysis and discussion of the empirical findings presented in the previous section, taking into account existing research papers. As a result, a proposed framework is developed to understand the dynamics of the Thai rice farmer entrepreneurial ecosystem. The framework highlights the interconnections between different elements within the ecosystem, illustrating how challenges associated with one element can influence other elements. Moreover, it explores the potential impact of addressing these challenges on the overall agricultural entrepreneurial ecosystem in Thailand, with the aim of fostering its growth and development.

The framework presented below represents an ongoing and dynamic process, reflecting the continuous development of the entrepreneurial ecosystem. As highlighted by Spigel and Harrison (2018), the ecosystem evolves with the presence of supportive elements, which in turn contribute to further advancements. This emphasizes the iterative nature of the ecosystem, where progress is driven by the continuous interaction and evolution of its various components.

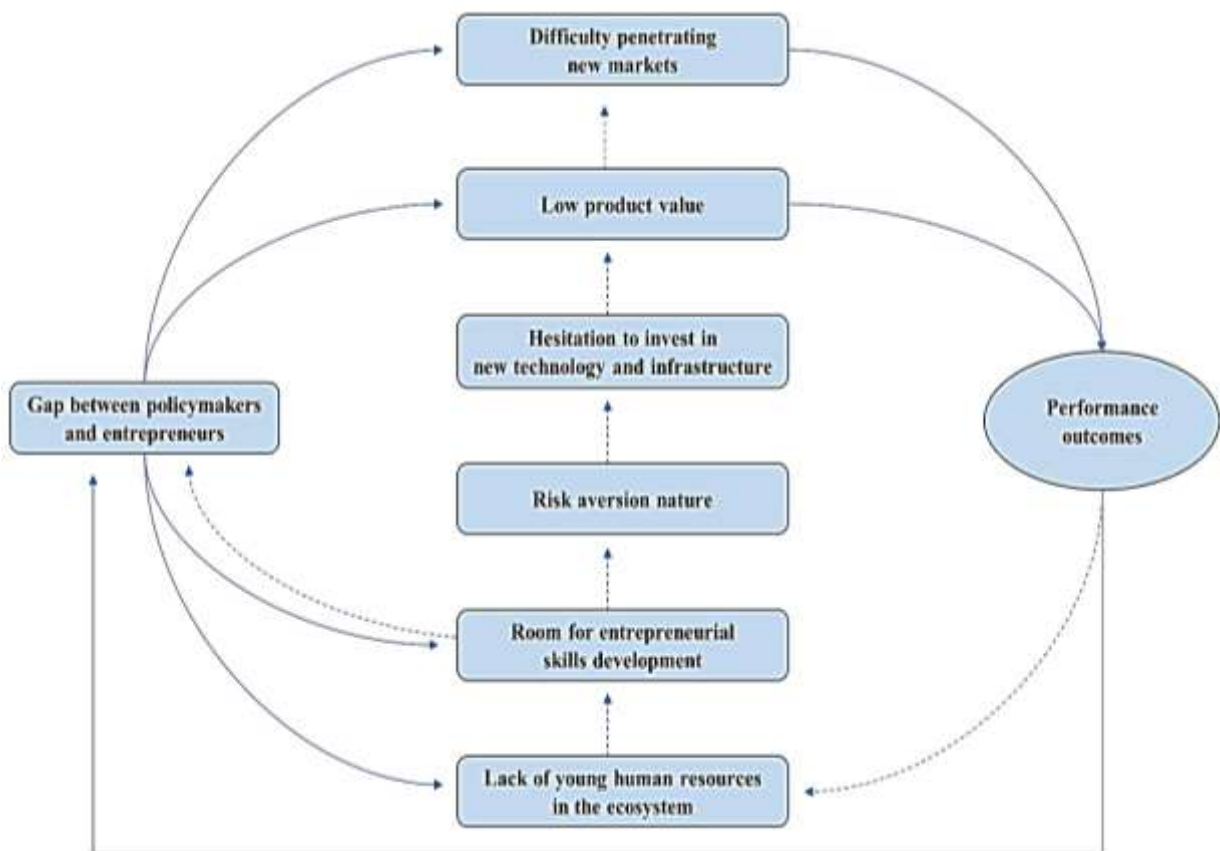


Figure 3 Connection of the Elements in Entrepreneurial Ecosystem

The ensuing discussion is organized into three distinct sub-sections. The first sub-section examines the interconnected nature of challenges within the existing entrepreneurial ecosystem. It highlights the interdependencies and interrelationships among these challenges, underscoring the need for a holistic approach in addressing them.

The second sub-section highlights the significance of bridging the information and communication gap between policymakers and entrepreneurs. This sub-section elucidates the pivotal role of effective communication and collaboration between these two stakeholders in addressing the aforementioned challenges. By fostering better understanding, knowledge exchange, and collaboration, this bridging process can serve as a supportive factor in tackling the identified challenges.

The third sub-section outlines the anticipated outcomes resulting from the implementation of the aforementioned information and communication bridge. It discusses the potential long-term enhancements that can be achieved by fostering a more conducive entrepreneurial ecosystem. These outcomes encompass various dimensions such as increased innovation, improved policy effectiveness, enhanced resource allocation, and overall ecosystem resilience and sustainability.

By organizing the discussion into these sub-sections, we aim to provide a comprehensive analysis of the interconnectivity of challenges, the importance of effective communication, and the potential positive outcomes that can be realized through targeted interventions.

5.1. Current Interplay of Key Elements in the Entrepreneurial Ecosystem

Our data collection was based on investigating key elements in the rice-farmer entrepreneurial ecosystem in Thailand, based on the model of Isenberg (2011). We found the interconnection between elements in the ecosystem as mentioned below. The challenges relating to one element in the ecosystem can impact the other element, and tackling the challenges of one element can positively affect the other elements in the ecosystem, and overall ramifications are shown through the low-performance outcome of the agricultural business. This sub-section aims to highlight the challenges that are interconnected and to recommend that appropriate future remedies be applied.

A. *Entrepreneurs have low entrepreneurial skills and are risk averse*

Our research revealed common characteristics and mindsets among the interviewed farmer entrepreneurs. These characteristics align with the ambition to enhance crucial entrepreneurial skills, as outlined in Vesala and Jarkko (2008). The majority of the interviewees displayed a keen awareness of opportunities to add value to their rice products through various means such as processing, direct sales, and niche products. Additionally, they leveraged their networks to expand their ventures. The farmer entrepreneurs exhibited a strong inclination towards exploring new opportunities as a means to further develop their entrepreneurial skills. This drive for continuous learning and growth led them to seek exposure to new perspectives (Vesala & Jarkko, 2008). By embracing fresh insights and perspectives, they aimed to refine their entrepreneurial abilities and capitalize on emerging opportunities.

Entrepreneurship entails the pursuit of strategies and opportunities to establish and cultivate a profitable business. The acquisition of entrepreneurial skills, which are essential for carrying out various tasks and activities within the farm business, can be fostered through learning and practical experience (de Wolf & Schoorlemmer, 2007).

Citing the research conducted by de Wolf & Schoorlemmer (2007), it is evident that while professional and management skills serve as fundamental prerequisites for farmer entrepreneurs, the possession of entrepreneurial skills encompasses opportunity identification, strategic thinking, and effective cooperation and networking abilities. Based on this understanding, Vesala and Jarkko (2008) proposed that entrepreneurial skills among farmers primarily encompass the following elements:

- (i) Creating and evaluating a business strategy;
- (ii) Networking and utilising contacts;
- (iii) Recognising and realising opportunities.

According to Vesala and Jarkko (2008), it is important to note that entrepreneurial skills can indeed be acquired through learning and development. This implies that fostering and enhancing these skills among farmers is both a viable option and a

worthwhile objective, despite the inherent challenges that may arise within the farming context.

Furthermore, our research reveals that risk aversion is a prevalent characteristic observed in Thai rice-farmer entrepreneurs. This aligns with the findings of Phelan (2014), who highlights risk aversion as a significant positive attribute of the Opportunity Aware Organiser, a key taxonomy term that characterizes successful farmer entrepreneurs.

The findings of our interviews align with Phelan (2014)'s description of the Opportunity Aware Organisers, who exhibit a range of organizational competencies, decisive leadership, sound financial management skills, and effective relationships with key stakeholders. These Opportunity Aware Organisers demonstrate a higher level of strategic and opportunity awareness, lower levels of introspection and self-awareness, and a greater inclination toward risk aversion (Phelan, 2014). The attitudes of farmer entrepreneurs towards risk tolerance are influenced by various factors, including their experience, education, income, capital, land status, and land size. However, it is important to note that risk perceptions can be adjusted and modified with improvements in the business environment, the presence of supportive actors, the establishment of networks and clusters, and the adoption of appropriate technologies (Agussabti, 2020).

Thai rice-farmer entrepreneurs' skills and characteristics which are supported by Herron and Robinson (1993) and Stearns (1996) that de-emphasize the assignment of a specific set of characteristics to define an entrepreneur. Our thesis reveals that Thai rice-farmer entrepreneurs typically exhibit a risk-averse nature and possess a strong foundation of agricultural knowledge and experience. However, there is a need for further development in their entrepreneurial skills, which can be acquired through learning and deliberate cultivation (Vesala and Jarkko, 2008).

B. Hesitation to invest in new technology and infrastructure

The calculation of return on investment reveals that investing in technology generates a surplus that contributes to the sustainability of farming businesses. Specifically, investing in mobile internet technology can maximize profits by expanding the market reach beyond local or neighboring markets. This highlights

the potential of technology to enhance profitability in the agricultural sector (Mohapatra, 2008).

However, our research findings indicate that rice-farmer entrepreneurs in Thailand are reluctant to make investment decisions in new technology due to the high upfront costs and associated risks. Despite recognizing the potential long-term benefits and return on investment that new technology can offer, they are unable to bear the financial consequences and uncertainties involved. This risk aversion hinders their adoption of new technologies and limits their ability to grow their businesses in the agricultural sector.

Our research finds a correlation between farmer entrepreneurs' hesitation to make initial investments in technology and infrastructure to enhance their farming business, and their levels of entrepreneurial skills and risk tolerance of farmer entrepreneurs. We discovered that one of the main reasons that new technology and infrastructure were not widely leveraged in the agricultural sector was the high initial investment cost. Farmer entrepreneurs perceived the risks of making huge upfront investments as being too high for them to accept, and they could lose everything that they had for their living and their children if the investment turns out to be a failure. Even though the farmer entrepreneurs decide to use debt financing, the collaterals required are too valuable for them to give up.

Our findings and analysis are in line with the research conducted by Opata, Nweze, and Rahman (2011) in Nigeria, which highlights the importance of creating an enabling environment for private sector investment in technology and infrastructure in the agricultural sector. The study recommends that private investors who participate in such investments can benefit from the return on investment, while also providing farmer entrepreneurs with increased access to and utilization of technology and infrastructure. This, in turn, enables the production of value-added agricultural products and the growth of agro-based enterprises.

C. Difficulty penetrating new markets and premiumizing the products

Marketing agricultural products in the rice farming business is often hindered by market imperfections, characterized by factors such as imperfect information, inadequate infrastructure, and limited communication channels (Biénabe and

Sautier, 2005). Our study also observed market imperfections within the rice farming industry, particularly in the farmers' efforts to expand their customer base in different geographical areas actively, but without fruitful results.

Biénabe and Sautier (2005) highlight that in the agricultural industry, it is the traders and agro-industries who have the authority to determine the characteristics and value of food products, leaving farmer entrepreneurs with limited control over these aspects. Our interviews with farmer entrepreneurs confirmed this observation, as they expressed concerns about relying heavily on sales to the private sector due to their relatively low bargaining power. This exposes them to sales risks and potential challenges in ensuring favorable terms and conditions for their products.

One of the proposed recommendations is to foster collective action among farmer entrepreneurs to increase their negotiation power against purchasers and reduce competition among themselves, which ultimately leads to losses rather than gains (Biénabe and Sautier, 2005). We support this recommendation of fostering collective actions among farmer entrepreneurs in the same geographical areas that are currently fragmented, instead of perceiving each other as competitors.

In addition to their efforts to penetrate new markets with their existing rice products, rice farmer entrepreneurs have been seeking ways to add value to their products, increase profit margins, and establish a niche market positioning. This includes advancing along the value chain through innovative processing approaches. The aforementioned findings align with the study conducted by Webber and Labaste (2009), which applies value chain concepts as solutions to enhance competitiveness in Africa's agribusiness sector. These concepts contribute to value addition, reduced transaction costs, diversified rural economies, and increased regional income. As a result, they promote the long-term competitiveness of farmer entrepreneurs.

Farmer entrepreneurs perceive moving up the value chains as a valuable marketing option to preserve the values and identities of their products (Peterson et al., 2021). Their objective is to maintain their current business operations while leveraging the value chain to increase awareness of the unique qualities and identities of their products among a broader audience that appreciates their offerings.

Our research identifies a correlation between the ability of farmer entrepreneurs to penetrate new markets and premiumize their products, and their entrepreneurial skills. Entrepreneurial skills encompass the recognition of opportunities and the development of effective business strategies (Vesala and Jarkko, 2008). The interviews conducted with farmer entrepreneurs indicate a relatively low level of entrepreneurial skills, suggesting that they may have difficulty recognizing business opportunities or lack knowledge regarding the implementation of business strategies to capitalize on those opportunities.

D. Young generation being discouraged to join the ecosystem

Taking into account the existing characteristics of the agricultural sector in Thailand, which include limited access to new technology and infrastructure, low product value, and challenges in market expansion, the sector is often regarded by the younger generation as outdated and slow-moving, characterized by high labor intensity and low profitability.

Consequently, the discouragement felt by the younger generation has led them to seek opportunities in more profitable and fast-growing industries, such as technology startups and consultancy services. The decline in interest among educated Thai youth in pursuing agricultural businesses mirrors a similar situation in Indonesia (Hamilton, Bosworth, and Ruto, 2015). This trend is observable in several countries, prompting the implementation of public policies aimed at incentivizing the younger population to engage in farming, as witnessed in Africa (Agumagu et al., 2018), America, and Europe (Zagata & Sutherland, 2015; May et al., 2019; Balezentis et al., 2020).

The agricultural sector in Thailand is in dire need of the younger generation due to their perceived attributes of innovation, entrepreneurship, and openness to change. Research indicates that the younger generation consistently demonstrates higher levels of overall productivity, profitability, and investment in comparison to older farmers (Hamilton, Bosworth, and Ruto, 2015). Furthermore, young farmers are generally more adept at utilizing information technology due to being digital natives—individuals who have grown up with the internet as an integral part of their lives (Hamilton, Bosworth, and Ruto, 2015).

According to the Food and Agriculture Organization (FAO, 2017), the incorporation of information technology in agriculture can enhance market access, food security, and access to capital. The rapid development of information technology has given rise to various agricultural applications that cover a wide range of activities, from cultivation (land preparation, planting, and harvesting) to post-harvest and marketing, including e-commerce and social media platforms. The utilization of these technological advancements is expected to increase the value of agricultural products and enhance marketing activities, thereby boosting farming income (Hamilton, Bosworth, and Ruto, 2015).

There are several constraints impede youth involvement in agriculture and hinder overall agro-economic development, with one of the key factors being the negative social perception associated with farming professions. Our research aligns with the findings of Khanal, Dhital, and Christian (2021), who recommend that the government take steps to promote youth engagement in agriculture. This can be achieved by enhancing agricultural education, providing effective extension services, offering financial support, and ensuring policymakers have a comprehensive understanding of the role youth play in the community development process.

5.2. Bridging the Information Gap Between Policymakers and Entrepreneurs

Based on our knowledge, the existing public policies related to the agricultural sector in Thailand fail to adequately address the challenges within the rice-farmer entrepreneurial ecosystem, as described earlier. Although the government has provided substantial support to the agricultural sector and implemented various policies and projects to enhance its development, these initiatives have not effectively tackled the interconnected challenges identified from the entrepreneurs' perspectives. Consequently, there remains a gap in addressing the specific underserved aspects within the sector.

Similar to governments in numerous other countries, the Thai government has introduced entrepreneurial programs aimed at stimulating the establishment of new ventures, fostering economic growth, and reducing unemployment (Igwe, 2016). While the stated objectives of these public policies are beneficial to rice farmer entrepreneurs, such as improving productivity and market prices, their practical outcomes and long-term

implications have not effectively addressed the fundamental challenges within the rice farmer entrepreneurial ecosystem or created sustainable and enduring development. Instead, new policies and projects are frequently launched without adequate monitoring or follow-up, leading to the eventual discontinuation of previous initiatives.

Through our interviews, we discovered that the governmental support in Thailand primarily focused on financial assistance rather than fostering and sustaining the rice farming entrepreneurial ecosystem. Many well-informed practitioners have proposed that government approaches should shift away from solely providing direct financial support to entrepreneurs and instead adopt more comprehensive strategies that cultivate "entrepreneurial ecosystems" (Davis, 2012). We recommend advocating for this approach within the Thai rice-farmer entrepreneurial ecosystem as well.

Aside from financial support, the interviewees expressed a lack of awareness regarding how the government could assist them in other critical areas. They highlighted major constraints such as improving market access, enhancing the value chain, renovating and constructing necessary public infrastructure, and motivating the younger generation to enter the farming business. These aspects were not addressed adequately in their perception of government support.

Therefore, we suggest that the Thai government explore and implement strategies that go beyond financial aid and actively address the aforementioned constraints. This would involve promoting market access, facilitating value chain improvement, investing in infrastructure development, and devising initiatives to attract and encourage the younger generation to participate in the farming industry.

5.3. Expected Outcomes After Addressing the Interconnected Challenges

Our research viewed the abovementioned information and communication gap between the government (who are policymakers) and the farmer entrepreneurs (who are affected by the policies) as the challenge that should be resolved, as indicated in Davis (2012). We propose bridging this gap by assessing the long-term challenges faced by farmer entrepreneurs, as discussed earlier. Additionally, we recommend the implementation of policies and campaigns to address these challenges, along with the establishment of responsible teams and organizations to monitor progress and maintain ongoing communication with rice-farmer entrepreneurs. This comprehensive approach will

contribute to the sustainable improvement of the rice-farmer entrepreneurial ecosystem in Thailand.

As highlighted above, the younger generation has expressed a sense of discouragement regarding entry into the agricultural sector. However, if we can enhance the perception of this sector by increasing its productivity and profitability, it is highly probable that we can attract more young talents to engage in its development. In turn, these individuals can serve as catalysts to inspire and motivate other young people to join the sector in the future.

An increasing number of young talents in the agricultural sector will bring with it entrepreneurial skills, a forward-thinking mindset, and the adoption of new technologies (Hamilton, Bosworth, and Ruto, 2015). These factors possess significant potential to contribute substantially to the continuous development of the entrepreneurial ecosystem for rice farmers in Thailand. It is important to note that the enhancement of supportive elements within the entrepreneurial ecosystem is a continuous and evolving process, with no definitive endpoint, thereby leading to further advancements (Spigel & Harrison, 2018).

6. CONCLUSION

6.1. Aim of the Study and Research Findings

Based on the findings and discussion presented in the previous sections, we have identified the challenges faced by rice farmer entrepreneurs in Thailand. Moreover, we have highlighted the interconnectedness of elements within the entrepreneurial ecosystem. This includes illustrating how challenges pertaining to one element can impact other elements, as well as how addressing the challenges of one element can have positive effects on the remaining elements within the ecosystem.

Our findings and analyses have resulted in three main contributions. Firstly, this thesis emphasizes the interconnection among specific elements within the rice farmer entrepreneurial ecosystem (Stam, 2015), which were identified as key challenges from the perspective of farmer entrepreneurs. We discovered a correlation between the reluctance of farmer entrepreneurs to make initial investments in technology and infrastructure to enhance their farming businesses and their levels of entrepreneurial skills and risk tolerance. Furthermore, we found a correlation between the ability of farmer entrepreneurs to enter new markets and add value to their products, and their entrepreneurial skills (Vesala and Jarkko, 2008).

Secondly, it is important to note that farmer entrepreneurs are not the primary determinants of food product characteristics in this sector; instead, it is the traders and agro-industries who possess greater bargaining power (Bienabe and Sautier, 2005). This thesis aims to enhance comprehension of the market imperfections that place rice-farmer entrepreneurs at a disadvantage. Moreover, it proposes additional measures to augment the bargaining power of rice-farmer entrepreneurs, such as collective actions and product premiumization through value chain upgrading (Webber and Labaste, 2009).

Thirdly, this thesis aims to emphasize that the current characteristics of the agricultural sector in Thailand are contributing to a decrease in the participation of the younger generation (Hamilton, Bosworth, and Ruto, 2015). The younger generation is discouraged from entering the agricultural sector and is strongly inclined towards pursuing more financially rewarding and technologically advanced industries such as technology startups and consultancy services.

Fourthly, this thesis seeks to shed light on the fact that while the Thai government emphasizes financial support for farmer entrepreneurs, it has not adequately addressed the most neglected aspects, as perceived by the farmers themselves. Specifically, there is a lack of attention given to resolving the interconnected challenges previously mentioned. Moreover, this thesis aims to identify the information and communication gap that exists between policymakers and the farmers who are directly impacted by the policies.

Last but not least, it is important to acknowledge that the continuous enhancement of the quality of supportive elements within the rice farmer entrepreneurial ecosystem, as discussed earlier, is an ongoing process without a definitive endpoint. This perpetual development ultimately leads to further advancements (Spigel & Harrison, 2018). In future research, it is essential to consider the following comprehensive set of interconnected challenges from the perspectives of farmer entrepreneurs: expanding market access, improving value chain integration, revitalizing and constructing essential public infrastructure, and motivating young talents to engage in the farming business.

Our research proposes specific actions for each relevant stakeholder to address the ongoing interconnected challenges. These recommended actions will be presented in the subsequent sub-sections.

6.2. Implications for Research

Our thesis aims to contribute to the underexplored area of research on agricultural entrepreneurial ecosystems in developing countries and how they can be fostered (Kansheba and Wald, 2020).

Our thesis aligns with the concept of the interconnectedness of various actors in facilitating entrepreneurial development (Isenberg, 2010). These actors include leadership, culture, capital, markets, human skills, and support. Additionally, our research highlights significant knowledge gaps pertaining to the conceptual meaning, theoretical foundations, and application of these concepts (Acs et al., 2017; Malecki, 2018), particularly regarding the emphasis on entrepreneurs as central actors within the system and the role of other stakeholders in supporting the overall entrepreneurial process (Nicotra et al., 2018). In this paper, we aim to complement previous research by

conducting in-depth interviews with entrepreneurs, thus providing insights into these gaps from the perspective of entrepreneurs themselves.

6.3. Implications for Practice

Policymakers in Thailand have implemented numerous public policies and projects aimed at improving the agricultural sector, including the project examined in our study, which involved the active participation of our interviewees. While the stated objectives of these public policies and projects, such as enhancing productivity and market prices, may appear beneficial to rice farmer entrepreneurs, the practical consequences and long-term sustainability have proven to be inadequate. The introduction of new policies and projects without proper monitoring and evaluation has resulted in the neglect of previous initiatives. While the public sector has provided substantial support to the agricultural sector in Thailand, it has not adequately addressed the critical aspects that are most lacking from the entrepreneurs' perspectives.

Our research has also uncovered an information and communication gap between policymakers and farmer entrepreneurs. The needs and expectations of farmer entrepreneurs diverge from the knowledge possessed by policymakers, partly due to the hierarchical nature of the public administration process in Thailand. It is commonly observed that the policymakers responsible for policy drafting (i.e., policyholders) often lack insights into the actual needs of the individuals who will be implementing the policies (i.e., farmer entrepreneurs). Similarly, those who apply the policies have limited opportunities to express their perspectives and share their insights during the policy drafting phase.

There are a number of responsible teams in the government sector who have different roles and contributing in different steps in driving the growth in agricultural sector in Thailand. Each team has its own key performance indicator which in the end do not lead to sustainable development of agricultural business in Thailand.

Thus, our research hopes to highlight the importance of aligning objectives and actions of policymakers, entrepreneurs, as well as policy implementators including government officers.

6.4. Recommendations for Future Research

Regarding the research limitations mentioned in Chapter 3, Section 3.5, there are several recommendations for future research arise out of our research limitations. These recommendations include:

- (i) To address the lack of previous studies in the research area, it is recommended to re-evaluate the topic, expand the conceptual framework, and consider the broader scope of study. This will ensure that the chosen topic is relevant, valuable, and not overly specific. Furthermore, it is advisable to provide a more comprehensive discussion of the limited existing literature by relating it to the larger context or broader research problem.
- (ii) In order to avoid self-reported data or response bias, it is recommended to use appropriate questions during data collection. These questions should be concise, clear, and free from leading language. Additionally, it is important to provide a simple set of answer options for respondents to choose from.
- (iii) To reduce language barriers, use precise and simple language during interviews. Seek clarification when necessary for clear understanding. Utilize appropriate communication methods, like video interviews, and ensure suitable equipment to address potential complications.
- (iv) The time limit has significantly impacted and influenced the design of this qualitative study, it is important to carefully plan and work dynamically. Additionally, the research design should be influenced by the theory used in the investigation.

Moreover, our research highlights the need for future studies to examine the communication and information exchange between policymakers and farmer entrepreneurs. Our focus has been on identifying the challenges and gaps from the perspective of rice-farmer entrepreneurs, but there is room for research that equally represents all key actors in this entrepreneurial ecosystem. We believe that future research is crucial to investigate the communication and information gap within government organizations, ranging from local government officers responsible for policy implementation to those involved in policy drafting and approval.

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APPENDIX A: INTERVIEW GUIDE

Master Thesis - Interview Questions

Part I: Background

1. How long have you been a farmer, and why did you become a farmer?
2. What drew your attention to become a part of the rice initiative program?
3. How long have you been part of the rice initiative program?
4. What are the supports that you receive from the program so far?
5. Which supports do you think are useful?

Part II: Challenges

General

1. What do you think are the major challenges that constrain you from succeeding?
2. What are the challenges you have not overcome or the most difficult challenge? And how does the challenge affect your process of being successful?

Culture

1. Is your community supportive?
2. When you or your community receive new knowledge or information, do you normally share with one another?
3. When any team becomes successful, do you normally congratulate them?
4. Does the social status in your community affect or play a potential role in motivation? How?
5. Would you and your community like to be introduced to new things? (Innovation, creativity, experimentation)
6. Do you prefer a typical process to new practice? Why?
7. What are the norms in your community? Do these norms influence your ambition, perception or process of development? How?
8. What is the most effective culture or norm that affects your success? How?

Support

1. How do you find supports and provide the supports at work/ to your team?
2. Are they government or non-government institutions?
3. What support did you receive? (legal/ accounting/ investment/ technical advising, telecommunication, transportation or logistic)
4. How would you rate the support you received?
5. What are the supports that you would like to have such as knowledge, network access to information?

6. How the support (that you received and that you would like to receive) can navigate you to success?

Finance

1. How do you fund your business, both initial investments and ongoing business?
2. Are there any funding or financial sources that support you?
3. Do you find it difficult to obtain funding? Why?
4. Have you considered seeking funding from [public source]? How successful?

Market

1. How do you access customers and markets? (passive or active marketing - networks, distribution channels)
2. Who are the target markets? (customer segments)
3. What have been the challenges in entering and selling products to the market?

Human resources

1. Are you motivated to develop your farming knowledge to become successful? Why or why not?
2. Have you hired someone to work for you? How knowledgeable are they in farming?
3. Do you think the human capital is important? Why and how?
4. What kind of human capital is playing an important role to reach success?

Policies

1. How do you know and access policies?
2. What do you think about public policies? How efficient are they?
3. What impact have policies had on the availability and affordability of running or expanding your business?
4. How do the policies impact your success?
5. What do you think can be improved?

Others

1. Is there anything else you would like to share?

APPENDIX B: CONSENT FORM



Interview Consent Form

Research Topic: Challenges Rice-Farmer Entrepreneurs Face in Agricultural Entrepreneurial Ecosystem, in Northeast Thailand.

Research Investigator: Pasinee Tangsuriyapaisan and Wanravee Ritruksa, master student of Entrepreneurship and Innovation at Lund University School of Economics and Management.

Research Supervisor: Solomon Akele Abebe, doctoral candidate at the Sten K. Johnson Centre for Entrepreneurship at Lund University.

You are being invited to take part in the research study “Farmer Entrepreneurial Ecosystem in Northeast Thailand” which aims to study how the challenges farmer entrepreneurs face in navigating the entrepreneurial ecosystem affects their success. The study is expected to benefit and contribute to both farmers and government in building and navigating for future sustainable success. This research study is part of the thesis for Master in Entrepreneurship and Innovation at Lund University School of Economics and Management conducted by Pasinee Tangsuriyapaisan and Wanravee Ritruksa.

In order to collect the data for the research, this consent form is necessary for us to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation in the research study.

Regarding the study of the farmer entrepreneurial ecosystem in northeast Thailand, you have been invited to participate in the study because you are part of the farmer entrepreneurial ecosystem. The study will involve an interview with you through a series of questions which will be filmed and recorded in note-taking, video, audio, and/or photography for research purposes.

For this study, we, therefore, request for informed consent from you as following:

- I have read the accompanying information sheet provided and been given adequate time to consider it.
- I have been given the opportunity to ask questions about the research study beforehand and any questions have been answered to my satisfaction.
- I understand that my participation in the research study is voluntary.
- I understand that taking part in the research study will involve me being interviewed and I agree to be filmed and recorded for the research purposes.
- I agree that the resulting film, video, audio and/or photography may contain my name, information about me, interviews with me, as well as any other materials.

- I understand that my words may be translated and quoted in publications, reports, web pages, and other research outputs, but data collected about me during the research study will be anonymized before it is submitted for publication.
- I understand that I have the right to withdraw from the research study at any time without giving reason why I no longer want to take part.
- I understand that if I withdraw from the research study, my insights and information will not be used.

Should you have any queries about the study, please do not hesitate to contact Pasinee Tangsuriyapaisan (pa3444ta-s@lu.se) or Wanravee Ritruksa (wanravee.ritruksa.8241@student.lu.se). Alternatively, you can reach to Solomon Akele Abebe (solomon_akele.abebe@fek.lu.se) if you are concerned about any aspect of this study.

By signing this consent form, I certify that I agree to the terms of this agreement above.

Name: _____

Signature: _____

Date: _____