A RESOURCE CO-EVOLUTIONARY MODEL FOR THE INTERNATIONALIZATION OF INTERNET INTERMEDIARY FIRMS: EVIDENCE FROM NEW ZEALAND BASED INTERNET PAYMENT INTERMEDIARY FIRMS

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ABSTRACT

Purpose - The purpose of this thesis is to explore the internationalization process of Internet Intermediary Firms (IIFs) and explain the unfolding of this process using a resource co-evolutionary lens of organizational knowledge and network resources. The leading research question of this study is thus "through a resource co-evolutionary lens, how and why is the internationalization of IIFs driven by the joint development of knowledge and network resources?"

Methodology/approach/design – To answer the leading research question, this thesis applies a process-based research approach to seven qualitative case studies of the internationalization of New Zealand based Internet Payment Intermediaries (IPIs).

Findings - This thesis identifies six internationalization episode patterns of IIFs, which are inception, siloing, bundling, multiplying, international replicating, and international withdrawal. The overall internationalization process of IIFs are non-linear but structurally predictable. Changes across these patterns take place at five human and non-human layers of IIF-centric digital platform-based ecosystem architecture – users, platforms, IIFs, usage scenarios, and sellers. Moreover, this thesis finds that IIFs' product logic, user logic, buyer users, seller users, and cloud-based platform providers are their critical organizational knowledge and network resources, respectively. These knowledge and network resources co-evolve during internationalization, enabling the unfolding of the internationalization of IIFs. The "motor" of change derives from the IIFs' choice of network externalities, internalization and externalization business approach. Through a

resource co-evolutionary lens, this thesis finally provides a three-tier operational process model to describe and explain the internationalization process of IIFs.

Practical implications - The message to IIF practitioners is that international development needs to be understood from a processual and structural view. The associated architectural resource properties of IIF-centric platform-based ecosystem and their joint actions are the keys to understanding their intricate global evolution processes. This study also signals international sellers a shift from adapting to the fluid and unruly digital ecosystems to governing the ecosystem through collaborating with IIFs.

Originality/value - This is the first study of IIF internationalization. This thesis identifies the non-linear but structurally predictable internationalization process patterns of IIFs which is new to the literature. Moreover, this thesis also reveals the new types of organizational knowledge and network resources, explicitly enabling the internationalization of IIFs. This study constructively extends the traditional resource-based view towards a resource co-evolutionary view to explain the research phenomenon. The operational process model proposed in this study for the first sheds light on how to govern the business ecosystem, which is of both practical and theoretical importance.

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CHAPTER 1 – INTRODUCTION

1.0 Overview

This chapter presents an overview of this thesis. The chapter begins with an introduction of the research background, focus, and aims. Then, it offers a summary of the literature. After this, this chapter introduces the theoretical framework, research question and methodology. Then, this chapter explains the contributions of this thesis and the researcher's interest in this study. The end of this chapter outlines the structure of this thesis.

1.1 Research Background

The emergence of e-commerce has created the possibility of a truly global marketplace, and sellers now can communicate directly with overseas buyers through various communication channels (Accenture, 2012; Ding et al., 2017). The most recent statistic indicates that, in 2017, global web sales neared US$3 trillion, increasing 13% from 2016 (UNCTAD, 2019a). The most well-known form of cross-border e-commerce nowadays, particularly for Small and Medium-sized Enterprises (SMEs), falls into digital platforms (Accenture, 2019). By far, the most common digital platforms are "digital matchmakers", such as Amazon, eBay, and Taobao. These matchmakers mainly provide Business-to-Business (B2B), Business-to-Consumer (B2C), and Consumer-to-Consumer (C2C) processes of cross-border selling, which enable sellers to reach global buyers quickly. However, these platforms are not without problems.

Competition among platforms for the same product/service is inevitable (Piotrowicz & Cuthbertson, 2014). Platform competition may cause lower prices and reduced profit margins for the platform and the sellers (Kim & Chun, 2018). Adding a new platform channel has the potential for introducing channel competition (Boyaci, 2005). Moreover, when sellers or buyers do not behave in the confinement of the platform, then it becomes a barrier rather than an enabler for transactions to take place. Forcing sellers or buyers to stick to one platform or blocking them from switching platforms causes friction – any unnecessary additional effort, incremental step, or inconvenience which may make buyers abandon their purchase journey (KPMG et al., 2018). Friction problems nowadays account for 66% of buyer dropouts (KPMG et al., 2018). Within the Asia Pacific region alone, the aggregate amount of the cost of such business' friction reaches US$325 billion per year on average (Boston Consulting Group, as cited in Facebook IQ, 2018). Recent studies show that coordination among digital platforms, channels of interaction and transaction, and other advanced technologies results in 250% higher purchase frequency, 90 higher customer retention, 13.5% more engagement rate, and 13% more order value (Collins, 2019; Hossain et al., 2020).

1.2 Research Focus: Internet Intermediary Firms

Internet Intermediary Firms (IIFs) can contribute to reducing the friction issue in global e-commerce. IIFs refer to those firms that bring together or facilitate transactions between third parties on the Internet (e.g., platforms, apps, websites, digital interfaces, mobile devices). They give access to, host, transmit and index content, products, and services originated by third parties on the Internet or provide Internet-based services to third parties (OECD, 2010). IIFs integrate and orchestrate interfaces of different third parties,

such as platforms, apps, websites, social media, and physical stores, leading to unified, seamless, effortless, and high-quality communication journeys. Through the interface integrated and orchestrated by IIFs, different platforms do not have to be maintained separately, but data can be exchanged between the respective commerce solution and the marketplace. Consider the integration of Amazon and YouTube as an example (see Figure 1.1).

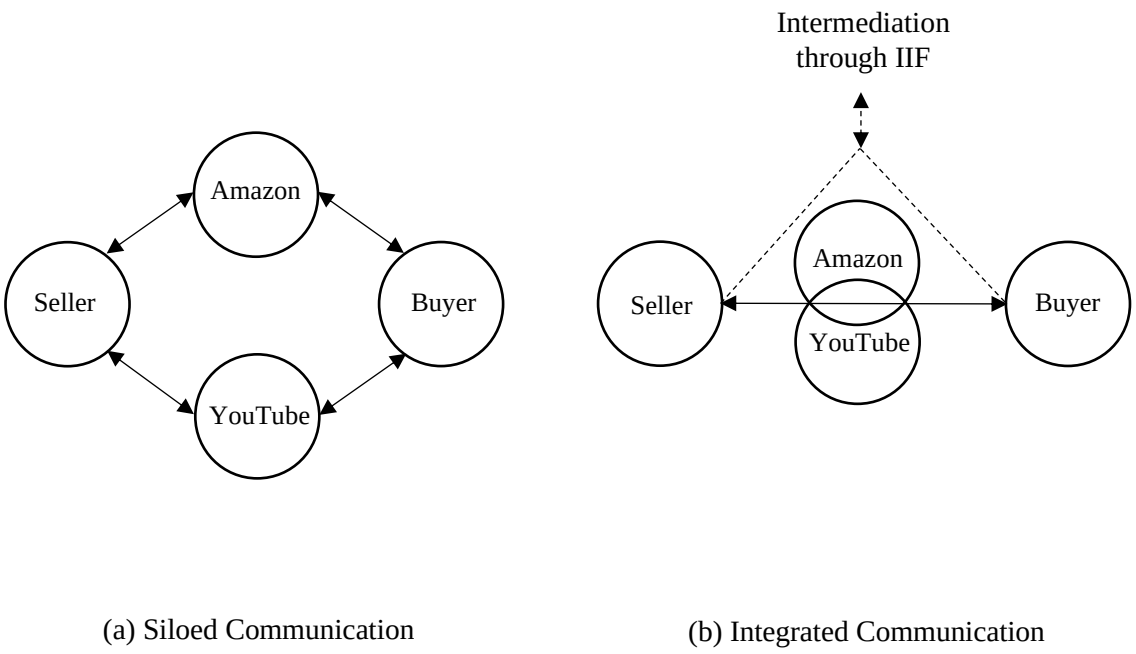

Figure 1. 1. **Siloed Communication vs. Integrated Communication**

Traditionally, Amazon and YouTube work separately as two parallel platforms. However, if IIFs integrate them, global buyers will probably find a product/service on Amazon first, and then seamlessly switch to YouTube to watch evaluation videos before they purchase on Amazon. Alternatively, the buyers would realize their needs first through YouTube videos, and then switch to Amazon to buy (see Figure 1.1 for an illustration of this integration). Global merchants thus can better make use of these two complementary

platforms to cater to their global buyers who often switch between these two platforms before they purchase. Instead of making buyers abandon their purchase journey, the integrated platform may effectively make the buyers stick to their purchase journey.

1.3 Research Aims

Despite playing a crucial role in developing platforms and infrastructures and remedying the channel competition and friction issues in global e-commerce, so far, IIFs have received little attention in the literature of International Business (IB) with no research exploring their cross-border development. Dominant IB theories suggest that firm internationalization is a process in which a firm internalizes its foreign operations to pursue maximum profits. However, given the intermediary role played by the IIFs, these traditional theories maybe not applicable. IIFs champion the logic of value co-creation that is prevalent in today's digital economy (J. Li et al., 2019). Their internationalization is, therefore, significantly conditioned by connections and interactions between other cross-border e-commerce participants dispersed globally (Chandra & Coviello, 2010; Coviello et al., 2017). The distinct characteristics and unique commercial strategies of IIFs suggest a need to re-evaluate and modify mainstream IB explanations or develop theories tailored to IIF internationalization (e.g., Banalieva & Dhanaraj, 2019; Chen et al., 2019; Coviello et al., 2017; J. Li et al., 2019; Nambisan et al. 2019). To broaden our understanding and develop an explanation of this phenomenon, this present thesis will investigate (a) the internationalization processes of the IIFs, and (b) the mechanisms that drive the processes.

1.4 Summary of the Literature

Over the past several decades, a considerable body of literature has been accumulated to explain and predict firm internationalization. However, a closer look at the IB literature reveals that limited studies have been carried out in the contemporary information age. The phenomena and mechanisms regarding how digital-native firms – those offer value propositions primarily based on digital technologies – internationalize remain lesser-known. The dominant IB theories are rooted in a logic of internalization – optimizing the supply chain and creating barriers to entry by controlling or owning resources and assets. These previous studies maybe not applicable to explore and explain the internationalization of the IIFs, whose survival and development also rely on a logic of externalization, where value creation derives from connections and interactions of the associated network participants (J. Li et al., 2019).

The existing body of research has established that a firm's resources that the firm can exploit are crucial to its special operations and general performance (Barney, 1991; Penrose, 1959; Wernerfelt, 1984). Moreover, two valuable strategic resources are necessary (but not on their own sufficient) for a firm to internationalize: organizational knowledge (J. Johanson & Vahlne, 1977, 2009; Kogut & Zander, 1992, 1993; Vahlne & Johanson, 2013, 2017) and network relationships (Andersen & Buvik, 2002; Håkansson & Johanson, 1992; Halinen & Törnroos, 1998; J. Johanson & Mattsson, 1988; J. Johanson & Vahlne, 2009; Rugman & D'Cruz, 1997; Vahlne & Johanson, 2017). Studies in the field of IB have only focused on the exploitation rather than the evolution of organizational resources. However, a linear resource exploitation logic has long been

criticized as inadequate in explaining internationalization, with alternative approaches being offered (Kriz & Welch, 2018; Vahlne & Johanson, 2017).

1.5 Summary of the Theoretical Framework

In this study, a resource co-evolutionary framework was developed to explore and explain how and why the joint development of knowledge and network relationships drive the unfolding of the internationalization process of IIFs. The joint development of organizational knowledge and network relationships and the internationalization process of IIFs are assumed to be non-linear. The interplay between knowledge and network relationships was of great interest, as it had been identified in the literature as a crucial aspect of understanding the development of and the interdependencies between these two critical resources in driving firm internationalization (Karlsen et al., 2003; Pajunen & Maunula, 2008; A. D. Smith & Zeithaml, 1999). The resource co-evolutionary framework includes three levels – the internationalization process of IIFs, the resource co-evolution process driving IIF internationalization, and the mechanisms driving the co-evolution of the resources. It was hoped that, based on this framework, the findings of this research would lead to a better understanding of the internationalization process of IIFs, the co-evolution of knowledge and network resources in enabling IIF internationalization, and the mechanisms driving the resource co-evolution and internationalization.

1.6 Research Questions

No previous study has investigated the cross-border development of IIFs, which plays a crucial role in establishing today's global e- and m-commerce infrastructure. Based on

the resource co-evolutionary framework developed in this study, this thesis addresses a significant theoretical gap by exploring:

Through a resource co-evolutionary lens, how and why is the internationalization process of IIFs driven by the joint development of organizational knowledge and network relationships?

To shed light on this research question, three sub research questions are posed in the following:

1. *How does the internationalization of IIFs unfold over time?*
2. *What are the primary knowledge and network resources, enabling the critical internationalization process patterns of IIFs?*
3. *How and why do the identified knowledge and network resources select and adapt to each other over time?*

1.7 Overview of Research Methodology

This thesis was positioned within a critical realism paradigm. Embracing both positivism and constructivism, critical realists assert that the reality would be observable independently, but it is interpreted through social conditioning. This present research applied a process approach to multiple qualitative case study research design (Langley, 1999, 2009; C. L. Welch & Paavilainen-Mäntymäki, 2014). The critical realism stance led the present thesis to apply an abduction approach (Pettigrew, 1997). The deductive structuring of the three-tier resource co-evolutionary framework provided a prelude to the

more open-ended processes of the inductive pattern recognition and reasoning. Working within the critical realism paradigm, this researcher could, therefore, deductively profit from the extant literature and inductively generate new and beneficial academic and practical outcomes from the data (Creswell, 2007; Perry, 1998).

This thesis collected empirical evidence from seven international Internet Payment Intermediaries (IPIs) from New Zealand. IPIs are one of the narrowest categories of the IIFs (OECD, 2010). Particularly, this thesis drew evidence mainly from the following four sources, including

1. archival records and documentation, such as firm history from online sources and newspapers, agreements, standard operating procedures, corporate fact sheets, and brochures;
2. semi-structured interviews with key informants, such as Founders, CEOs, Directors, and Senior Managers who had experienced and been responsible for the case firms' international developments;
3. physical artefacts, such as tools, functions, devices, and interfaces; and
4. industry events and conferences.

During data collection, the researcher also took extensive research notes. In total, this research generated 2060 archival records, 51 interviews, and 484 observation notes for data analysis.

This present study mainly followed Langley's (1999) strategies for analyzing and theorizing from process data. Specifically, using what Langley (1999) called narrative strategy, temporal bracketing, and visual mapping, the critical characteristic internationalization patterns of IIFs, the particular combinations of organizational

knowledge and network resources that drive IIF internationalization for a certain period – an internationalization episode, and the mechanisms of change for the joint development of organizational knowledge and network resources were analyzed and explained.

1.8 Contributions

IIFs have emerged substantially in today's information and digital age, and they have brought about disruptive change and sizable knowledge gaps in IB and broader society (Alcácer et al., 2016). Under this trend, the contribution of this present thesis mainly lies in four areas, including

1. broadening managerial and scholarly knowing of the internationalization of IIFs;
2. identifying the critical knowledge and network resources enabling the unfolding of the internationalization of IIFs;
3. providing a resource co-evolutionary explanation to the internationalization of the IIFs;
4. extending the traditional internalization explanation of firm internationalization with an external logic, tailored to IIF internationalization; and
5. advancing IB process explanation by combining process data with process theorizing.

First, this thesis identified six internationalization episode patterns of IIFs, which are inception, siloing, bundling, multiplying, international replicating, and international withdrawal. These critical internationalization patterns are consistent with either a platform infrastructuralization or an infrastructure platformization approach (Plantin et al., 2018) that have not been previously identified in the IB literature. These findings

broaden the current understanding of digital-native firm internationalization. Each of these internationalization episodes has its pattern, which can represent a comparatively regular activity flow within the episode. The formation of the pattern is based on the common understanding of the process participants (Mesle & Dibben, 2017). These patterns can help IIF managers to think of their internationalization visions, monitor process opportunities, execution and risks, and provide feedback on firm internationalization conformance and other aspects of internationalization performance. The internationalization patterns of the IIFs are modular and non-linear towards the end state of the modular architecture. This finding is distinct from those described in the traditional pre-digital literature, which suggests that firm internationalization follows a linear one-way logic (J. Li et al., 2019; Nambisan et al., 2019; Vissak, 2010a). Scholars can also use these patterns to move research on digital firms and ecosystems forward, developing new concepts and explanations within the contexts of cross-border digital platforms, intermediaries, and platform ecosystems.

Second, in addition to the internationalization patterns, this thesis also identified that product logic, user logic, international cloud providers, sellers, and buyers are critical knowledge and network resources enabling the unfolding of the IIFs' internationalization. These vital resources have not been previously identified in the traditional IB literature, and thus extend existing knowledge, particularly on the resource-based view. Moreover, these resources also suggest critical practical implications, particularly for managers, education providers, and policymakers to develop specific strategies, education and training programs, and government support and services to embrace the development of digital commerce.

Third, the resource co-evolutionary framework and processual explanation developed in this thesis considers the antecedents and consequences of expanding or contracting possibilities (Goh & Pentland, 2019). They expand the traditional resource-based view, which overwhelmingly emphasizes the searching for antecedent resources that will lead to favorable organizational outcomes (Barney, 1991; Penrose, 1959; Wernerfelt, 1984). Scholars can apply it to other processual phenomena with emergent features to advance organizational science by developing new processual understanding about the dynamics of the phenomena. In practice, managers can use a resource co-evolutionary view to explore and exploit organizational strategic resource opportunities, coordination, and risks.

Additionally, the mechanisms of the IIFs' choice of externalities and internationalization approach developed in this study extended the traditional internalization explanation of IB (Buckley & Casson, 1976; Hennart, 1982, 2009; Rugman, 1981; Rugman & Verbeke, 1992; Verbeke, 2013) with an externalization logic. Traditional internalization theory could not account for the network externalities which characterize modern digital platform economy. This theoretical development point to new research frontiers for IB scholars looking to apply or advance internalization theory. Practitioners can draw upon these two mechanisms in developing their online strategies. The network externalities can be visual or invisible.

Finally, this present thesis contributes to the IB literature by advancing IB process knowledge using process data with process theorizing. Internationalization is commonly observed as a process (e.g., Axinn & Matthyssens, 2001; Benito et al., 2009; Melin, 1992; L. S. Welch & Luostarinen, 1988). However, IB process research, using process data and

theorizing, has played a limited role (Kutschker et al., 1997; C. L. Welch & Paavilainen-Mäntymäki, 2014). This present thesis derived from conceiving internationalization as processes rather than substances (Hernes, 2014; Rescher, 1996). Based on process data, analysis and theorizing, this thesis responded to calls for more process studies into internationalization, which have been repeatedly made over the past 30 years (Axinn & Matthysens, 2001; Benito et al., 2009; McAuley, 1999; K.E. Meyer & Gelbuda, 2006). It is hoped that this present thesis can inform and stimulate greater interest in processual understanding and study.

1.9 Researcher's Interest

I became interested in IB when I was achieving my MSc in Management at the Adam Smith Business School at the University of Glasgow, Scotland, UK. My Master's thesis focused on the internationalization patterns of Chinese service SMEs. After my Master's study, I have witnessed the burgeoning of New Zealand – China cross-border e-commerce. I conceived my Ph.D. project during my time working closely with Alipay and WeChat Pay's expansion to Australia and New Zealand. This experience provided me with a privilege to important data sources and good understanding of organizational routines of IIFs so that I could make sense of IIF internationalization and generate valuable theoretical and practical contributions to the area of IB.

1.10 Overview of Thesis Structure

This thesis is organized as follows (also, see Figure 1.2). Chapter 2 reviews the literature regarding the definitions of internationalization, internationalization of IIFs, and

mainstream IB theories. The literature review provides a detailed understanding of internationalization, and how it has been developed and explained theoretically. However, it also highlights the lack of previous research on the internationalization of IIFs. This thesis seeks to contribute to this specific literature.

Chapter 3 develops the resource co-evolutionary framework used in this research for data collection, analysis, and theorizing. Fundamental theoretical underpinnings of this theoretical framework include the process-based view, the resource-based view, the knowledge-based view, the network-based view, and the co-evolutionary framework.

Chapter 4 is the methodology chapter, which first outlines the philosophical position of the researcher, and then the practical details of applying the process approach to multiple qualitative case studies. Then, this chapter introduces the research contexts. Next, data collection and analysis are presented and justified. This chapter ends with a discussion regarding research reliability, validity and ethical considerations.

Chapter 5 presents the data analysis and findings of this thesis. Given the extended periods involved (up to 35 years of internationalization), instead of displaying a detailed analysis of all seven cases, this chapter first justifies the selection of the four exemplar cases to report the findings. It then presents the individual case reports of the four exemplar case firms. Based on a cross-case analysis of the total of seven cases, this chapter then presents the cross-case findings in comparison with existing IB literature where relevant.

In Chapter 6, based on cross-case findings, this thesis developed a resource co-evolutionary model, which describes and explains the internationalization of IIFs. In this chapter, the process model is discussed in light of the IB literature.

Chapter 7 recaps the thesis purpose and findings, discusses contributions and implications, and then outlines potential limitations and future research recommendations.

Research overview (Chapter 1)

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Literature review (Chapter 2)

- **Internationalization:** Internationalization definitions, IIF internationalization, and key IB process theories.
- **Inadequacies of previous research:** Only carried out in pre-digital age from supply-side perspective.
- **Paucity of previous research:** No previous IB study has investigated IIF internationalize in demand-side marketplace.

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Theoretical framework and main research question (Chapter 3)

- **Theoretical underpinnings:** The process-based view, resource-based view, knowledge-based view, network-based view, and co-evolutionary framework.
- **Resource co-evolutionary framework:** Capturing how and why the co-evolution of organizational knowledge and network resources driving the internationalization of IIFs.

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Methodology (Chapter 4)

- **The researcher's philosophical position:** Critical realism.
- **Research approach:** Abduction.
- **Research strategy:** Applying process research to multiple-case studies.
- Research contexts: New Zealand – China e- and m-commerce; IPIs.
- **Data collection:** Seven IPIs headquartered in New Zealand.
- **Data analysis:** Event chronologies, temporal bracketing, interconnecting, pattern matching, and explanation building.
- **Evaluation criteria:** Reliability, construct validity, internal validity, and external validity.
- **Ethical considerations:** In light of Massey University Ethics Code (Massey University, 2015).

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Data analysis and findings (Chapter 5)

- **Four exemplar cases (out of seven):** Neptune, Saturn, Mercury, and Jupiter.
- **Case reports:** Internationalization episodes and characteristic patterns, and key organizational knowledge and network resources enabling the unfolding of the identified episodes.
- **Cross-case findings:** Patterns of IIF internationalization, key organizational knowledge and network resources, reciprocal development of the organizational knowledge and network resources, and the mechanisms of change in the reciprocal development of the organizational knowledge and network resources.

↓

Discussion: A resource co-evolutionary model for the internationalization of the IIFs (Chapter 6)

- **Explanation building:** A resource co-evolutionary model for the internationalization of the IIFs.
- **Discussion:** Key findings are discussed in light of the mainstream theories reviewed in Chapter 3.

↓

Conclusion (Chapter 7)

- **Recapitulation:** Research purpose and findings.
- **Implication:** Managers, education system, scholars, and policymakers.
- **Contributions:** Knowledge, theory, and research methods in IB.
- **Limitations:** National frame, IIF categorial frame, and resource dimensions.
- **Directions for future research:** New national frames, IIF categorial frame, and resource dimensions.

Figure 1. 2. **Research Process Map**

1.11 Chapter Summary

In summary, this chapter has outlined the thesis background, focus, and aims. It has also presented an overview of the literature and the theoretical framework of this study. Moreover, this chapter has provided the research questions and methodology of this thesis. After this, this chapter explained the contributions of this thesis and the researcher's interest in this thesis. At the end of this chapter, the structure of this thesis has been outlined. The next chapter moves on to the literature review chapter of this study.

CHAPTER 2 - LITERATURE REVIEW

2.0 Overview

This chapter first defines internationalization as an organizational process. Then, this chapter reviews the literature of IIF internationalization and the mainstream IB theories with their abilities to explain and predict the internationalization of IIFs being discussed. This thesis seeks to contribute to the specific literature of IIF internationalization. Due to the research approach adopted – a mix of deduction and induction, the literature review was conducted and enriched four times. The initial one was done for developing the proposal of this Ph.D. project as a requirement of Ph.D. admission. The second one was done for developing the Confirmation Report of this Ph.D. project. The third one was conducted along with data collection and analysis. Finally, the fourth one was done during the development of the discussion and implication sections. The current chapter combines and presents the literature review conducted in the first three times. The literature review conducted for developing the discussion and implication sections is presented and discussed in those sections.

2.1 Defining Internationalization as a Process

The term "internationalization" has been defined broadly from two perspectives: the variance-based view and the process-based view (Andersson, 2000; C. L. Welch & Paavilainen-Mäntymäki, 2014). This distinction is orthodox in the IB literature. Although there are other ways to distinguish the definitions of internationalization, this distinction

makes it easy to recognize the central and unifying assumptions of IB studies (Seifert, 2010).

From the variance-based view, internationalization is seen as an independent event, and scholarly studies seek to explain the antecedent or consequences of internationalization as well as the law-like relationships between the precursors and the outcomes (Van de Ven, 1992, 2007). However, the variance-based view is not without problems. Research from the variance-based view ignores the dynamic, ongoing, and path-dependent nature of internationalization (C. L. Welch & Paavilainen-Mäntymäki, 2014). Thus, these research findings are unable to state what to do, at what point in time, in what context (Langley et al., 2013; Sandberg & Tsoukas, 2011). Therefore, they are hard to be transferred to practice showing managers the sequences of moves required to survive, capture benefits, or reduce losses (Pfeffer & Sutton, 2006; Rousseau, 2006; Langley et al., 2013). Having noticed the limitations of the variance-based view, a growing number of IB scholars thus call for theoretical renewal through the process-based view (Axinn & Matthyssens, 2001; Buckley & Lessard, 2005; Cantwell et al., 2010; Child & Rodrigues, 2005; Hutzschenreuter et al., 2007; Shenkar, 2004; Sullivan & Daniels, 2008; C. L. Welch & Paavilainen-Mäntymäki, 2014).

The process-based view assumes that internationalization is an ongoing path-dependent process (C. L. Welch & Paavilainen-Mäntymäki, 2014), which follows a contextually based logic (Andersson, 2004). From this point of view, the term "internationalization" can be defined as an outward movement of international operations (J. Johanson & Wiedersheim-Paul, 1975; Piercy, 1981), a gradual and incremental process (J. Johanson & Vahlne, 1977; L. S. Welch & Luostarinen, 1988), a process of adapting organizational

operations to the international environment (Calof & Beamish, 1995). Or internationalization as a process can be defined as an evolutionary process in which sequential stages are associated with orientations and attitudes (J. Johanson & Wiedersheim-Paul, 1975; Luostarinen, 1979; Santangelo & Meyer, 2017; Turner & Gardiner, 2007; Vahlne & Johanson, 2017; Wind et al., 1973).

Having put forward a working definition, some recognize the inevitability of discontinuance and define internationalization as "an evolutionary process through which companies become increasingly committed to, and involved in, international activities, but at a certain point can also become inverted and result in de-internationalization." (Ruzzier et al., 2006, p. 478). The present research followed this definition, as the interest of this research was on the internationalization as a process occurring at an organizational level of analysis. Internationalization as a process includes the unexpected and mostly uncontrollable chain of corporate activities and events (Langley et al., 2013; C. L. Welch & Welch, 2009). From this perspective, an internationalization event arises out of and is constituted through, its relations to other internationalization events. Hence, each event can be further analyzed in terms of more extensive or smaller events (Cobb, 2007). Moving on now to consider IIF internationalization process.

2.2 The Internationalization of Internet Intermediary Firms

In recent years, digital firms and their international penetration have been dramatically transforming the landscape of world economy and global businesses (Banalieva & Dhanaraj, 2019; Chen et al., 2019; J. Li et al., 2019; Nambisan et al., 2019; UNCTAD, 2019b). In this study, digital firms are defined as digital native firms that "born in the

contemporary Internet age and offering value propositions based primarily on digital technologies" (Journal of International Management, 2020). Despite these changes, scholarly understanding of the development of digital firms has not kept pace (Journal of International Business Study, 2020). IIFs are the fourth parties on the Internet, providing digital infrastructure products and services for the third parties and other Internet users (OECD, 2010). This study focuses on IIF internationalization. The following section reviews the literature of IIFs, the marketplaces that IIFs participate in, the role of IIFs in extending platforms and infrastructure, and the role of IIFs in enabling MNEs to customize and control digital channels and other advanced technologies, respectively. Then, this section intersects IIFs and some general issues of digital firm internationalization. This thesis seeks to contribute to these specific streams of literature.

2.2.1 Internet Intermediary Firms

IIFs are like the fourth parties on the Internet. They "bring together or facilitate transactions between third parties on the Internet. They give access to, host, transmit and index content, products and services originated by third parties on the Internet or provide Internet-based services to third parties" (OECD, 2010, p. 9).

Current third parties on the Internet identified within the scope of this thesis include:

1. Internet access and service providers that provide access to the Internet to households, businesses, and government (e.g., Verizon, Comcast, NTT, Internet Initiative Japan, BT, Free.fr and mobile operators offering Internet access, such as Vodafone, Orange, T-mobile, MTN);

2. data processing, content delivery, and web hosting providers that transform data, prepare data for dissemination, or store data or content on the Internet for others (e.g., Akamai, Easyspace, GMO Internet Inc., Go Daddy, Navisite, OVH, Rackspace, Register.com);
3. Internet search engines and portals that aid in navigation on the Internet (e.g., Baidu, Google, MSN, Naver, Yahoo!);
4. e-commerce intermediaries that enable online buying or selling (e.g., Alibaba, Amazon, eBay, Priceline.com);
5. Internet payment systems that process Internet payments (e.g., MasterCard, PayPal, Visa, Alipay, WeChat Pay); and
6. participative networking platforms that aid in creating content and social networking (e.g., Facebook, LinkedIn, Ohmynews, YouTube) (OECD, 2010).

These third parties on the Internet usually form a nexus of business rules and operations. The IIFs usually leverage these relatively standardized and stable rules and processes by developing more customized complementary solutions (Gawer & Cusumano, 2014). The IIFs extend or integrate these third parties on the Internet through providing Internet infrastructures; aggregating dispersed information; facilitating information exchange; aggregating supply and demand; facilitating market process; reducing information asymmetries through the provision of product/service and transactional expertise; matching producer and consumer for transactions; and providing trust to the marketplaces to enhance transactability (OECD, 2010). The IIFs are like the fourth parties on the Internet, extending these third-party platform-centric infrastructures to be more decentralized, interconnecting as many as possible sides or groups of participants into the connected platforms and infrastructures (Choudary et al., 2015; Dhar & Stein, 2017; Dhar

& Sundararajan, 2007). By doing so, the IIFs form more decentralized "networks of networks" or internetworks (Edwards, et al., 2007). They play an irreplaceable role in developing high-quality Internet experiences, leading to a unified, less frictional Internet environment across online and offline interactions and transactions between multiple sides or groups of Internet users.

2.2.2 Demand-side Economies of Scale

As the digital economy's growth continues seemingly unchecked, the digital matchmaker business models represent a fast-increasing proportion of the overall total. Digital matchmakers are now attracting an unprecedented level of capital investment through the value-creating power of platform ecosystems and digital assets (Accenture, 2016). A digital ecosystem refers to a network of cross-industry digital matchmakers, firms, and individuals that work together to define, build, and execute market-creating solutions. The power of the ecosystem is that the value that the ecosystem creates is larger than the combined amount that each of the participants could individually generate (Lyman et al., 2017).

Across products, industries, and developed economies, a single digital platform has prevailed 75% of the time (Bughin et al., 2019). Particularly in B2B contexts, the World Economic Forum's Digital Transformation Initiative (DTI) stated that B2B digital platform matchmakers could represent US$10 trillion in socio-economic value creation from 2015 to 2025 (World Economic Forum & Accenture, 2017). Forbes has revealed 100 statistics showing the growth and importance of digital transformation and its impact on customer experience in 2019 (Morgan, 2019). It is worth to highlight from the statistics

that 89% of all companies have already applied a digital-first business strategy or plan to do so. 60% of all companies have created new business models from undergoing a digital transformation, but 89% of all customers get frustrated when they have to repeat their request to multiple providers (Morgan, 2019).

The emergence of the platform economy reflects a decisive macroeconomic shift from supply-side to demand-side economies of scale. Before the Internet, supply-side economies of scale – optimizing the supply chain and creating barriers to entry by controlling or owning resources and assets – play a significant role in the world economy. With the wide use of the Internet, the macroeconomic has shifted to demand-side economies of scale – wherein two groups of participants (typically, sellers and buyers) generate network effects and value for each other, resulting in mutual benefits that drive demand-side economies of scale (Accenture, 2016; Zhang et al., 2019). The effects and value accruing to different groups of network participants arise from the size of the network base – the number of other participants with whom they can interact in the same network (Armstrong, 2006; Katz & Shapiro, 1986; Chen et al., 2019).

Network effects can be same-side or cross-side (Jacobides et al., 2018). Same-side network effects arise when the benefits to a participant taking part in a platform are based on the number of other participants on the same side (Parker & Van Alstyne, 2005; Rochet & Tirole, 2003). Same-side network effects can be positive or negative (Nambisan et al., 2019). Cross-side network effects arise when the benefits to a participant taking part in a platform are based on the number of other participants on the other side (Hagiu & Wright, 2011; Nambisan et al., 2019). For example, the number of buyers and sellers on e-commerce platforms, such as Amazon, Alibaba or eBay. Cross-side network effects can

be unidirectional or bidirectional (Hagiu & Wright, 2011; Nambisan et al., 2019). Edgeworth or supermodular complementarity is the basis for both direct same-side and indirect cross-side network effects (Jacobides et al., 2018).

The demand-side economies of scale, also known as network effects or network externalities, have opened entirely new opportunities for new kinds of growth and capital rewards for almost every firm in and across all industries (see Figure 2.1). A platform builds and develops multi-sided ecosystems consisting of different groups or sides of participants. By making the best match among the diverse groups or sides for each communication and transaction, the platform promotes regulated participation and leverage its existing groups of users (Eisenmann et al., 2011). In this process, both the same- and cross-side network effects can generate significant market advantages to the platform through a "self-reinforcing cycle" (Eisenmann et al., 2006).

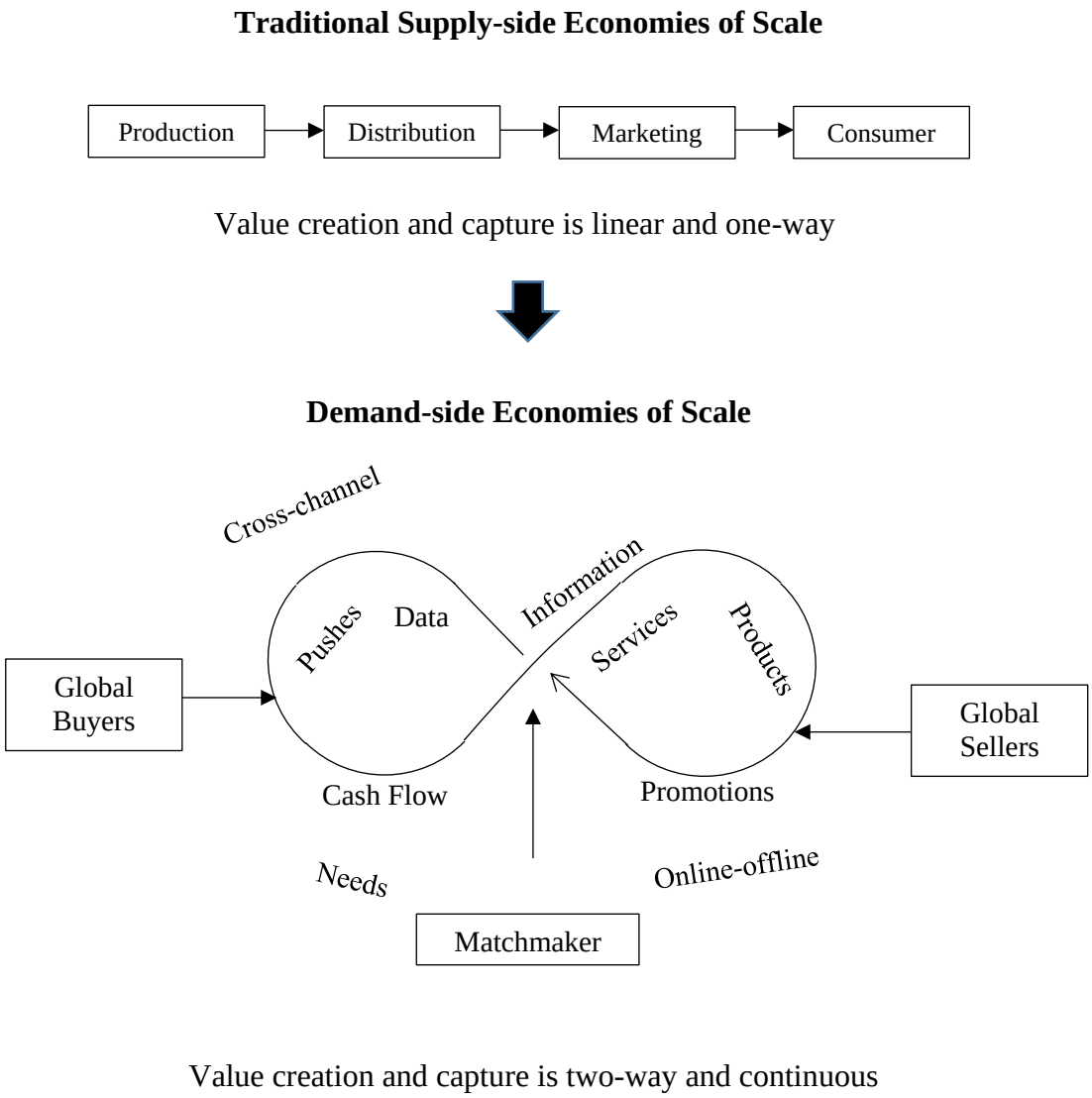


***Figure 2. 1*. A Comparison between the Supply-side and the Demand-side Economies of Scale**

The burgeoning of demand-side economies of scale in the information age has challenged the traditional IB wisdom (Chen et al., 2019). The mainstream IB explanations (as reviewed in Section 2.3) suggest that firm internationalization is conditioned by the firm's experiences, strategies and routines (Dunning & Lundan, 2008; J. Li et al., 2019;

Nambisan et al., 2019), and it follows a linear one-way logic where value-adding activities and transactions are performed within the firm (J. Li et al., 2019; Nambisan et al., 2019; Vissak, 2010a). The shift of the macroeconomic towards the demand-side economies of scale implies that firm internationalization may be externalized. Specifically, it is no longer a firm-led unilateral process, but conditioned by the connections and interactions between the participants in multi-sided marketplaces dispersed spatially online and offline across national borders (Chandra & Coviello, 2010; Coviello et al., 2017; J. Li et al., 2019; Nambisan et al., 2019). The recent development of the demand-side economies of scale has heightened the need to cover this contemporary trend with meaningful insights.

2.2.3 The Role of IIFs in Extending Digital Platforms

Platform-based marketplaces or ecosystems have been described as fluid (Nambisan, 2017) and unruly (Van Dijck, 2020). Current studies of the development and evolution of platform ecosystems suggest three main intellectual streams, which are infrastructure platformization (Bowker & Star, 1999; Edwards et al., 2007; Graham & Marvin, 2001; Hughes, 1993), platform infrastructuralization (de Kloet et al., 2019; Nieborg & Helmond, 2019; Nieborg & Poell, 2018), and a mix of infrastructure platformization and platform infrastructuralization (Nooren et al., 2018; Plantin et al., 2018; Zhao & Lin, 2020). These studies, to a significant extent, envision platform-as-infrastructure as an evolving dynamic process, propelled by human and non-human properties (Van Dijck, 2020).

From the perspective of infrastructure platformization, software-based architectural systems are platforms, which provide core functionalities shared by the platforms'

modules (Tiwana, 2013). Moreover, marketplaces with a near-zero marginal cost of access, distribution, and reproduction can also be taken as platforms (McAfee & Brynjolfsson, 2017). Both the software-based architectural systems' and the marketplaces' platformization process have an infrastructural focus on system properties, such as platform semiotics, data streams, and algorithms (de Kloet et al., 2019; Edwards et al., 2007).

Slightly different from infrastructure platformization, platform infrastructuralization centers on infrastructures that interlink two or more platform sides or groups of participants to interact and transact with each other (Srnicek, 2017). From the perspective of platform infrastructuralization, the development and evolution of platform is a process in which the interactions between different sides and groups of platform participants are capacitated but also constrained by platforms as infrastructures (Plantin et al., 2018).

A review of the literature reveals that both infrastructure platformization and platform infrastructuralization are designed and developed for fulfilling people's needs. However, the former does not start with allowing external developers to elaborate on it (Zhou & DiSalvo, 2020). The latter encourages external platform reprogramming (Bogost & Montfort, 2009) and customization (Andreessen, 2007) which adapt the platform to the niches that the platform's original internal developers could not have possibly contemplated (Andreessen, 2007). In the latter case, the external IIFs and users establish internetworks through and for the platform-as-infrastructure (Edwards et al., 2007).

Recently, the boundary between platformization and infrastructuralization becomes blurry (Nieborg & Helmond, 2019; Plantin & de Seta, 2019; Plantin et al., 2018). Thus,

scholars have suggested combining these two concepts as discrete but mutually constructive (e.g., Nooren et al., 2018; Plantin et al., 2018; Zhao & Lin, 2020) – platforms not only co-exist but also compete with or even supplant infrastructures (Plantin et al., 2018).

Therefore, in the combined perspective, platform-as-infrastructure either remains a centrally designed and orchestrated ecosystem ecology (Edwards et al., 2007), or is championed by external developers (Plantin et al., 2018), such as e-commerce intermediaries, Internet search engines and portals, and Internet payment systems (OECD, 2010). The external developers, including the IIFs, interlink the independently developed and maintained platforms and infrastructures (Edwards et al., 2007; Edward et al., 2009; Graham & Marvin, 2001; Ribes & Finholt, 2009), interoperating with them (Tiwana, 2013) by extending their functionalities (Helmond et al., 2019) and providing services to enrich them (OECD, 2010).

The existing literature has overwhelmingly assumed that because of the lack of embeddedness in the users' side in the international markets, the expansion of platform-as-infrastructure to global markets suffers more liabilities of outsidership than their traditional counterparts (Brouthers et al., 2016). Liabilities of outsidership generally refer to the problems relevant to being outside a vital business network of relationships and contexts in new markets (J. Johanson & Mattsson, 1988; J. Johanson & Vahlne, 2009). However, the role of the IIFs in extending and customizing platform functionalities implies that through collaborating with IIFs, the international expansion and penetration of platform-as-infrastructure may suffer fewer liabilities of outsidership.

2.2.4 The Role of IIFs in Capacitating MNEs Governing Digital Platform-based Ecosystem

As the fourth parties on the Internet, IIFs not only extend the platforms to niche markets but also capacitate MNEs to adapt better and control digital platform-based markets and information channels. With the emergence of the Internet, digital platforms and infrastructures in global e- and m-commerce have evolved from mono-channel to omnichannel. In siloed or mono-channel digital platform-based e- and m-commerce, buyers purchase through only one platform a time (Lapoule & Colla, 2016). Based on mono-channel platforms and infrastructures, buyer-seller communication and interaction evolve to be multi-channel, where buyers search, purchase, pay and collect from sellers through more than one platform (Gerritsen et al., 2014). However, these platforms as information are independent and siloed (Beck & Rygl, 2015) with little inter-platform coordination (Piotrowicz & Cuthbertson, 2014). Based on multi-channel global e- and m-commerce, developers have created cross-channel of information where there are more than one channel switches within the framework of a single transaction (Gerritsen et al., 2014). Such cross-channel e- and m-commerce infrastructure has been further extended towards omnichannel – a broader view of all platforms, where buyers and sellers can communicate and transact seamlessly with each other using different platforms online and offline (Juaneda-Ayensa et al., 2016). Real-time omnichannel communication and transactions between buyers and sellers across different platforms and spatial dimensions will not cause inconvenience or friction (Verhoef et al., 2015).

In the evolution of global e- and m-commerce channels of information, providers, such as manufacturer, distributors, and retailers, not only benefit but also suffer from platform

competition (Kim & Chun, 2018). The bonus of mono-, multi-, cross- and omnichannel global e- and m-commerce includes, for example, reduced search cost, increased reach, more substantial control over pricing (Kim & Chun, 2018; Ryan et al., 2012). However, adding a platform as a communication and transaction channel will lead to the introduction of channel competition, which may cause lower prices and reduced profit margins for both the sellers and the platforms (Kim & Chun, 2018; Piotrowicz & Cuthbertson, 2014). In the literature, competition between channels of distribution and delivery for the same product/service has been recognized as "channel cannibalization" (Piotrowicz & Cuthbertson, 2014). Moreover, as discussed earlier, adding a platform or other types of channel of information might cause more unnecessary additional effort, incremental step, or inconvenience which may make buyers abandon their purchase journey (KPMG et al., 2018).

To mitigate the channel pitfalls (Mirzabeiki & Saghiri, 2020) for sellers to participate in the platform-based ecosystem, recently published studies have suggested collaborating with IIFs (e.g. Boudreau & Jeppesen, 2015; Yoffie & Kwak, 2006; Zhu & Liu, 2018). Platforms as channels of information are usually third parties on the Internet interconnecting multi-sided groups of platform-based ecosystem participants, such as the buyers and sellers. As discussed earlier, IIFs are like the fourth parties on the Internet extending, tailoring, and bundling these third parties, facilitating different groups of ecosystem participants to interact and transact across various channels of communication (Barwitz & Mass, 2018; Fornar et al., 2016) seamlessly and frictionlessly. In addition to producing system dynamics (S. Lee et al., 2018), IIFs have also been highlighted in developing seller-centric digital platform-based ecosystem (Barwitz & Maas, 2018; Fornari, et al., 2016), and enriching or simplifying (Gawer & Cusumano, 2014)

interconnections and interactions between ecosystem entities (Mirzabeiki & Saghiri, 2020; Saghiri et al., 2017). These characteristics of IIFs identified in the literature suggests significant possibilities for sellers to remove silos and fragmentation, make better control of channel competition, and optimize their interactions with and across platforms in more effective ways.

So far, this thesis has reviewed the literature of IIFs and their roles in the empirical business world. The following section of this literature review intersects IIFs and digital firm internationalization.

2.2.5 The Internationalization of Digital-native Firms

Many scholars have argued that as the core offerings of digital firms are entirely digital and are transferred nearly instantaneously over the Internet, they are born-global by default (e.g., Brouthers et al., 2016; Kotha et al., 2001; Loane & Bell, 2002; Loane et al., 2004). However, there are still many digital firms being purely domestic or home oriented (Stallkamp & Schotter, 2019). These characteristics of digital firm internationalization have been discussed in the existing literature around the following issues.

Research shows that IIFs' international market-seeking can be active and passive. The active internationalization means that IIFs actively pursue a global presence or target international network participants through, for example, establishing an international (online) presence, which can be supported or not by Foreign Direct Investment (FDI) or alliances with international firms. In contrast, the passive pursuit of internationalization implies that IIFs have a general (online) presence or offering and serve international

network members through it (Hazarbassanova, 2016). In this passive situation, IIFs do not actively pursue internationalization through adaptation of their general offer. When their (online) presence can be reached from anywhere in the world, demand from international markets can be passively accepted and processed (Hazarbassanova, 2016). According to C. Y. Baldwin and Woodard (2009) and Schilling (2000), in some circumstances, especially where IIFs provide open-sources, the IIFs' passive internationalization can even take place without the IIFs knowing the details of their next-tier external developers' workings. In addition to passive international market-seeking, Plumley's (2000) research showed that there are also many IIFs, only incorporating local content and demand preference in their offerings.

On the other hand, in the context of international IIFs, the IIFs usually position themselves at the interface layer of vast cross-border demand-sided markets, aiming at capturing the markets' value (Hazarbassanova, 2016). They have one revenue stream, and the market participants have other revenue streams. There is a symbiotic relationship between these different revenue streams (OECD, 2010). A fundamental characteristic of IIFs' revenue model is that IIFs do not fully control what the market participants do or build on their markets, but instead generate value through channeling, maintaining, and orchestrating the commercial exchanges between various market participants (Chen et al., 2019). Therefore, the success of IIFs mainly lies in their ability to encourage the mass-market adoption of their offerings and build a sizeable associated network (Zhu & Furr, 2016). IIFs serve as an intermediary interface to reduce barriers and frictions that prevent digital ecosystem participants from interacting with one another (Chen et al., 2019). Thus, the value production of IIFs hinges on their complementary capability (Stallkamp & Schotter, 2019), use of their network participants' complementary assets and alliances (Singh &

Kundu, 2002), and the value contributed by the IIFs' associated network participants (Chen et al., 2019).

This study interests in how the IIFs internationalize and it mainly focuses on how IIFs interconnect and intermediate platforms and sellers in global e- and m-commerce contexts. As indicated earlier, the phenomenon of IIFs is brand-new to IB literature. Therefore, to explain this phenomenon of research interest, it would be imperative to reassess the mainstream IB theories, on the one hand, to select applicable theories, and on the other hand, to delineate how IIFs can enrich and augment IB explanations. In the following section, the mainstream IB theories will be reviewed and discussed chronologically.

2.3 Literature of IB Theories

While IB has been present through much of history (e.g., the Silk Road), the term "internationalization" emerged not until the 1920s. Then it gradually replaced the word "imperialism" as the primary principle of cross-border organizational interaction. The phenomenon of IB accelerated and appeared unrivalled after the Second World War. Then in the early 1970s, the phenomenon of globalization occurred. Along with globalization, internationalization has become extensively studied (Gjellerup, 2000).

Early IB studies were based on the assumptions of tangible flows of goods and services, restricted access to open resources, monetized cross-border transactions, and large Multinational Enterprises (MNEs) that compete in international markets full of physical barriers (Nambisan et al., 2019). However, in recent years, IB business and operations show new features in the information age. For example, organizational decentralization

(Ghoshal & Bartlett, 1988), flexibility (Volberda, 1998), modularity (C. Y. Baldwin & Clark, 2000), various kinds of networks (Ghoshal & Bartlett, 1990; Zander, 2002), inter-organizational collaboration and openness (Chesbrough, 2003), accelerated knowledge creation and exchange (Foss & Pedersen, 2004), and new business models that lead to a digital platform economy (Kenney & Zysman, 2016). There appears to be broad agreement that these features are challenging the traditional assumptions of IB.

2.3.1 Adam Smith's (1776) Absolute Advantage Theory

The first formal inquiry into the nature, causes, and effects of IB can be traced back to Adam Smith's (1776) Absolute Advantage Theory. According to A. Smith (1776), international business and trading can be seen as the central cause of the wealth of nations. At the core is the international division of specialization. As a country has its absolute advantages in producing some sets of goods and services with lower cost and higher productivity, it will export to countries that have absolute disadvantages in producing these sets of goods and services. On the other hand, each country also has absolute disadvantages. So, a country will not produce and supply those goods and services that it does not have an absolute advantage over, but rather would import these from other countries. Thus, according to A. Smith's (1776) Absolute Advantage Theory, trade takes place between two countries based solely on the principle of absolute advantage and disadvantage.

2.3.2 David Ricardo's (1817) Comparative Advantage Theory

However, trade takes place between countries that may not always have the absolute advantages or disadvantages to produce all products. Therefore, David Ricardo (1817) refined Adam Smith's (1776) Absolute Advantage Theory by putting up a Comparative Advantage Theory. The absolute advantage perspective takes the "monetary cost" as the basis of "national advantage". In contrast, the Ricardian perspective emphasizes production efficiency or the level of the relative opportunity cost of production. According to Ricardo (1817), despite countries having absolute advantage over all goods and services, they can be different in their resource endowments. These differences will lead to comparative advantages and disadvantages of efficiently producing goods and services, which determine export- or import-associated goods and services.

2.3.3 Heckscher and Ohlin's (1933) Proportion Factor Theory

Based on Adam Smith's and Ricardo's theories, Heckscher and Ohlin (1933) further developed their Proportion Factor Theory (also known as Endowment Theory). According to the authors, a country will tend to produce and export goods and services to other countries if that country can harness its most abundant production factors (labor and capital). In contrast, a country will tend to import goods and services if it needs its scarce production factors to produce them. A. Smith, Ricardo, and Heckscher and Ohlin's theories together are usually labeled as the dominant sounds of the pre-Hymer period IB theories. These three theories are often criticized for their limitations in restrictive assumptions. For example, they only focused on country level internationalization. They assume firm internationalization as "an obvious fact that requires no explanation"

(Buckley & Casson, 2009, p. 1573), and the availability of capabilities and resources is the same for all firms within their home countries (Buckley, 2009; Rugman & Verbeke, 2008). Since the 1950s, economists have begun to incorporate market imperfections and organizational abilities into traditional trade theory.

As the present research focused on firm-level internationalization activities, those above three traditional trade theories, which focused on country level internationalization, were only presented briefly. It is imperative for this thesis to start the review of the IB theories from these three traditional trade theories, as they opened up IB as an academic discipline, and marked the start of the evolution of IB theories and practices. These three theories characterize the nature of the IB research field in the machinery-based and the trade-based industrial age (Alcácer et al., 2016), and they have laid a solid foundation for the subsequent development of the field of IB. In the next sections, modern IB theories will be discussed regarding their applicability to explain IIF internationalization.

2.3.4 Hymer's (1960) Monopolistic Advantage Theory

After World War II, when Foreign Direct Investment (FDI) emerged as a phenomenon leading the world economy, IB research interest moved from country level to firm level of analysis, with a particular emphasis on MNEs. Drawing on Bain's (1956) Industrial Organization Theory, Stephen Hymer (1960) – the intellectual father of modern IB theories – developed the Monopolistic Advantage Theory (also known as the Theory of Foreign Direct Investment or the Theory of FDI) in his doctoral thesis. The Monopolistic Advantage Theory explained why firms engage in FDI and the rationale for the existence of MNEs.

Before Hymer's doctoral thesis, theories explained FDI as capital movements from one country to another based on perceived profits from interest rates, and it was not necessary to separate FDI from any other kinds of cross-border investments. However, in Hymer's (1960, 1976) work, he differentiated FDI from portfolio investments by arguing MNEs have a cost of internationalization. Thus, to overcome the cost and maximize profits in foreign markets, MNEs process, leverage, and combine unique, distinctive, and superior advantages (monopolistic advantages) over indigenous competitors. When there are no firms to license, or when there are difficulties in achieving a licensing agreement, MNEs will engage in FDI.

Stephen Hymer's (1960) Monopolistic Advantage Theory, for the first time, shifted IB research attention from the country level to the firm level. The theory explained the rationale for the existence of MNEs. However, it failed to explain the mechanisms for creating monopolistic advantages.

2.3.5 Vernon's (1966) International Product Life Cycle Theory

Another famous IB theory that emerged in the 1960s, at the time of the rise of technology and MNEs, is Raymond Vernon's (1966) International Product Life Cycle Theory. This theory was developed in response to the limitation of the Heckscher and Ohlin's (1933) Proportion Factor Theory to explain the observed pattern of international trade. The fundamental assumption of this theory was that international trade patterns are similar to product life cycle patterns.

Specifically, according to the Product Life Cycle Theory (Vernon, 1966), a product's life cycle can be segmented into four stages: (a) introduction, (b) maturity, (c) standard, and (d) decline. Vernon (1966) argued that for each stage of a product life cycle, there is an appropriate country to make FDI and protect the market of the product over time. Vernon, therefore, explained and predicted that international trade patterns follow a four-phase cycle: (a) building a country's export strength, (b) commencing foreign production, (c) competing in foreign export markets, and (d) competing with imports in the country's home market (Vernon, 1966; Wells Jr, 1968).

Despite other IB scholars and the author himself (Vernon, 1979) stating that the theory's explanatory power is diminishing along with the economic environmental characteristics changing after World War II, the theory's significance in depicting IB as a process cannot be ignored. Vernon's (1966) International Product Life Cycle Theory lays a solid foundation for the subsequent development of IB theories that assume "change is a unitary, cumulative, and conjunctive sequence of stages" (Van de Ven, 1992, p. 177). The theory focused on location, mode of operation, and time, and hence, indirectly addressed the evolution process of MNEs.

However, this thesis would not incorporate the theory above because it lacks adequacy in explaining and predicting the internationalization of modern firms. Vahlne and Johanson (2017) argued that modern Multinational Business Enterprises (MBEs) – from early steps abroad to be a global firm – are different from their traditional MNE counterparts. The MBEs are "process rather than structure-oriented; a network rather a stand-alone unit; business exchange rather than production; pro-active and entrepreneurial rather than

passive; heterarchical (de-centralized) rather than hierarchical" (Vahlne & Johanson, 2017).

2.3.6 Internalization Theory

During the 1970s when MNEs were still playing a significant role in leading the world economy, research efforts to explain the internationalization of the firm shifted from a focus on the determinants of FDIs to why MNEs exist and expand overseas (Buckley & Casson, 1976; Hennart, 1982; Rugman, 1981). The Coasian Theory of the Firm explains that the existence and boundary of a firm are based on the transaction of cost considerations (Coase, 1937). The Transaction Cost Theory provides the rationale for how firms choose alternative governance structures - international operation modes are based on efficiency considerations (Anderson & Gatignon, 1986; Erramilli & Rao, 1993; Williamson, 1975). Based on these two theories, Buckley and Casson (1976) developed the Internalization Theory, which explains and predicts the existence and growth of an MNE as the result of trading off the firm's transaction costs of its internal economic activities against the transaction costs of its external market exchanges.

The Internalization Theory has been extended by Dunning (1980), Rugman (1981), Hennart (1982), and Rugman and Verbeke (1992, 2003) and it is no exaggeration to say that the theory is becoming a generally accepted theory of MNEs (Narula et al., 2019). Based on the Internalization Theory, internationalization can be seen as a process in which MNEs use their governance to internalize business activities rather than investing in more costly market options, such as exports, licensing, or joint ventures (Buckley & Casson, 1976; Williamson, 1975). However, as discussed earlier, international IIFs have

been witnessed to follow a logic of externalization (Chen et al., 2019). They hinge on the bundling of external, complementary social and economic activities (Nambisan, 2017; Parker et al., 2016) dispersed spatially online and offline across different countries (Chandra & Coviello, 2010; Coviello et al., 2017; J. Li et al., 2019; Nambisan et al., 2019). Therefore, the explanatory power of the Internalization Theory to IIF internationalization is dubious.

2.3.7 Eclectic Paradigm

A further expansion of the Internalization Theory is John Dunning's (1977, 1979, 1980, 1988, 2001) Eclectic Paradigm, which is also known as the OLI Model or OLI Framework. OLI stands for Ownership-specific advantages, Locational attractions of countries or regions, and Internalization advantages. According to the Eclectic Paradigm, ownership-specific advantages refer to the competitive advantages of a firm seeking to engage in international production and FDI. The more the competitive advantages of the firm, the more it is likely to engage in its foreign output and investment. Location advantages are about alternative countries or regions. The more the immobile, natural, or created resources in the alternative countries or areas can satisfy the needs of the firm to undertake its value-adding activities, the more the firm will choose to augment or exploit its specific advantages by engaging in production and FDI in that location. Internalization advantages reflect how a firm uses its particular advantages. The more the net profits of internalizing cross-border intermediate product markets, the more the firm will prefer to engage in foreign production by itself.

The Eclectic or OLI paradigm explains “why”, “where”, and “how” MNEs engage in international production and FDI in international markets (Dunning, 1980, 1988). Grounded in Transaction Cost Theory, Product Life Cycle Theory and Evolutionary Theory (Cantwell & Narula, 2003), the paradigm remains the leading explanation for the growth of cross-border activities of MNEs (Buckley & Hashai, 2009; Cantwell & Narula, 2003; Rugman et al., 2011). Besides, the paradigm is also an operable three-tiered framework that managers can use to determine whether to engage in internationalization. In recent years, the paradigm has been extended to explain the online internationalization of SMEs (e.g., Nambisan et al., 2019; Pezderka & Sinkovics, 2011). Moreover, to better apply the paradigm to international e-commerce, J. Li et al., (2019) added richness to the paradigm by furthering the concept of ownership-specific advantages to ecosystem-specific advantages.

However, in this thesis, the capacity of the Eclectic or OLI Paradigm in explaining the internationalization of IIFs is still limited. First, the purpose of this thesis is to explore and explain the internationalization process of IIFs. However, the paradigm is static, and its capacity in explaining the ongoing changes in the internationalization of IIFs can be limited (J. Johanson & Vahlne, 1990). Second, despite one of the core concepts having been furthered to ecosystem-specific advantages, the assumption implicit in the furthered paradigm remains that ecosystems are fluid (Nambisan, 2017) and unruly (Van Dijck, 2020). The concept of ecosystem-specific advantages still needs to be enriched (J. Li et al., 2019).

2.3.8 Uppsala/Stage Model

Based on the resource-based view, the Uppsala Model (U-Model) (J. Johanson & Vahlne, 1977) was developed. The U-Model is one and the only model that explicitly explains internationalization as a process of resource accumulation (Vahlne & Johanson, 2017; C. L. Welch & Paavilainen-Mäntymäki, 2014). The model has been refined several times in the intervening years. This section chronologically discusses the 1977 version, 2009 version, and 2017 version. The 1977 version was developed from a knowledge-based view. The 2009 version incorporates the network-based view. Both are influential in explaining and predicting internationalization. The 2019 version was mainly developed for modern firms, which has attracted increasing attention from the IB research discipline.

2.3.8.1 Johanson and Vahlne (1977)

The seeds of the U-Model (J. Johanson & Vahlne, 1977) were first sown by J. Johanson and Wiedersheim-Paul (1975) when they conducted a longitudinal case study research on four Swedish MNEs at Uppsala University in the early 1970s. Then, based on the behavioral theory of the firm (Aharoni, 1966; Cyert & March, 1963) and the theory of firm growth (Penrose, 1959), the first version of the U-Model was published in 1977 (J. Johanson & Vahlne, 1977). The original U-Model categorized four internationalization stages of the firm, including

1. no regular export activities,
2. export via an independent representative,
3. establishment of a foreign sales subsidiary, and

4. foreign production/manufacturing (J. Johanson & Wiedersheim-Paul, 1975) (see Figure 2.2).

It focused on the incremental acquisition, integration, and utilization of knowledge (about foreign markets and operations) of individual firms and their successively rising commitment to the foreign markets.

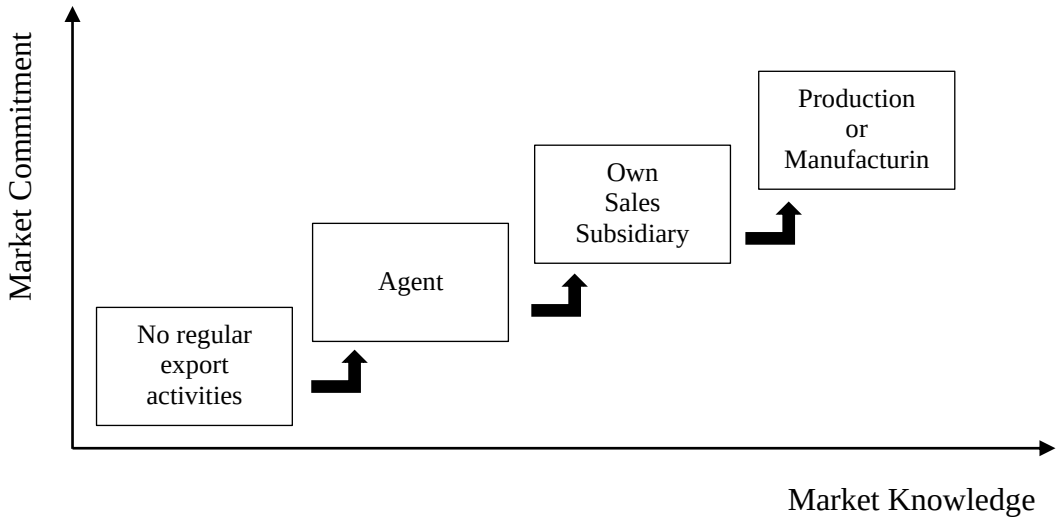


Figure 2. 2. **The Establishment Chain**

Adapted from: J. Johanson and Wiedersheim-Paul (1975).

Specifically, the original U-Model explains that internationalization is a process in which a firm starts from domestic operations and then incrementally participates in international markets as a function of heightened knowledge and overseas market commitment. Current operations are the primary sources of knowledge about foreign markets and operations, while the decisions to commit the overseas resources are responses to market opportunities and problems (see Figure 2.3). The lack of information and market knowledge is a critical barrier against firm internationalization (J. Johanson &

Wiedersheim-Paul, 1975). These barriers are labeled as the psychic distance (e.g., culture, language, and political system) or liabilities of foreignness (Zaheer, 1995).

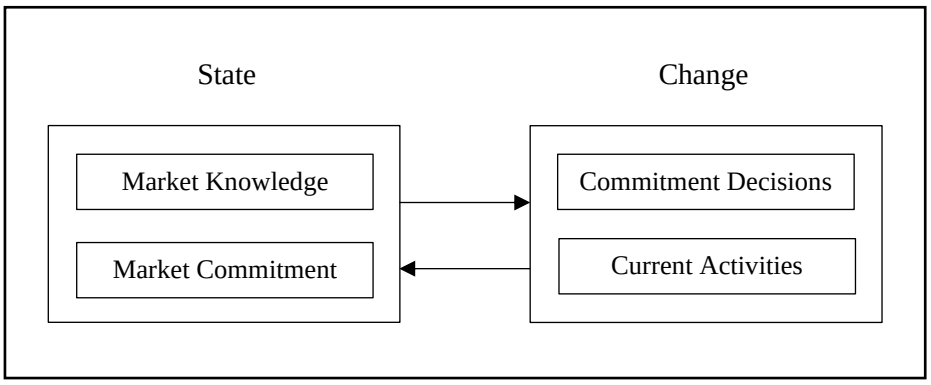


Figure 2. 3. **The Uppsala Model (1977 Version)**

Source: J. Johanson and Vahlne (1977, p. 2).

The original U-Model has laid a solid foundation for the subsequent development of IB process research. However, this model lacks practical value in that it is difficult to operationalize (Andersen, 1993). Moreover, it only described a stepwise internationalization process, which is only one of many ways of firm internationalization rather than the rule of internationalization (Bell, 1995; Millington & Bayliss, 1990; Reid, 1983; Vissak, 2010a). The model has subsequently been revisited.

2.3.8.2 Johanson and Vahlne (2009)

J. Johanson and Vahlne (2009) refined the model for the first time by incorporating the business network approach to the model. They posited any international market as a network of different business relationships, and market knowledge is inside the network.

According to J. Johanson and Vahlne (2009), once the internationalization of the firm commences, additional opportunities and knowledge opportunities will emerge in the course of interactions with the firm's network partners (e.g., suppliers, customers, intermediaries) in international markets. These opportunities and knowledge will then be exploited interactively, which provides the basis for reducing market uncertainty that derives from the firm's outsidership in the international markets (see Figure 2.4). According to the authors, the recognition of knowledge opportunities is ultimately dependent on the quality of the firm's business relationships - the recognition of knowledge opportunities will be more efficient if the level of knowledge, trust, and commitment in a relationship are higher.

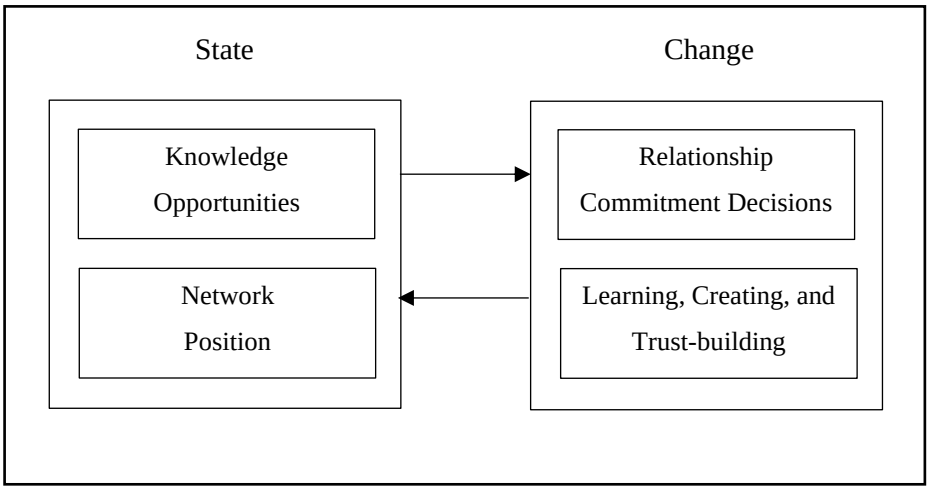


Figure 2. 4. **The Uppsala Model (2009 Version)**

Sourcd: J. Johanson and Vahlne (2009, p. 1424).

The U-Model 2009 Version, for the first time, incorporated a firm's business relationships in its evolution. It applies to both MNEs and SMEs. Besides, this mechanism of knowledge opportunity and networking was subsequently supported by a born-global

case study by Schweizer et al. (2010) in Sweden. However, as a process theory of firm internationalization, J. Johanson and Vahlne's (2009) model still lacks descriptions of the internationalization processes. Moreover, it assumes that learning and networking are a virtuous, reinforcing circle. How the firm's initial knowledge resources become ready to be used, further developed, and exploited with international network partners is outside the model (Kriz & Welch, 2018). Therefore, the U-Model (2009) version's explanatory power is limited for this thesis, aiming to explore and explain the internationalization of IIFs from a process-based view.

2.3.8.3 Vahlne and Johanson (2017)

In 2017, recognizing the new features of the modern firm – "process rather than structure-oriented; a network rather than a stand-alone unit; business exchange rather than production; pro-active and entrepreneurial rather than passive; heterarchical (de-centralized) rather than hierarchical" (Vahlne & Johanson, 2017, p. 1088), Vahlne and Johanson (2017) revised their model once more, applying it to a new empirical setting – Multinational Business Enterprises (MBEs) where disaggregated and geographically dispersed international activities are linked through managerial and technical channels (Buckley, 2009; Coviello et al., 2017; Mudambi, 2008; Pitelis & Teece, 2011).

The structure of the revised U-Model remains the same as the original one published in 1977, but in this version, the authors suggested two pathways for change. One is that the intermittent resource commitment process occurs. Then it alters the capabilities and distribution of achieved resources triggering a new knowledge development process. The outcome then becomes an input into the commitment process to reconfigure resources

and coordinate action. The other pathway is that the continuous knowledge development process through learning, creating, and trust-building alters the capabilities and distribution of achieved resources, triggering a new resource commitment process. The outcome then becomes an input into a new knowledge development process (see Figure 2.5). Here, "capabilities" refer to the abilities to make use of the resources for a particular purpose, "commitments" refer to the distribution of resources, and "performance" describes what has been achieved already (Vahlne & Johanson, 2017).

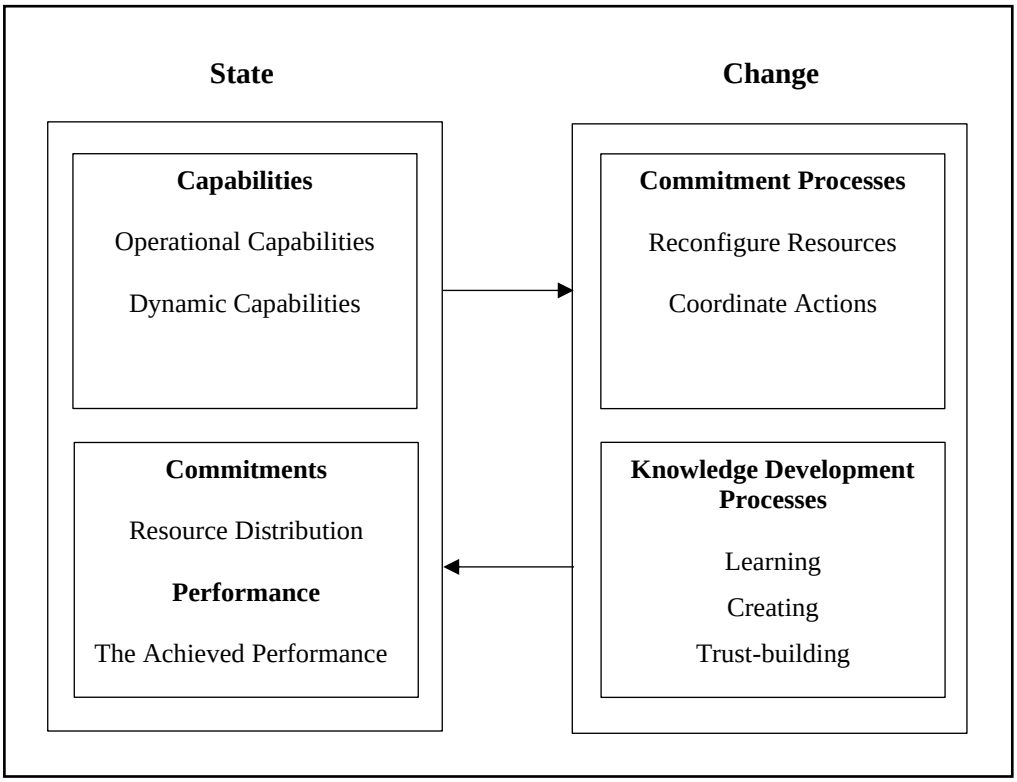


***Figure 2. 5*. The Uppsala Model (2017 Version)**

Adapted from: Vahlne and Johanson (2017).

The U-Model 2017 version, for the first time, explicitly clarified its process ontology that all existences are processes (Dopfer & Potts, 2014; Jarzabkowski et al., 2012). Managerial

practice acts in a flow of ongoing events (Langley et al., 2013). The continuous change characterizes the present, while sense-making addresses not only the present but also the past and the future (Hernes, 2014; Weick, 1995). The key underlying assumptions that Vahlne and Johanson's (2017) model rested on are firm internationalization is path-dependent (J. Johanson & Vahlne, 1977; Foss & Klein, 2012), heterogeneous (Penrose, 1959; Wernerfelt, 2013), and bounded to critical resources (Winter, 1987). It was multilateral due to managerial intent and actions taken by others (Fransson et al., 2011). Moreover, according to the 2017 version of U-Model, processes exist on multiple levels. The internationalization process is, by nature, a consequence of the co-evolution of behaviors at different levels (Ghoshal & Moran, 1996; Vahlne & Johanson, 2017). These revision efforts responded to the recent calls for a process theory of firm internationalization (Langley et al., 2013; C. L. Welch & Paavilainen-Mäntymäki, 2014).

However, Vahlne and Johanson's (2017) model has not kept pace (Coviello et al., 2017). Vahlne and Johanson (2017) conceived that firm internationalization follows an internalization logic where the value-adding activities and transactions are performed within the firms' governance boundary. However, in today's digital and information age, the nature of producer, offer, distribution channels, value chain structure, pricing strategies (even the currency itself), markets, and consumers are dramatically changing (Brouthers et al., 2016; Chen et al., 2019; Coviello et al., 2017; Zhu & Iansiti, 2012). Digitalization can impact firm internationalization in terms of timing, speed, pace, frequency, location, direction, path, accessibility of requisite resources in the home and host markets, and firms' abilities to manage liabilities of outsidership (Coviello et al., 2017). Firms that embrace and leverage digitization embody the notion of the modern international firm. This present thesis argues that digitization allows for the existence of

IIFs that, because of an Internet presence, internationalize instantly and frequently, purposefully, or without an intent to do so (Kotha et al., 2001; Yamin & Sinkovics, 2006). It can be a commonly held belief in IB that such firms will internationalize differently from their offline counterparts.

2.3.9 Kogut and Zander's (1993) Knowledge-based View of MNEs

In addition to the U-Model, the knowledge-based view of MNCs (Kogut & Zander, 1993) also deserves to be discussed. The knowledge-based view of MNEs has its roots in the evolutionary theory of economic capabilities (Nelson & Winter, 1973) and the resource-based view (Barney, 1991; Penrose, 1959). The seminal work of the knowledge-based view of MNEs was provided by Kogut and Zander (1993). The authors presumed that a firm's superior efficiency as an organizational vehicle to process knowledge across borders drive its internationalization. According to Kogut and Zander (1993), a firm's internationalization is contingent on the quality of its knowledge resource. The explicit knowledge, which is more codifiable and easier to deliver, is expected to transfer through trade modes. In contrast, the tacit knowledge, which is less codifiable and harder to deliver, is more likely to share through wholly owned operations. The choice of knowledge transfer modes depends on the MNEs' efficiency in transferring knowledge to other firms (Kogut & Zander, 1992).

Similar to the U-model (J. Johanson & Vahlne, 1977, 2009; Vahlne & Johanson, 2017), the knowledge-based view of MNEs (Kogut & Zander, 1993) highlights the role of knowledge in driving internationalization, but it ignores the fluctuations in internationalization and why and how knowledge development causes these fluctuations.

Hence, the knowledge-based view of MNEs (Kogut & Zander, 1993) lacks the explanatory power for firm internationalization that unfolds over time. However, IIFs are knowledge-intensive firms (Aslesen & Isaksen, 2007). Knowledge has been recognized as an essential, strategically important resource of international organizations (e.g., J. Johanson & Vahlne, 1977, 2009; Kogut & Zander, 1992; Vahlne & Johanson, 2017). This thesis focuses on knowledge as a critical resource process dimension underlying IIF internationalization based on the current literature. Chapter 3, the theoretical framework chapter, will present and discuss how the knowledge dimension is incorporated in this thesis' exploration and explanation.

2.3.10 The Network-based View

As the resource-based view (Aharoni, 1966; Cyert & March, 1963) evolves to the resource-dependency view (Pfeffer & Salancik, 1978), our understanding of internationalization has been extended to how MNEs exchange with partners in their contexts. The growing recognition of the exchange of business relationships leads to the development of a network perspective. In addition to the U-Model (J. Johanson & Vahlne, 1977, 2009), the network perspective remains the most critical reference points for IB theory expansion (C. L. Welch & Paavilainen-Mäntymäki, 2014). Advocates argue that the network-based view can present a more realistic and dynamic picture of organizational behavior (e.g., Chetty & Holm, 2000; R. Fletcher, 2008; J. Johanson & Mattsson, 1988). In the following of this section, the Network Model of Internationalization, A-R-A Model (Håkansson & Johanson, 1992), Flagship Model (D'Cruz & Rugman, 1994; Rugman & D'Cruz, 1997), Network Embeddedness Model (Halinen & Törnroos, 1998), and Business Relationship Model (Andersen & Buvik, 2002)

will be reviewed and discussed, chronologically. These models led this study to narrow down to network as another resource co-evolving dimension driving IIF internationalization.

2.3.10.1 Johanson and Mattson's (1988) Network Model

J. Johanson and Mattsson's (1988) Network Model of Internationalization can be an extension of the original U-model (J. Johanson & Vahlne, 1977). It assumes that a firm engages in foreign markets as networks of relationships consisting of suppliers, agents, distributors, consultants, customers, competitors, public agencies, and so forth in industrial markets (J. Johanson & Mattsson, 1988; J. Johanson & Vahlne, 1990; Zain & Ng, 2006). Moreover, in daily business activities, firms are involved in combining and recombining resources with other firms in relationships to exchange for the added value of production (J. Johanson & Mattsson, 1992). The Network Model of Internationalization (J. Johanson & Mattsson, 1988) suggests that firm internationalization follows three sequential stages, including

1. international expansion - finding a position in a new market as a network;
2. penetration - developing relationships in the networks that the firm is involved in and increasing resource commitment to the network; and
3. international integration - improving relationships with other firms in the market (see Figure 2.6).

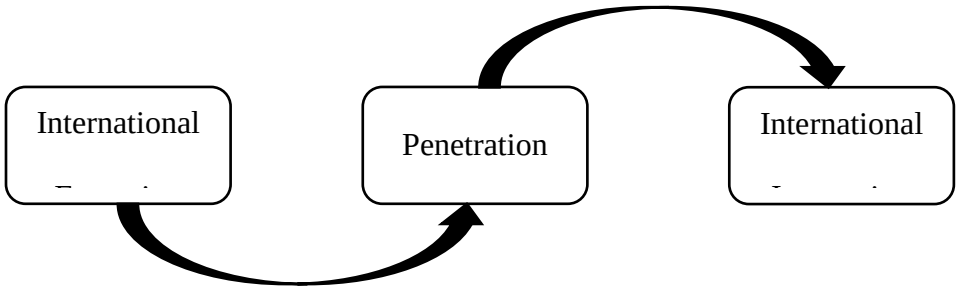


Figure 2. 6. **The Network Process Model of Internationalization**

Adapted from: J. Johanson and Mattson (1988).

Moreover, based on the degrees of firm internationalization and the degrees of market internationalization, J. Johanson and Mattson (1988) suggested that there are four network positions for firms, as shown in Figure 2.7. "The Early Starters" are firms that have not yet internationalized, and they have very few and unimportant international relationships. These firms have little experience in international markets, and they cannot count on domestic network relationships to internationalize. "The Lonely International" are firms that have experience in international markets. Even though their internationalization cannot rely on their domestic relationships, they can develop into international markets based on their own experiences. "The Late Starters" do not have international experience, but they can use their international network relationships to expand overseas. "The International (firms) among Others" have the best network position because they have international market experience. They can also make use of their international network relationships in their internationalization.

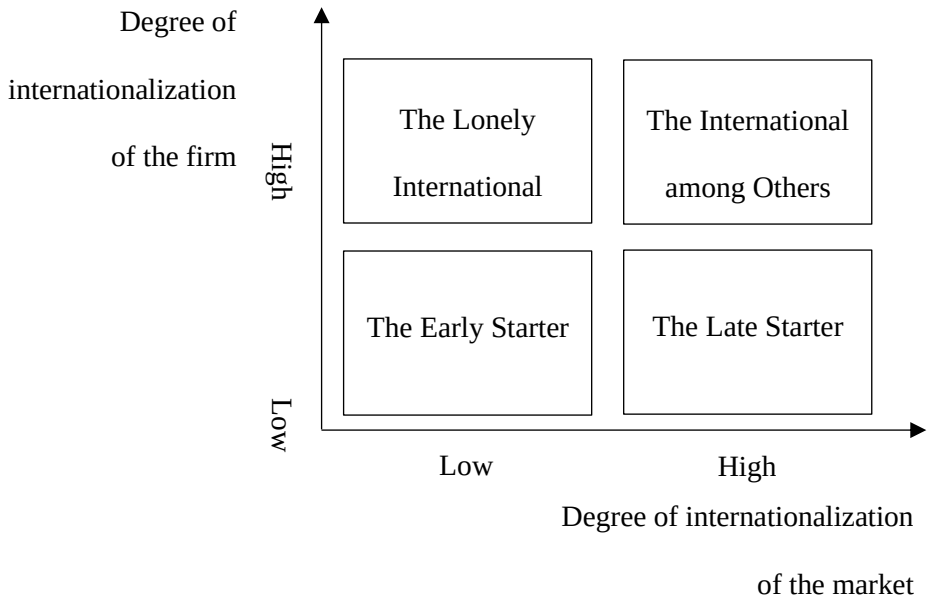


Figure 2. 7. **The Network Position Model of Internationalization**

Adapted from: J. Johanson and Mattson (1988).

J. Johanson and Mattsson's (1988) Network Model differentiates three aspects of internationalization stages and four internationalization situations, which has implications on the unfolding of internationalization over time. Moreover, it considers the degrees of market internationalization, which implies the firm's context is changing. However, calls for the integration of, for example, the learning perspective (Vahlne & Johanson, 2019), the dual directional perspectives (Nambisan et al., 2019), and the ecosystem perspective (Parente et al., 2019) have been made. These recent calls for further research have implications for integrating the network perspective with other models to explain the complex processes of modern firms' internationalization.

2.3.10.2 Håkansson and Johanson's (1992) A-R-A Model

The A-R-A interaction model (Håkansson & Johanson, 1992) explained that a business relationship is developed from three substances of activities (A), resources (R), and actors (A). This A-R-A model was developed to justify the function of business relationships. According to the model, business relationships' essential role is to interlink market actors' activities to transform resources between the actors and add value to production (see Figure 2.8).

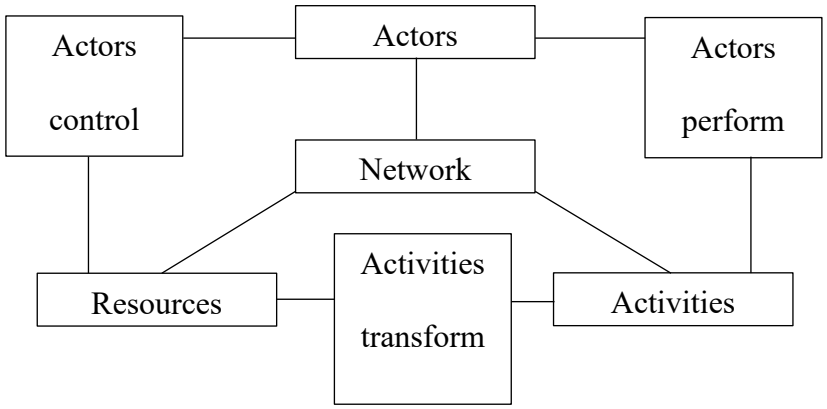


Figure 2. 8. **The A-R-A Model**

Adapted from: Håkansson and Johanson (1992).

Moreover, according to the model, the three substances' configuration changes over time and space in business networks. In this respect, the model is dynamic by nature. Moreover, the model is of great importance in conceptualizing Business-to-Business (B2B) relationships. It identifies the substance of B2B network relationships and suggests how these substances relate to each other. The model has been applied to explain the internationalization process of firms as an analytical tool. For instance, R. Fletcher (1996)

adopted the A-R-A model as a framework to analyze countertrade. It sharpens the focus on some significant characteristics of the phenomenon which differentiate countertrade from other internationalization behaviors. However, due to the model's simplicity, the operationalization of the notions of activities, resources, and actors can be very difficult (Lenney & Easton, 2009).

2.3.10.3 Rugman and D'Cruz's (1997) Flagship Firm Theory

Another network model that is worth mentioning is the Flagship Model (Rugman & D'Cruz, 1997). It extends IB network theory by positing that a network of a flagship firm consists of five types of partners, including

1. the focal firm as flagship,
2. key customers,
3. key suppliers,
4. selected competitors, and
5. non-business infrastructures (Rugman & D'Cruz, 1997).

According to the model, the flagship firm directs and coordinates the vertically international business relationships to frequently achieve its strategic objectives in competition with similar networks that address the same end markets (D'Cruz & Rugman, 1994; Rugman & D'Cruz, 1997) (see Figure 2.9). According to the authors (D'Cruz & Rugman, 1994; Rugman & D'Cruz, 1997), the flagship strategy, based on long-term collaboration and learning with network partners, can be an advantageous and efficient way for the focal firm to overcome the internal and environmental constraints to cross-border resource transfer.

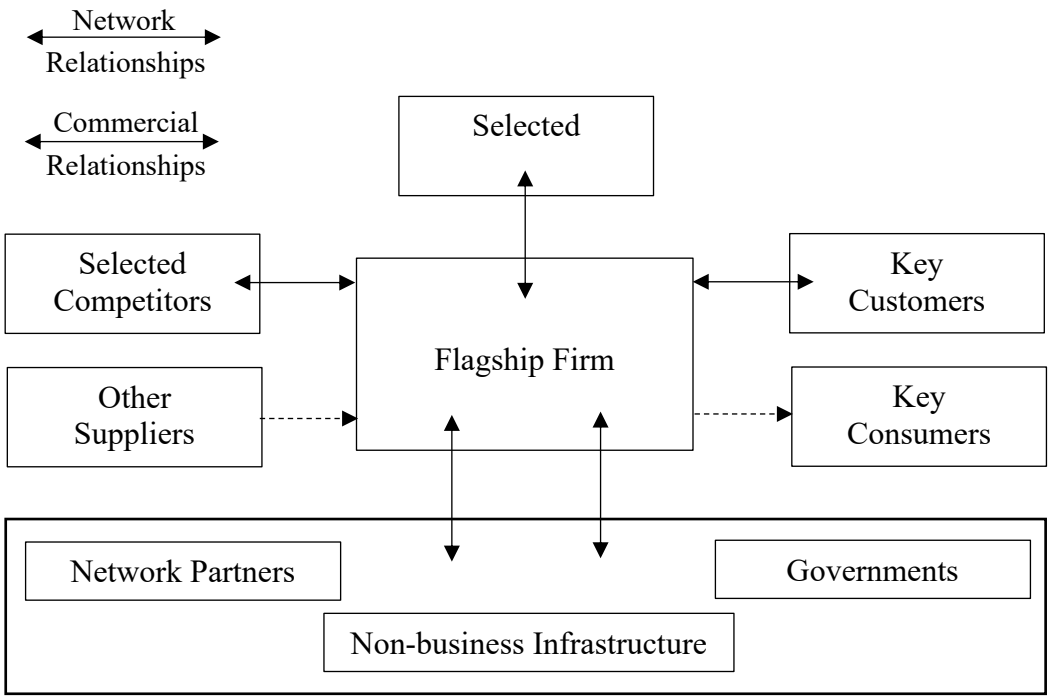


Figure 2. 9. **The Flagship Relationship Model of Internationalization**

Adapted from: Rugman and D'Cruz (1997).

The model is of significant value in explaining the role of the "focal firm", "flagship firm" (Rugman & D'Cruz, 1997), "lead firm", "core-firm", "hub-firm", and "broker firm" (Snow et al., 1992) of its network. The model facilitated this present thesis to observe IIFs and their ecosystem partners. However, the model focuses on the network formulated by the flagship firm's control over its network partners' strategies but ignored the partners' influences over the flagship firm (Rugman & D'Cruz, 1997). Thus, its applicability to explain and predict IIF internationalization that is conditioned by network effects (Chandra & Coviello, 2010; Coviello et al., 2017) remains questionable.

2.3.10.4 Halinen and Törnroos' (1998) Network Embeddedness Model

According to the network embeddedness model (Halinen & Törnroos, 1998), a firm in the context of a business network can be embedded in several different types of networks, such as technological, temporal, spatial, social, political, and market (Halinen & Törnroos, 1998) (see Figure 2.10). The embeddedness of the firm can be vertical and horizontal. Vertical embeddedness refers to the relationships between different identifiable levels in a network. Horizontal embeddedness refers to the actors' relations within a specific network level (Halinen & Törnroos, 1998) (see Figure 2.10). The representational role of a business actor – what the actor presents in the eyes of other network members at a specific point of time, such as its country, industry, firm, resources, opportunities – drives the evolution of the network structure in which the firm is embedded. The business actor represents various accumulated resources to other networks (Halinen & Törnroos, 1998). The network embeddedness model is valuable in explaining the formation and expansion of international business networks (R. Fletcher, 2008; R. Fletcher & Barrett, 2001).

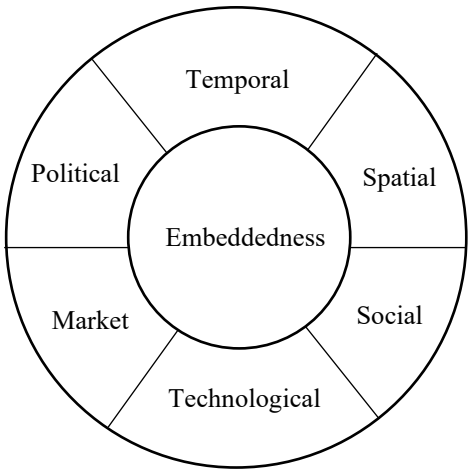


***Figure 2. 10*. The Network Embeddedness Model**

Adapted from: Halinen and Törnroos (1998).

The network embeddedness model has been adopted by R. Fletcher and Barrett (2001) and R. Fletcher (2008) in IB research. R. Fletcher and Barrett (2001) applied the concept of network embeddedness to explore the evolution of global network relationships. According to the authors, the application of the model addressed several managerial issues. For example, the relationships' relevance in the context of IB, the need for the actors to build up knowledge about each other, and the need to treat internationalization as a dynamic and evolutionary process. Moreover, according to R. Fletcher (2008), the model provides a significant theoretical lens explaining new organizations' international life cycles. The networks that a firm embeds have a crucial impact on the firm's international involvement. However, like the other network theories, the network embeddedness model fails to explain firm internationalization mechanisms.

2.3.10.5 Andersen & Buvik's (2002) Business Relationship Model

The fifth network model discussed is the Business Relationship Model, developed by Andersen and Buvik (2002). Based on the observations of the business relationships and the associated activities of the network actors, Business Relational Model (Andersen & Buvik, 2002) explains that a firm selects its international market through three sequential stages (a) awareness, (b) exploration, and (c) choice (see Figure 2.11). According to the definitions provided by the authors, "awareness" refers to a firm's ability to identify potential business partners in its overseas network. "Exploration" is the stage in which a firm initially connects and negotiates with the identified partners. "Choice" is the stage in which a firm selects its business partners for the subsequent business exchanges to achieve its objectives.

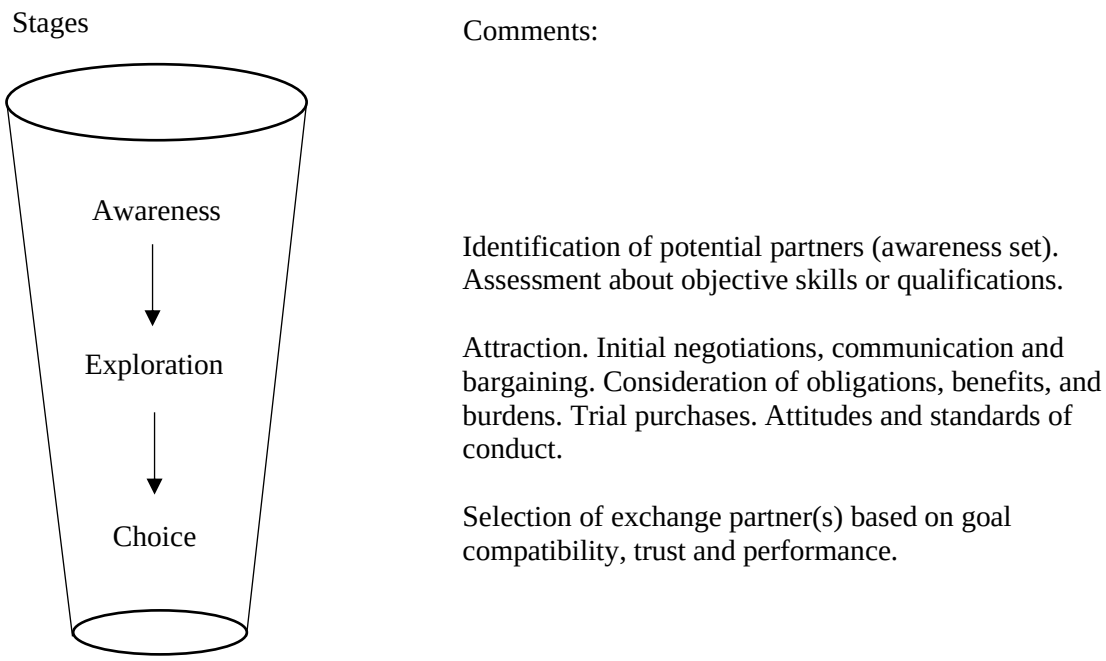


***Figure 2. 11*. The Business Relationship Model**

Adapted from: Andersen and Buvik (2002).

Unlike J. Johanson and Mattson's (1988) Network Model and the Network Embeddedness Model (Halinen & Törnroos, 1998), Andersen and Buvik (2002) considered that the choice of the destination country for internationalization emerges from the business relational level. Moreover, their research emphasized the interrelationship between the international market selections. However, like other network models, the Business Relationship Model does not clearly explain the internationalization mechanisms. Hence, this thesis argued that more research efforts are needed to develop and extend the network-based view in explaining internationalization.

In addition to these sequential network-based process models, IB scholars have also contributed to the accelerated internationalization as an alternative to the sequential descriptions and explanations (C. L. Welch & Paavilainen-Mäntymäki, 2014). The accelerated internationalization phenomenon has been dominant in high-tech firms. The next section will selectively review the accelerated internationalization literature.

2.3.11 The Accelerated Internationalization Perspective

In the early 1990s, scholarly studies empirically demonstrated a "new breed" of firms, which internationalize right after their inception or at an early stage of start-up. Moreover, these firms internationalize rapidly, which further challenged the incremental stage models (Andersson & Wictor, 2003; Knight & Liesch, 2016; Oviatt & McDougall, 1994). These "new breed" of firms are young, and they internationalize fast. In the literature, they are often labeled as "international new ventures" (Oviatt & McDougall, 1994), "global start-ups" (Oviatt & McDougall, 1995), "born-globals" (Knight & Cavusgil, 1996), or instant exporters (McAuley, 1999). In the literature of IB, "born-globals" and "international new ventures" are the most frequently used terms to describe these types of firms. There is a consensus that these firms internationalize at or near their inception and have a substantial share of their output in multiple countries (Coviello, 2015; Hennart, 2014).

The original scholarly work on international new venture theory was undertaken by McDougall (1989), and it distinguished between the domestic new ventures and the international new ventures. Subsequently, the phenomenon of accelerated internationalization emerged, but there was a lack of acceptable IB theories explaining

the phenomenon. On this occasion, Oviatt and McDougall (1994) provided that the dramatic change in international communication and transportation and the increasing homogenization of markets in distant countries have simplified and shortened the process of firm internationalization. Moreover, internationally experienced/knowledgeable and alerted entrepreneurs can be the primary driver of a firm's value creation and internationalization. Specifically, the entrepreneurs could use alternative governance to reduce the need for organizational assets that hamper the internationalization of resource-constrained international new ventures.

The international new venture theory emphasizes the entrepreneurs' importance as the primary driver of firms' early and rapid internationalization (Andersson & Wictor, 2003). This theory also adds knowledge of why firms internationalize from inception (Knight & Cavusgil, 1996). Nevertheless, a closer look at this emergent school of thought reveals that the accelerated internationalization research neglects the incremental international firms as possible innovators (McDougall & Oviatt, 2000). Besides, little attention has been paid to define and describe the born-global firms' sustained internationalization. The relationship between early and sustained internationalization has not yet been established. There are calls to investigate how international new ventures could sustain their long-term international performance after their initial entry into the global market (Zander et al., 2015).

2.4 Chapter Summary

This chapter comprised three sections: (a) defining internationalization as a process, (b) IIF internationalization, and (c) the mainstream IB theories. The first section discussed

internationalization from the variance-based view and the process-based view, respectively. In this thesis, from the process-based viewpoint, internationalization is defined as "an evolutionary process through which companies become increasingly committed to, and involved in, international activities, but at a certain point can also become inverted and result in de-internationalization" (Ruzzier et al., 2006, p. 478).

The second section reviewed the literature relevant to IIF internationalization. As IIFs' operations and developments are around extending platforms' standard interfaces and business rules and customizing these extensions for businesses, the review of the literature in this section was mainly about the following five areas:

1. the definitions and characteristics of IIFs,
2. the features of the marketplace that IIFs participant and compete,
3. the role of IIFs in extending digital platform-as-infrastructure,
4. the role of IIFs in enabling MNEs governing digital platform-based ecosystem, and
5. the internationalization issues of digital-native firms.

This thesis seeks to contribute to this specific literature of IIF internationalization.

The third section reviewed mainstream IB theories. A close look at the literature revealed that the mainstream IB theories were mainly developed in the pre-digital age (Alcácer et al., 2016), assuming that firm internationalization follows a unitary and cumulative process in the supply-side marketplace. These traditional IB theories may still have significant impacts on IB understanding, but in today's highly dynamic, more demand-side digital marketplaces, further theoretical development also needs to be considered that accounts for the much decentralized or externalized organizational internationalization

behaviors (e.g., Alcácer et al., 2016; Nambisan et al., 2019; Wittkop et al., 2018). Hence, the following chapter will go one step further in developing the theoretical framework for this thesis, which incorporates the process-based view, the resource-based view, and the co-evolutionary framework that help this thesis to address the research goals.

CHAPTER 3 – THEORETICAL FRAMEWORK

3.0 Overview

This chapter presents the theoretical framework of this thesis. This chapter first discusses the process-based view applied in this thesis to conceptualize internationalization and resource development. This chapter, then, discusses the Resource-based View, which is used in this thesis as a framework to identify the critical resources enabling IIF internationalization. Based on the existing literature, this thesis focuses on knowledge and network resource dimensions. Then, considering the limitations of the traditional Resource-based View in describing and explaining resource accumulations and interactions, this thesis turns to the co-evolution literature and extends the Resource-based View framework towards a resource co-evolution framework. The following sections in this chapter will introduce the development of this thesis's theoretical framework in more depth.

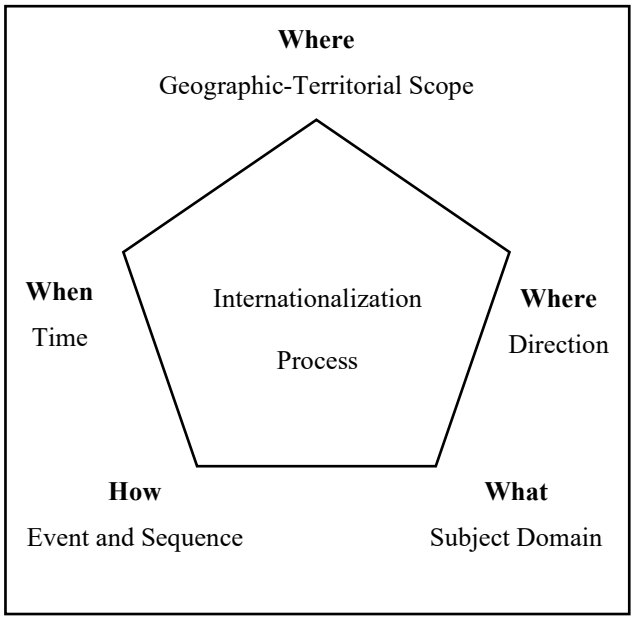
3.1 The Process-based View

To adequately understand IIFs' internationalization process, this section outlines the process-based view (Reid, 1981). From this theoretical point of view, this thesis has conceptualized internationalization as an unfolding process through which companies become increasingly committed to, and involved in, international activities, but at a certain point can also become inverted and result in de-internationalization (Ruzzier et al., 2006). Besides, this theoretical view also suggests that explanations of internationalization should consist of:

1. a category of concepts that refer to the activities of organizations or individuals;
2. a sequence of events which describes how the events emerge, develop, grow or terminate over time; and
3. a logic that explains how these temporal sequences are connected (Van de Ven, 1992).

It has been suggested that to study internationalization as a process, the what, how, and why sequences of collective or individual events take place should be described and explained (Pettigrew, 1997).

From the process-based view, a prerequisite to capture the sound possibilities of the internationalization process of IIFs is a set of core dimensions that provides a selective focus for observing the changing process (Hernes, 2014). According to the existing IB literature, firm internationalization can be expected to be associated with the organizational behavioral and processual changes along five dimensions, including cross-border event, time, geographic-territorial scope, direction, and subject domain (see Figure 3.1). Based on the extant literature, this section will discuss these five dimensions and set up a processual framework for observing the internationalization process of IIFs.



(Level 1)

Figure 3. 1. **Five Dimensions of Internationalization**

Note. This framework is developed for capturing the events taking place in the internationalization process of IIFs. This is an intermediary framework for developing the theoretical framework for this thesis. **The internationalization process of IIFs is labeled as "Level 1" process to differ from the other processes under investigation in this thesis.**

3.1.1 Cross-Border Events

"Most social phenomena are processes" (Bidart et al., 2013, p.743). Several decades of research in the field of IB have advanced various studies and theories on internationalization processes, and the focus has been primarily on path-dependency (Hutzschenreuter et al., 2007). Synonymous for "process" includes "internationalization",

“stage model”, “foreign expansion”, “stages”, “expansion”, “dynamic”, “sequence”, “development”, “behavior”, “pattern”, “path”, “strategy”, “incremental”, “mechanism”, “route”, “progression”, “life cycle”, and “trajectory” (C. L. Welch & Paavilainen-Mäntymäki, 2014). The internationalization process can be a flow of ongoing events (Melin, 1992). The passing of time addresses the present, the past, and the future of the process (Hernes, 2014; Weick, 1995). Continuous change characterizes any present situation (Vahlne & Johanson, 2017). However, the passing of time may imply (re)constructing the past events with an eye towards the future (Kaplan & Orlikowski, 2013).

3.1.2 Time

Time is fundamental to internationalization process research because it is, first and foremost, a primary conceptual dimension against which an explicit event may be recognized and understood (Ancona et al., 2001). “Each firm has a history … of internationalization events occurring at specific points in time” (Jones & Coviello, 2005, p. 289-290). As an organizational behavior, internationalization can be an accumulation of executive actions over time.

The most common use of the concept of time in the extant IB literature is from chronological and social perspectives (Seifert, 2010). In the chronological view, time is quantitative, measurable, linear, and uniform. It exists independently of objects and events, and it is usually understood with a “clock” (Gherardi & Strati, 1988; Harvey et al., 2000; H. Lee & Liebenau, 1999; Roe et al., 2008). Alternatively, through the social

perspective, time can be socially experienced and constructed; and has a social meaning (Gherardi & Strati, 1988; Harvey et al., 2000).

The social perspective plays a crucial role in bracketing sequences and defining stages in firms' internationalization process. Bounded to a socially constructed dimension, time in internationalization moves beyond the mere quantitative assessment of timing towards a more complex extent, structuring process sense-making and offering particular theoretical significance (Langley, 1999). Middleton et al. (2011) concluded that managers perceive and construct time more subjectively instead of clock time to understand and communicate events and processes. In their narratives on internationalization, managers identified a "cooperation" time dimension for building stakeholder relationships. Haley and Boje (2014) described that the "melody" of MNEs' international activities in space corresponds to a "rhythm" in time where the past and future can ram into the present. Indeed, most IB process studies have been conducted based on explicit or implicit references to time. Generally, the implicit references include words such as sequences, stages, development, and evolution of the process (Sharma & Blomstermo, 2003).

In the thesis, a firm's internationalization is recognized both chronologically and socially in association with other dimensions of internationalization. Expressly, the time underlying a firm's internationalization is understood by years and status in association with organizational changes in the dimensions of cross-border event, location, direction, and subject domain (see Figure 3.1).

3.1.3 Geographic-territorial Scope

From a process-based view, internationalization deals with expansion in geographic scope over time (Haley & Boje, 2014). A fundamental assumption of IB research is that the crossed borders are by nature different from those found within a single country (Boddewyn, 1999). At the core of the crossed borders can be the concept of "country".

A country can be defined from different perspectives, such as geographic-territorial, political, economic, or social-cultural (Seifert, 2010). Specifically, in the geographic-territorial view, a country can be described as the tracts of land, regions, or districts where the country can be encountered (Boddewyn, 1999). From the political perspective, a country can be a system of governance "with the power to require obedience and loyalty from its citizens" (Seton-Watson, 1977, p. 1). From the economic perspective, resources are a country's territory (Boddewyn, 1999). While in the social-cultural view, a country can be "a community of people, whose members are bound together by a sense of solidarity, a common culture, and a national consciousness" (Seton-Watson, 1977, p. 1).

In the IB literature, a country is usually taken for granted as a geographic territory, which is probably due to two reasons. First, some internationalization issues emerge in specific international markets that have already been recognized by geographic-territorial boundaries. Second, to a large extent, geographic-territorial boundaries delineate the legal, political, economic, and social environments within which organizations operate (Ronen & Shenkar, 1985).

In the present thesis, geographic territories are taken as the boundaries of a country. However, important here is that, in this thesis, the geographic domains are spatial online and offline. The same geographic regions constitute the same country, both online and offline. It has been argued that the spatial online and offline geographic territories as boundaries of a country could elucidate the internationalization process for IIFs (Wentrup, 2016).

3.1.4 Direction

Generally, a firm's internationalization process may take place in two directions: outward and inward. Outward internationalization refers to a flow of international operations from the focal firm's domestic market towards its foreign markets (L. S. Welch & Luostarinen, 1988). Outward internationalization and inward internationalization are like mirror images of each other (L. S. Welch & Luostarinen, 1988). Unlike outward internationalization, inward internationalization refers to a set of international operations in the domestic marketplace (R. Fletcher, 2001) or primarily targets domestically. Despite the dominant outward emphasis in the literature, a firm can involve in international markets either way. In many cases, a firm's outward internationalization and inward internationalization take place concurrently. As suggested by Nambisan et al. (2019), international IIFs may establish Internet infrastructures that enable interactions between cross-border users. Thus, the present research incorporated both inward and outward internationalization.

3.1.5 Subject Domain

The subject domain of internationalization concerns what is being internationalized. A general understanding of this issue can be the international firm's products or services (L. S. Welch, & Luostarinen, 1988). It has been assumed that when a firm internationalizes, it expands existing or introduces new products or services to international markets (L. S. Welch, & Luostarinen, 1988). However, other subject domains might also be internationalized except for products or services — for example, investments, culture, and structure. The subject domains are of great theoretical importance, as different subject domains have distinct impacts on firm internationalization. Some researchers attempted to address different subject-domains based on a holistic view (e.g., Bell et al., 2003; R. Fletcher, 2001; Jones & Coviello, 2005). However, the literature indicates that there has not been any comprehensive agreement on the significant subject domains of the IIFs' internationalization. With the research aims in mind, the present thesis looked at what is being internationalized online and offline in IIF internationalization.

3.2 The Resource-based View

As stated earlier, this thesis seeks to explore and explain the internationalization process of IIFs. A review of the mainstream IB theories in the previous chapter has revealed that the extant theories could not account for the spatial online and offline and externalities of IIF internationalization. Therefore, this thesis zoomed out to the current IB theories' theoretical platforms and finally turned to the Resource-based View.

Generally, the Resource-based View specifies that a firm's resource portfolio decides its growth behavior and general performance (Barney, 1991; Penrose, 1959; Wernerfelt, 1984). In IB studies, the Resource-based View is often applied as a conceptual framework for searching for resources to which it is possible to attribute internationalization. Besides, it is also common in scholarly studies to refer to the Resource-based View as a theoretical foundation for developing different resource-based theories of specific phenomena (Hitt et al., 2006).

The Resource-based View has its roots in various research streams (e.g., Demsetz, 1973; Penrose, 1959; Ricardo, 1891; Selznick, 1957). Penrose's (1959) seminal work has been widely accepted to have laid the solid foundation of the Resource-based View (Kor & Mahoney, 2000). According to Penrose's (1959) theory of the growth of the firm, a firm can be an administrative organization and a collection of productive resources. Based on Penrose (1959), Grant (1991) highlighted the role of firm capability, and Hall (1992, 1993) shifted to focus on firm capabilities and assets. Additionally, Barney (1991) claimed that not all but valuable, rare, inimitable, and effectively managed resources lead to or enable firm development.

In IB studies, the Resource-based View imparts a practical framework with broad applicability to internationalization (see Andersen & Kheam, 1998; Barney & Arikan, 2001; Das & Teng, 2000; Hitt et al., 2006; Hoopes et al., 2003; Mahoney & Pandian, 1992; Ray et al., 2004). Examples being the U-Model (J. Johanson & Vahlne,1977, 2009; Vahlne & Johanson, 2017), the Knowledge-based View of MNEs (Kogut & Zander, 1993), and the network-based view (Andersen & Buvik, 2002; Håkansson & Johanson, 1992; Halinen & Törnroos, 1998; J. Johanson & Mattson, 1988; Rugman & D'Cruz, 1997)

as reviewed in the previous chapter. Regarding firm internationalization, the Resource-based View posits that a firm's resource portfolio determines and significantly influences its internationalization behaviors and performances (Hitt et al., 2006). In diverse international markets, foundational resources are generally considered a relatively stable basis for the ongoing strategy formulation (Grant, 1996; Knight & Cavusgil, 2004).

As indicated earlier, this present thesis' focus – the internationalization process of IIFs - is relatively novel within the IB literature. As none of the reviewed theories could adequately explain the internationalization of IIFs, the Resource-based View emerged as a fundamental framework in searching for critical resources that determine the unique international behaviors and general performance of these IIFs (Baer et al., 2013; Felin et al., 2015; Wittkop et al., 2018). Based on the Resource-based View framework, this thesis narrows down to investigate what critical resources drive the internationalization process of IIFs and why.

Similar to the previous step in developing the dimensional framework of internationalization, to capture the sound possibilities of the resource process explaining how and why the internationalization of IIFs proceeds as it does, this thesis zooms back to the IB theories in the following and selects knowledge and network relationships as two core dimensions that provide a focus for observing the resource changes (Hernes, 2014). Integrating the five core dimensions of internationalization discussed earlier, the investigation focuses on what vital resources drive the changing internationalization activities and statuses across the dimensions of cross-border events, time, geographic-territorial scope, direction, and subject domain (see Figure 3.2). More details are presented and discussed in the following.

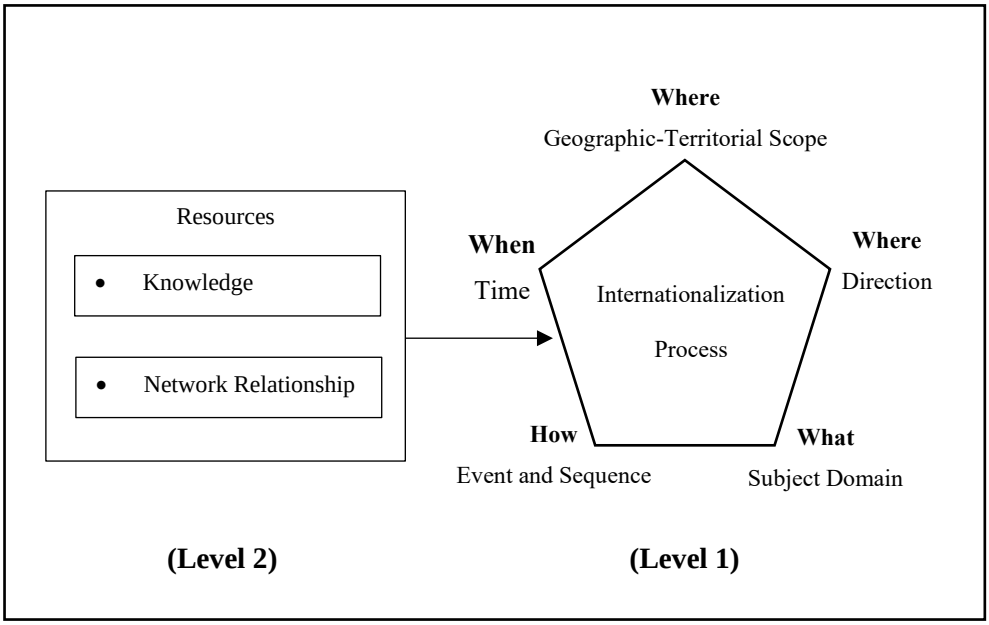


***Figure 3. 2*. The Resource-based View Framework in this Study**

Note. This framework is developed for capturing the critical resources enabling IIF internationalization. This is an intermediary framework for developing the theoretical framework of this thesis.

3.2.1 Knowledge

The knowledge dimension is at the heart of the received wisdom explaining internationalization from the Resource-based View (e.g., J. Johanson & Vahlne, 1977, 1990; Kogut & Zander, 1993; Vahlne & Johanson, 2013, 2017). Drawing the characteristics of the IIFs – extending or reprogramming digital platforms and infrastructures globally and, by doing so, enabling MNEs' participation in the digital platform-based ecosystem – and the Resource-based View, knowledge can be regarded as one of the most unique and inimitable resources enabling IIF internationalization

(Cyert & March, 1963; Fiol & Lyles, 1985; March & Simon, 1958; Nonaka, 1991). Knowledge can be traditionally defined as "justified true belief" created in the interaction between humans (Nonaka & Tachukei, 1995). Proponents of the knowledge-based view argued that a firm's elementary role is to acquire and transfer knowledge (e.g., Penrose, 1959; Reus et al., 2009). As firms' most distinctive resource for creating and sustaining core competitive advantages, knowledge facilitates firms' business strategies and excellence in performance (Bogdanowicz & Bailey, 2002; DeCarolis & Deeds, 1999; Inkpen, 1996; McEvily & Chakravarthy, 2002; Pemberton & Stonehouse, 2000; Prahalad & Hamel, 1990; Wiklund & Shepherd, 2003).

3.2.2 Network Relationships

On the other hand, despite the IIFs being a new research niche in the field of IB, their focus on their associate network participants' co-specialization as the basis for creating and capturing value suggests the need for this research to incorporate a network dimension of resource evolution. As discussed earlier, IIFs can passively internationalize or be internationalized by their associated network members (C. Y. Baldwin & Woodard, 2009; Hazarbassanova, 2016; Schilling, 2000). They rely on knowledge resources, which produces unprompted change driven by large, varied and ongoing network actors (e.g., Andersen & Buvik, 2002; Coviello et al., 2017; Håkansson & Johanson, 1992; Halinen & Törnroos, 1998; J. Johanson & Mattsson, 1988; J. Johanson & Vahlne, 1990; Nambisan, 2017; Rugman & D'Cruz, 1997; Vahlne & Johanson, 2013, 2017).

Organizational network relationship generally refers to any inter-relationship pattern between network members, where each is connected or linked to every other, directly or

indirectly (Ellis, 2011). The network-based view regards a market as a web of networks and assumes that firms are not autonomous but dependent on various members in their respective networks (M. Johanson & Kao, 2010). As the associated network members learn about each other, they build mutual understanding, trust, and increasing commitment to the relationships (Forsgren & Johanson, 1992; J. Johanson & Vahlne, 1990). Moreover, it is essential to articulate networking as a collective effort at the firm level under a shared orientation with other firm strategies towards accomplishing specific goals (Hite & Hesterly, 2001; Lechner & Dowling, 2003).

3.2.3 Resource Exploitation versus Evolution

However, the traditional Resource-based View also has several severe drawbacks for this study. Existing research has suggested a positive association between resource and internationalization. For example, the U-Model attributes this to a "virtuous, self-reinforcing circle" of organizational learning. A firm acquires knowledge in international markets, and the acquired knowledge is then utilized in improving the firm's international performance (Kriz & Welch, 2018). Similarly, the network-based view also assumes a linear, positive cycle between resource exchange and interactions within international network participants, such as customers, suppliers, intermediaries, and competitors. The accelerated internationalization perspective again suggests the same positive association (Filatotchev & Piesse, 2009; Un, 2016). Such "positive association" arguments assume that, first, an organizational resource is ready to use and available to exploit in international markets, with a firm's primary concern being how best to capture and internalize value from this proprietary asset. Second, the resource is in a situation of fundamental certainty. Therefore, the set of possible resource options and the outcomes

of the options are known and foreseeable. However, it seems that this linear, self-reinforcing, and accumulative "positive association" argument is limited in explaining the uneven and discontinuous nature of firm internationalization.

As introduced earlier, this thesis derives from a processual perspective. This thesis shifts away from the "positive association" assumption that resources are readily available to use. Instead, the present thesis argues that a firm's resource portfolio develops when the firm internationalizes. Rather than a deterministic and linear process, resource development can be an uncertain and nonlinear process that may involve interactions, reversals, and unintended consequences. This thesis has selectively narrowed down to knowledge and network as two core resource dimensions driving IIF internationalization based on the extant IB literature. The micro-level knowledge and network relationships may be combined to influence firm internationalization or moderate or mediate other motives for internationalization (Coviello et al., 2017; Felin et al., 2012; Vahlne & Johanson, 2020; C. L. Welch & Paavilainen-Mäntymäki, 2014). However, a deeper understanding of the essential resources is required to account for the emergence, interactions, and accumulations of resources in influencing IIF internationalization.

This thesis incorporates the interaction and evolution of the essential resources part of, not exogenous to, the inquiry. Specifically, this thesis includes nonlinear processes, instability, and discontinuities into the Resource-based View assumptions and boundary conditions, which account for the nonlinear nature of firm internationalization. Regarding the Resource-based View's static nature, this thesis will turn to the literature of co-evolution in the next section. The concept of co-evolution derives from biology. By incorporating a co-evolutionary lens to the level of organizational knowledge and

network relationship processes that jointly result in internationalization, this thesis would alleviate concerns regarding the Resource-based View's static nature and advance IB research to become more interdisciplinary (Buckley & Lessard, 2005; Daniels, 1991; Cheng et al., 2014; Dunning, 1989). In the following, the co-evolutionary view will be introduced and discussed.

3.3 The Co-evolutionary View

The traditional Resource-based View provides opportunities and limitations for this study to explore and explain the internationalization process of IIFs. This section moves on to the critical elements of co-evolution. This section provides the foundation for expanding the Resource-based View towards a Resource Co-evolutionary View to explore and explain IIF internationalization.

The evidence of co-evolution comes from biology and can be trace back to the work of Charles Darwin (1859). Darwin (1859) argued that species' evolution is a process of "survival of the fittest" – only the members of a species best fitting the environment can survive. Otherwise, they will be continuously weakened by the external environment and finally become extinct. According to Darwin (1859), organisms are passive and do not influence the host environment (Child et al., 2013; Darwin, 1859; Lewin & Volberda, 1999). However, evidence has shown that natural selection is not the only way towards the evolution of species. The organisms' intention of surviving from natural selection also plays a key role (J. M. Baldwin, 1896).

Although somewhat controversial in some scientific circles, in the mid-1990s, a group of biologists studied the co-evolution process based on reciprocal responses between the butterflies' behavior patterns and the distribution of flowering plants (Baker & Hurd Jr, 1968; Ehrlich & Raven, 1964). They found that species-specific biochemical plants attract or repel specific butterfly species, which demonstrated that inter-specific combinations of species "evolved in part in response to one another" (Ehrlich & Raven, 1964, p. 604). Kauffman (1993) commented that interactions between species in nature are ubiquitous, and the true and stunning success of biology is the discovery of co-evolution. Unlike other inter-specific bio-evolutionary mechanisms, co-evolution emphasizes "the adaptive response of one species to genetic change in another species, which itself becomes genetic" (Porter, 2006, p. 428).

Co-evolution has been applied as either an illustrative metaphor or an interpretive framework in social science research, enabling analysis of complex evolving phenomena (Mitleton-Kelly & Davy, 2013). In the co-evolutionary view, separate agents (individuals, groups, organizations, concepts, and organizational processes) evolve, and they have noticeable influences on each other's evolution (Lewin & Volberda, 1999; Murmann, 2003). The interactive relationship does not necessarily have to be symmetrical (Pajunen & Maunula, 2008). For co-evolution to occur, the fundamental requirement is that the agents, within a driving context of some kind, must be "heterogeneous, adaptive, connected, interactive, and mutually influencing" (McKelvey, 2002, p. 4). As the biological record and many agent-based models show, co-evolution stops if any of these characters is taken away (Allen, 2001; Johnson & Dautenhahn, 1998).

The co-evolutionary view overcomes the dualistic view of mutually exclusive outcomes (either A or B) (Cano-Kollmann et al., 2016). In the field of IB, the concept of co-evolution has been extended as an interpretive framework to explain connected internationalization (e.g., Pajunen & Maunula, 2008). Compared with other processual views, the co-evolutionary lens used in the present research potentially facilitates a more realistic and dynamic understanding of firm internationalization (C. L. Welch, & Paavilainen-Mäntymäki, 2014).

3.4 Theoretical Synthesis: A Resource Co-evolutionary Framework for Investigating the Internationalization Process of IIFs

As just mentioned earlier, this thesis aims at exploring and explaining the internationalization process of IIFs from a resource co-evolutionary lens. Expanding the Resource-based View by incorporating the process-based view and the co-evolution framework, this thesis develops a theoretical framework, as shown in Figure 3.3. This framework sets up the assumption and boundary conditions of the investigation of this study. Based on this framework, this thesis searches for internationalization process patterns of IIFs, critical knowledge, and network resources, enabling the unfolding of the internationalization of IIFs, and mechanisms drive the joint development of the required knowledge and network resources.

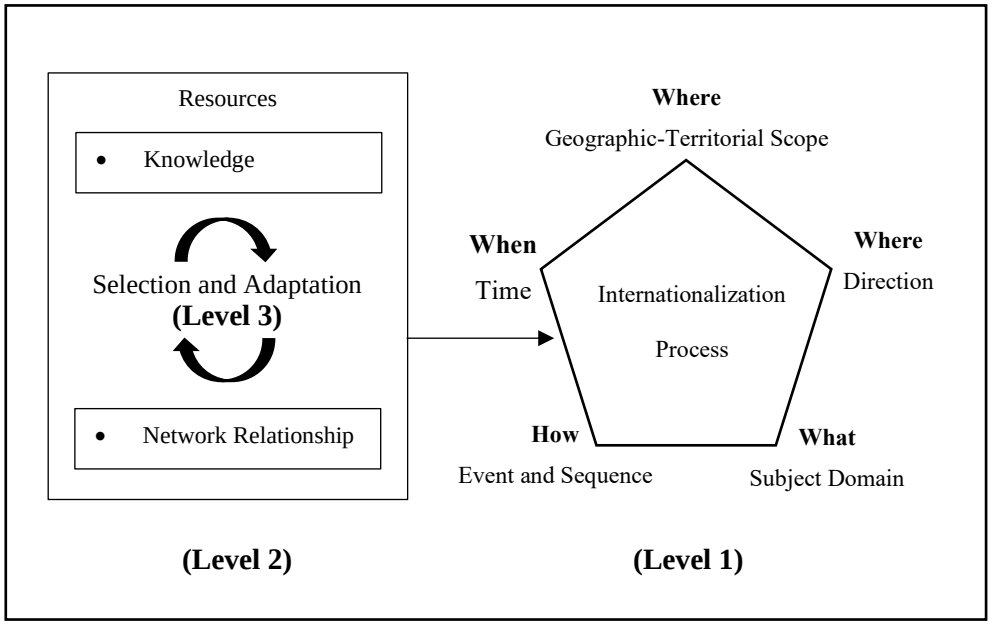


Figure 3. 3. **A Resource Co-Evolutionary Framework of Internationalization**

Note. This theoretical framework of this thesis synthesizes the dimensional framework (Figure 3.1), and the resource evolution framework of internationalization (Figure 3.2) discussed previously. This is the final theoretical framework of this thesis. **The resource co-evolving process enabling IIF internationalization is labeled as "Level 2" process to differ from the other processes under investigation in this thesis. Moreover, this thesis labels the resource co-evolution mechanisms as the "Level 3" process under investigation to differentiate the mechanisms or "motors" of changes, using Van de Ven and Poole's (1995) term, from other processes under investigation in this thesis.**

Co-evolutionary explanations of change acknowledge the evolutionary and interdependent nature of processes. The co-evolutionary framework's explanatory strength lies in connecting the resource pair's evolution and interplay. Otherwise the

resources that jointly develop in pairs would be treated as conceptually and analytically distinct (Cano-Kollmann et al., 2016; Farjoun, 2016; Langley & Sloan, 2011). Resource co-evolutionary change can only be explained by recognizing and accounting for the noticeable adaptive, mutual influence of processes, rather than regarding them as separate and independent phenomena. In co-evolutionary explanations, inter-relationships of knowledge and network resources can be convergent, divergent, inconsistent, and even contradictory (Farjoun, 2016).

With the present research aims in mind, the resource co-evolutionary framework, developed in this present thesis, implicitly follows a teleological mechanism assuming that the resource and international business development of IIFs are purposeful and adaptive. Knowledge and network resources posit necessary resource conditions for IIFs to expand internationally at a specific time. The knowledge and network resources, and the international performance of IIFs at a particular time, does not mean they stay in permanent equilibrium. New circumstances and conditions may push them to develop new purpose(s) and adaptation(s), leading to further development episodes, which can hardly be specified in advance. Teleology neither presumes a predetermined sequence of events nor implies criteria by which changes can be judged (Van de Ven, 1992). Thus, changes may be destabilizing, disorderly, regressive, and disintegrative.

Moreover, teleological mechanisms explain why the observed events occur mainly through multiple cumulative progressions – a temporal series of events found in earlier events are added to and built upon in subsequent events. A temporal sequence of events may reflect more than one pathway at a given time in the ordered progression (Van de Ven, 1992). Thus, rather than specifying the event orders, this thesis would list the

possible essential resources that prevail for a while, in which a relatively stable internationalization episode unfolds. Moreover, this thesis would also list the end states of the internationalization episodes. The findings of this research would rely on norms of rationality to prescribe the end states of internationalization, critical knowledge and network resources, and mechanisms of change.

3.5 Chapter Summary

This chapter presented the overall development of the theoretical framework of this thesis. The framework's main theoretical foundations are the process-based view, resource-based view, and co-evolutionary framework. Based on the existing IB literature, the internationalization process of IIFs will be observed from the following five dimensions in this study: cross-border events, time, geographic-territorial scope, direction, and subject domain. Resources that provide necessary conditions for IIFs to internationalize will be captured from the dimensions of knowledge and network resources. Considering IB operations in the real business world, this thesis shifted attention from the resource exploitation view to the resource co-evolutionary view. This study elaborated on the co-evolution framework in the joint development of the knowledge and network relationships that enable IIF internationalization. In the following chapter, the research methodology will be discussed.

CHAPTER 4 – METHODOLOGY

4.0 Overview

This chapter justifies the research methodology in detail. This chapter first describes the researcher's philosophical position of critical realism. Then, this chapter explains the use of the abduction research approach in this study. Following this, this chapter justifies the incorporation of process research approach into multiple qualitative case study. Then, the research contexts and data methods of collection and analysis are discussed and justified. Next, this chapter evaluates the quality and rigor of the research process with criteria of reliability and validity. Last, this chapter presents a discussion of ethical considerations.

4.1 Critical Realism

Before undertaking the research, it is essential to note the researcher's philosophical position. The researcher's philosophical position concerns:

1. *What is the researcher's approach to the nature of reality (ontology)?*
2. *How can the researcher understand it (epistemology)?*
3. *How can reality be adequately studied (methodology)?*

The researcher's philosophical position acts as a cornerstone of research assumptions (Creswell, 2013; Guba, 1990), which guides the research strategy and the methods as part of that strategy (Saunders et al., 2009).

This thesis is positioned within a critical realism paradigm and uses qualitative and multi-case study design for data collection and analysis. Critical realism's main objective is to

uncover the hidden meaning to empower people to improve their lives and create a better world (Cavana et al., 2001). Critical realism holds that what senses show are representations of what is real. The unobservable events cause the observable ones. Moreover, the observable events can be understood only if the unobservable ones are understood.

Critical realism enables researchers to distinguish between the observable events and what causes them. In this thesis, the research question is "*Through a resource co-evolutionary lens, how and why is the internationalization process of IIFs driven by the joint development of knowledge and network relationships?*". According to a critical realist perspective, the internationalization of the IIFs, co-evolution of IIFs' knowledge and network resources, and the two processes' connections are a series of observable events. However, the internationalization patterns of IIFs and resource co-evolution mechanisms are unobservable.

4.2 Mix of Deduction and Induction

This study adopts a mix of deduction and induction approach. A deductive approach is often used in research to test a set theory based on empirical data (Saunders et al., 2009). An inductive study relies on empirical findings to develop a conceptual and theoretical understanding (Saunders et al., 2009). However, a purely deductive approach may prevent the researcher from developing new and beneficial theories, while a strictly inductive approach may prevent the researcher from profiting from the extant literature (Perry, 1998).

Embracing both the positivist and the constructivist epistemology, critical realists assert that the reality should be observable independently, but it should be interpreted through social conditioning. Thus, conducting this research based on the critical realist stance led to a mix of deductive structuring and inductive pattern recognition and reasoning (Pettigrew, 1997). The deductive structuring provides a prelude to the more open-ended process of inductive pattern recognition and reasoning.

Specifically, in this thesis, knowledge accumulation (about the research itself) involved a cycle between deduction and induction (Eisenhardt, 1989). The cycle followed Pettigrew (1977) and included the main research question → related themes and questions → preliminary data collection → early pattern recognition → early writing → confirmation and verification → elaborated themes and questions → further data collection → additional pattern recognition across more case examples → comparative analysis → more refined research questions and vocabulary.

This study first deductively developed a resource co-evolutionary framework from the literature for observing the resource co-evolution and internationalization processes of IIFs (see Figure 3.3) from the literature. After preliminary data collection, the framework was refined. Then, based on further data collection and analysis, this research recognized additional IIF internationalization process patterns across cases and internationalization stages. These internationalization process patterns were then used as data analysis devices for this study to trace the critical knowledge and network resources, enabling the unfolding of the identified internationalization patterns. Then, through a resource co-evolutionary lens, this thesis attempted to explain the accumulation and interactions of the critical knowledge and network resources. In these stages, this thesis interacted

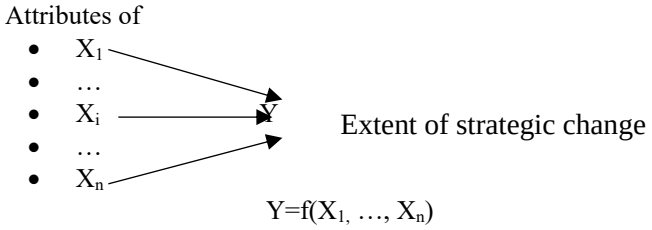
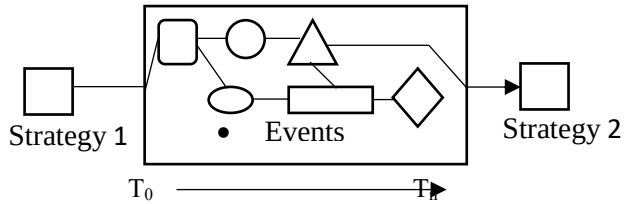
between the literature, related themes, questions, data collection, analysis, confirmation and verification, study vocabulary, and writing. In line with a critical realist way of looking at the world, a continually interacting cycle of deduction and induction provided the researcher with the confidence that the findings are as close to the true essence of the society as possible (Inglis & Thorpe, 2012; Symon & Cassell, 2012).

4.3 Applying "Process Approach" to Qualitative Multi-case Study

4.3.1 Process Approach

A "process approach", also known as an event-driven method, is a form of inquiry focusing on exploring and explaining changes of events based on a story or historical narrative (Abbott, 1988; Pentland, 1999; Poole et al., 2000). As stated earlier, contrast is commonly drawn between variance and process approaches (C. L. Welch & Paavilainen-Mäntymäki, 2014). The first contrast was proposed by Mohr (1982). In Section 2.1, key features of the variance- and process-based view were discussed when defining the term "internationalization". In Table 4.1, these key features are systematically summarized. As this present thesis investigates the internationalization process of IIFs, it is important to highlight the critical differences between the process-based approach and the variance-based approach. The latter is dominant in IB studies.

Table 4. 1. ***Process versus Variance Approach***

Feature	Variance Approach	Process Approach
Explanatory purpose	"What are the antecedents or consequences of this issue?"	"How does the issue emerge, develop, grow or terminate over time?"
Unit of analysis	Variable	Event
Philosophical positions	Positivist	Positivist or non-positivist
Basic assumptions	(1) Fixed entities with varying attributes. (2) Explanations are based on necessary and sufficient causality (3) Explanations are based on efficient causality: the precursor implies the outcome. (4) Time ordering among independent variables is immaterial. (5) Attributes have a single meaning over time. (6) Emphasis is on immediate causation. (7) Generality depends on uniformity across contexts.	(1) Entities that participate in events may change over time. (2) Explanations are based on necessary causality. (3) Explanations are based on final, formal, and efficient causality: the precursor does not imply the outcome but rather the outcome implies the precursor. (4) Time ordering of independent events is critical. (5) Entities and attributes may change over time. (6) Explanation is layered and incorporates both immediate and distal causation. (7) Generality depends on versatility across cases.
Conceptualization of time	Homogeneous, measurable unit	Intersubjective construction
Preferred methodologies	Quantitative, e.g. regression model	Longitudinal quantitative techniques (e.g. panel data models, event history analysis), narrative analysis, longitudinal case study, mixed methods.
Advantages	Allows for parsimonious and predictive theories about the relationships between variables.	Allows for complex, non-linear explanations as to how and why sequences of events occur.
Disadvantages	A process is deduced based on a measurement of two points of analysis/time.	Difficulties in going beyond describing patterns to theorizing about "why" and "how".
Visualization		

Adapted from: Chandra (2007), Langley (1999), and C. L. Welch and Paavilainen-Mäntymäki (2014).

In this thesis, the nature of the research interest – processes – necessitated the choice of the process approach, which offers constructive ways to unveil the ongoing, dynamic, and path-dependent nature of the temporal sequence of corporate events (C. L. Welch & Paavilainen-Mäntymäki, 2014). The process approach facilitated this research to investigate the internationalization process taking over the cross-border event, time, geographic-territorial scope, direction, and subject domain. Moreover, based on the identified process patterns of IIF internationalization, the process-based approach could also enable this study to search for co-evolving knowledge and network resources, which posit functions desired by IIF internationalization over time. The variance approach is not able to capture the flow of these changes. By adopting the process approach, this research responded to important research calls for exploring the processual nature of internationalization (e.g., Coviello & Jones, 2004; Kutschker et al., 1997; C. L. Welch & Paavilainen - Mäntymäki, 2014).

4.3.2 Multi-case Study

This research applied the process research approach to a multi-case study research method (Chandra, 2007). This method is often considered useful, especially when there is no established theoretical base describing and explaining the research phenomenon (Benbasat et al., 1987; Brouthers et al., 2016). Case study methods can be commonly defined "as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not evident" (Yin, 1994, p. 13). IB scholars have recommended using case study methods in IB process research (Eckert & Mayrhofer, 2005; Vissak, 2010b; Vissak & Francioni,

2013; C. L. Welch & Welch, 2009). The flexibility of the case study methods facilitates the discovery of considerably broad and rich facets of a phenomenon, and thus allows new insights to emerge from within its complexities even when little in the way of established literature or prior empirical findings is available (Chetty, 1996; Eisenhardt, 1989; Halinen & Törnroos, 2005). Based on multiple sources of evidence, case study methods have considerable ability to answer the "how?" and "why?" questions (Yin, 1994). It is valuable at all stages of a theory-building process (Eisenhardt, 1989, 1991; Eisenhardt & Graebner, 2007; Dubois & Gadde, 2002; Ghauri, 2004; C. L. Welch et al., 2011; Yin, 1994).

More specifically, this thesis follows a multiple-case design, which deepens the understanding of IIF internationalization (Sub Research Question One) and IIF resource co-evolution of knowledge and network relationships underlying internationalization (Sub Research Question 2). Moreover, applying the process approach to multi-case studies also enables this study to generate powerful explanations of why knowledge and network resources jointly develop over time, providing resource-based functions desired by IIF internationalization (Sub Research Question Three) (Yin, 2003). The rich descriptions for each IIF, offered by case study methods, allowed the researcher to capture each case's idiosyncrasies and compare data across cases to draw generalizable conclusions (Eisenhardt, 1989; Yin, 2003).

4.3.3 Qualitative Design and Analysis

This thesis adopted a qualitative research design and analysis methods. Within the critical realism research paradigm, these methods have been argued to be best suited to

addressing the research question and generating significant theoretical and practical outcomes (Creswell, 2007). Moreover, there can be a natural fit between the process approach and qualitative multi-case study, particularly the time series analysis, among others, through merging and observing the chronology of events over time (Yin, 2003). Qualitative data can capture as much information as possible about the context (Yin, 1994). The phenomenon of interest under investigation – the internationalization of IIFs – occurs in a dynamic business environment, emphasizing a need for qualitative data that captures the complexity and presents a detailed understanding of the research subject (Creswell, 2007). Besides, qualitative data is very well suited for studying events, processes and the meaning of the events and processes (Bouma et al., 1995; Maxwell, 2012). Therefore, it helps this study identify the critical knowledge and network resources in IIF internationalization process and explain why these two resources develop jointly. Most of the process research was conducted based on qualitative data (Langley, 1999). It allows transferability and building theories by combining the existing theoretical knowledge with new empirical insights (Yin, 1994). When combined with a multiple case study design, it centers on the commonalities in different cases and in-depth knowledge, such as underlying reasons, motivations, and hindrances (Maxwell, 2012).

4.4 Research Contexts

This research draws empirical evidence from New Zealand-based international Internet Payment Intermediaries (IPIs). This choice of this empirical field is justified below.

4.4.1 New Zealand – China E- and M-commerce

New Zealand is a remote and small island country in the southwestern Pacific Ocean far away from its main international markets, but it engages very well with the rest of the world. Since the first Maori (Polynesian) settled between 1000 and 1500 AD, New Zealand has been a country of immigrants. After its recession in the 1970s, New Zealand rapidly introduced trade liberalization, cut agricultural subsidies, and partially privatized the public assets (James, 1986). The consequences of these policies since 1984 have turned the country into one of the world's most open and unregulated economies (Chetty & Campbell-Hunt, 2003). Subsequently, more networks of connections between New Zealand firms and other actors at multi-continental distances are created. Greater flows of people, information, and ideas, as well as capital and goods, move to New Zealand (Appadurai, 1996). As a result of this open economy, New Zealand is now one of the world's freest countries. As of 2018, New Zealand's population reaches around 4.7 million, and its main trading partners remain China, Australia, and the United States (Stats NZ, 2019).

4.4.1.1 Cross-border E-commerce

E-commerce has become a new growth engine for New Zealand's exports to China (H. Li & Lu, 2019). In 2016, New Zealand Trade and Enterprise (NZTE), New Zealand Government's international business development agency, and Alibaba Group (the world's largest online and mobile marketplace), signed a Memorandum of Understanding (MoU) for strengthening trade between New Zealand and China. With China's digital marketplace growing dramatically, in 2019, China has 855 million digital consumers (Bu

et al., 2019), and China's e-commerce sales reached US$1.935 trillion (Cheung, 2019). This MoU is a significant step in establishing closer cooperation to promote trade and online commerce between New Zealand and China (ExportNZ, 2016).

4.4.1.2 Cross-border Social Commerce

In addition to traditional cross-border e-commerce, social commerce – the *Daigou* business model - also plays a significant role in New Zealand's export to China (New Zealand Trade & Enterprise, n.d.-a). Daigou, pronounced "dye-go", means "buying on behalf of" and is an e-commerce channel between New Zealand professional shoppers and mainland Chinese online buyers (New Zealand Trade & Enterprise, n.d.-b). The Daigou phenomenon, to a certain extent, suggests that cross-border e-commerce between New Zealand and China is very decentralized and grounded to B2C and C2C interactions and transactions.

Daigous are mainly Chinese students and new immigrants living in New Zealand and being asked by their family, friends, and other contacts to send products back to China (McDougall, n.d., as cited in New Zealand Export and Trade Handbook, 2017). Categories like mother and baby, nutraceuticals, beauty, and high-end food and beverage may make their way from New Zealand pharmacy or supermarket shelves to Chinese consumers through Daigou, sometimes without the brand owners noticing of the scale of the movement.

In recent times, this Daigou business has comparatively matured in New Zealand. An estimated 15,000 Daigous live in New Zealand and provide professional shopping on

behalf of Chinese buyers (Arand, 2016). Some Daigous even establish physical stores, becoming major traders or key distributors. As of 2017, New Zealand has estimated 350 Daigou stores that are generally selling 20 to 30 key brands in predominant categories (McDougall, n.d., as cited in New Zealand Export and Trade Handbook, 2017). Almost all purchases are mediated by e-commerce platforms, social media, and IPIs, making a relationship-driven channel viable over long distances and with large numbers of buyers.

Daigous establish their stores on e-commerce platforms such as Taobao or Tmall. Consumers can browse, shop, and review individual sellers on these platforms. However, most Daigou trading takes place via WeChat, one of China's largest social media platforms. WeChat includes Twitter- and WhatsApp-like functions, download free apps, and direct payments between seller users and buyer users.

For New Zealand brands, the Daigou business model has been identified as the most cost-effective way for them to build early-stage brand awareness, test market, and scale into China, in advance of moving onto a B2C platform like Tmall, JD.com, Kaola, Ymatou, and Little Red Book (New Zealand Trade & Enterprise, n.d.-b). These B2C platforms account for 50% of China's total online sales, and roughly 60% of their sales are transacted through Tmall, 19% through JD.com, and 20% through the other platforms (Arand, 2016).

4.4.1.3 Cross-border Online to Offline Tourism

China is New Zealand's second-largest international tourism market (behind Australia) but the largest market in terms of tourism spending (New Zealand Ministry of Foreign

Affairs & Trade, n.d.). Seeing the successful practice and experience with establishing cross-border e-commerce and social commerce with China, Tourism New Zealand and Tencent Holdings Limited (China's largest social media platform) signed an MoU to keep New Zealand top of mind for high-value Chinese visitors (Tourism New Zealand, 2019). This MoU aimed at advertising New Zealand tourism products and services online, attracting global WeChat users to come to New Zealand, providing cloud-based services to international travelers through WeChat functions and extensions. Besides, Tourism New Zealand also sought to deepen the understanding of the travelers through Tencent's social solution, which includes WeChat advertisements, WeChat Official Accounts (also known as Brand Accounts), WeChat Mini Programs (also known as Download Free Apps or Instant Apps), and machine learning. Thus, the visitors' data of searching, browsing, consumption, preference, and any other habits in New Zealand would be used to guide the visitors' future in-market activities (Tourism New Zealand, 2019).

4.4.1.4 Implication for this Study

It can be seen that the context of New Zealand holds significant implications for IB research in demand-side economies of scales. With more and more New Zealand merchants breaking into China's online marketplace, New Zealand-China cross-border e-commerce has shifted from traditional supply-side to today's demand-side economies of scale. Rather than driving consumers to many traditional touchpoints, such as their websites, apps, and online shops, New Zealand firms are increasingly integrating their core business functionalities with third parties and their interfaces, looking for inroads to new Chinese consumers. These third parties carve their role in saturated or fragmented markets by aggregating services into a single and convenient access point. As the third

parties mature, they grow their consumers, which draws more firms congregating around their platforms, and the cycle repeats. The cycle's power is that the value it creates is larger than the combined value that each of the participants could generate individually (Accenture, 2017).

4.4.2 International Internet Payment Intermediaries from New Zealand

Although IPIs are one of the narrowest categories of the IIFs (OECD, 2010), they have spread rapidly from online to offline and then online, from flights to taxis, and even vending machines and vegetable stands, being applied anywhere (The Wall Street Journal, 2020). IPIs have been predominantly regarded as an entrance to or an exit of a purchase journey, as described by KPMG et al. (2018). An essential role of the IPIs is to leverage their matchmaker position to foster connections and interactions with other firms in the marketplace, leading to purchases, payments, transactions, and social value exchanges among producers and consumers (OECD, 2010). According to H2 Ventures and KPMG (2018), 34 out of 100 world's top financial technology firms are now IPIs operating at the global marketplace, facilitating users to spend and transfer money in various currencies.

In the context of New Zealand, IPIs mostly provide integrated payments – where the payments are embedded in a wide range of technologies and a host of daily interactions and activities. The most popular one is Alipay and WeChat Pay integrated cross-border mobile payment – both Alipay and WeChat Pay on the same terminal that buyers can pay through mobile with instant exchange rates, irrespective of geographic location. Before and after each payment, the buyer will receive a red packet – where a small amount of money is given back to the buyer to facilitate buyer retention. In some situations, the

checkout step is even "paymentless" to buyers, where a simple biometric verification replaces payment operations. For example, when a buyer confirms an order with a fingerprint identity sensor, a payment is included in this confirmation and will be completed automatically in an almost invisible way. As new technologies are opening ways to generate value, mobile payment and payment-related information continue to be bundled within the broader value chain — this is a logical extension of network effects (Payment NZ, 2017).

4.4.3 Justification of the Empirical Field

The context chosen for this case study research is international IPIs from New Zealand. As previously stated, cross-borders sellers and buyers suffer from friction when switching platforms. The costs of such fiction remain high. New Zealand's cross-border retailers have broken into China through third-party e-commerce platforms, such as Taobao, Tmall, WeChat, JD.com, Kaola, Ymatou, and Little Red Book. However, almost all these platforms are parallel and competitive rather than complementary. The friction issue exists, particularly at the payment stage (KPMG et al., 2018). New Zealand based Alipay and WeChat Pay providers remedy this friction by embedding each platform's payment step and providing frictionless check-out processes facilitated by bio-payment technologies and devices. Moreover, by giving the red packet or discount for the next purchase and transaction, these firms lock the buyers in the payment method's ecosystem. Therefore, the platforms, merchants, and buyers benefit from the IIFs' orchestration.

Alipay and WeChat Pay launched in New Zealand in 2015 and 2016, respectively. During the development of New Zealand–China cross-border e-commerce and mobile payment,

the IPIs suffered from competition between parallel cross-border e-commerce platforms and payment gateways. Subsequently, the penetration of cross-border mobile payments in New Zealand became high in 2018 (68%). In 2019, the total expenditure through cross-border mobile payments increased by 15% (Nielsen, 2020). This present thesis gathered data from international IPIs from New Zealand, which sheds light on the internationalization of modern digital matchmakers, the internationalization of digital platforms through IIFs, and the MNEs' governance of the digital platform-based ecosystem through IIFs. The internationalization process of the IPIs from New Zealand, in this thesis, constituted the context for IB understanding and theorizing.

4.5 Data Collection

4.5.1 Developing and Structuring the Interview Questions

This section aims to present how the interview questions were developed in this thesis. The main question of this research is: "*Through a resource co-evolutionary lens, how and why is the internationalization process of IIFs driven by the joint development of organizational knowledge and network relationships?*". With the joint consideration of the resource co-evolutionary framework developed in Section 3.4 and this central research question, the interview questions were designed for data collection, as shown in Table 4.2. Respect was also given to the process approach and qualitative case study design discussed in Section 4.3. The interview questions were central to collecting data and addressing the main research question of this study.

Specifically, the internationalization process of IIFs (the "Level 1" process in the theoretical framework developed in Chapter 3) was first incorporated in structuring the interview questions, including "When, what, how, and why does the firm enter each of its international markets?" and "Is there any critical event(s) in the course? Is it fully addressed? How is it addressed?". Using the dimensional framework developed in Section 3.1 (see Figure 3.1), this study explores and identifies key internationalization events and temporal sequences. The internationalization process of IIFs (the "Level 1" process under investigation in this research) provides the initial process framework required for the investigation of the resource process (the "Level 2" process in the theoretical framework developed in Chapter 3).

Based on the internationalization process constructed from the empirical data, this study traces and identifies the critical knowledge and network resources. Specifically, based on the emerging internationalization events and temporal patterns, this study incorporated the resource process (the "Level 2" process under investigation in this thesis) into the structure of another two interview questions, including "What knowledge resource(s) is important to the identified internationalization episode?" and "What network resource(s) is important to the identified internationalization episode?"

Then, the resource co-evolution mechanisms of change (the "Level 3" process in the theoretical framework developed in Chapter 3) were incorporated into questioning "How and why do the knowledge and network resources develop jointly over time?".

As mentioned earlier in this section, respect was also given to the process approach and case study approach presented in Section 4.3. The process approach centers on events and

temporal patterns. For this reason, the internationalization process was first tentatively decomposed into four temporal stages, including pre-internationalization, post-internationalization, de-internationalization, and re-internationalization. Important here was that the decomposed event sequences did not have a chronologic order. This decomposition aimed to facilitate the exploring and structuring of the actual temporal internationalization process patterns, which would be the "comparative units of analysis" (Langley, 1999, p. 703) for the subsequent in-case comparisons and cross-case comparisons (Yin, 2014).

The leading research question and sub-questions have been stated in Section 1.6. Table 4.2 zooms into the interview questions for empirical data collection. The questions shown in Table 4.2 represent how IIFs internationalize, what knowledge and network resources enable IIF internationalization, and how and why these knowledge and network resources jointly develop over time, driving internationalization. As stated earlier, questions in Table 4.2 map on to the interview questions guiding data collection and analysis. The critical events would be explained sequentially, questions being repeated for each internationalization episode until the point in which the case evidence showed that the internationalization episode stopped (or until the time of the data collection if the process was continuing).

Table 4. 2. ***Interview Questions***

Potential temporal patterns (guided by process driven qualitative case study discussed in Section 5.3)	Questions relating to the internationalization of the IIFs (The "Level 1" process in the theoretical framework developed in Chapter 4)	Questions relating to the key resources for the internationalization of the IIFs (The "Level 2" process in the theoretical framework developed in Chapter 4)	Questions relating to the resource co-evolution mechanisms of change (The "Level 3" process in the theoretical framework developed in Chapter 4)
Pre-Internationalization	• How does the initial idea of internationalization come up? • Is there any critical event(s) influencing the idea? • What does the firm do to prepare for its first internationalization?	• What knowledge resource(s) influences the firm's pre international development? • What network resource(s) influences the firm's pre international development t?	• How and why does the knowledge and network resources select and adapt to each other?
Post-Internationalization	• When, what, how, and why does the firm enter its first international market(s)? • Is there any critical event(s) in the course? Is it fully addressed? How is it addressed?	• What knowledge resource(s) influences the firm's first internationalization? • Which network resource(s) influences the firm's first internationalization?	• How and why does the knowledge and network resources select and adapt to each other?
De-Internationalization	• When, what, how, and why does the firm withdraw from its international market(s)? • Is there any critical event(s) in the course? Is it fully addressed? How is it addressed?	• What knowledge resource(s) influences the firm's international withdrawal? • What network resource(s) influences the firm's international withdrawal?	• How and why does the knowledge and network resources select and adapt to each other?
Re-Internationalization	• When, what, how, and why does the firm re-enter any international market(s)? • Is there any critical event(s) in the course? Is it fully addressed? How is it addressed?	• What knowledge resource(s) influences the firm's international re-entry? • What network resource(s) influences the firm's international re-entry?	• How and why does the knowledge and network resources select and adapt to each other?

4.5.2 Unit of Analysis

The unit of analysis is about the focal entity investigated and discussed in case study research (M. Fletcher et al., 2018). It is the "what" or "whom" that is being studied, and it determines the sampling strategies and sampling size (Patton, 2015). Despite IB research mostly emphasizing countries, regions, cities, industries, organizations, and individuals (M. Fletcher et al., 2018), the choice of the unit of analysis is very context specific. It depends on the research question(s).

The choice of the unit of analysis of this study was guided by the research aims, theoretical framework, main research question, and sub research questions. This study focuses on the internationalization events and sequences, the knowledge and network resources desired by critical internationalization events and sequences, and the mechanisms that drive the joint development of the essential knowledge and network resources. This research attempts to build a teleological explanation for the co-evolution of knowledge and network resources in driving the internationalization of IIFs.

Therefore, this study first focused the analysis on the internationalization events and sequences, which facilitate the identification and delineation of the characteristic patterns of the internationalization process of IIFs. The internationalization event sequences can also be used as a data grounding and organizing device to analyze the critical knowledge and network resources and the mechanisms driving the resources' joint development.

4.5.3 Sampling Strategy

Sampling in qualitative case study research is mainly about purpose, appropriateness, and access to information-rich cases (Patton, 2015). Therefore, it is captured in the notion of purposeful sampling, which entails that "… selecting information-rich cases to study, cases that by their nature and substance will illuminate the inquiry question being investigated" (Patton, 2015, p. 265). This thesis applied purposeful sampling to maximize the richness and depth of the information obtained. Purposeful sampling ensures that the case subjects are open, accessible, and willing to interact and share information in relatively long and in-depth face-to-face interviews (Eisenhardt, 1989; Perry, 1998; Stake, 1995; Yin, 1994). There are different purposeful sampling strategies (e.g., Eisenhardt, 1989; Stake, 1995; Yin, 2014). An exhaustive analysis of purposeful sampling strategies has been provided by Patton (2015).

Under the umbrella of purposeful sampling, maximum variation sampling, and key informants, knowledgeable, and reputational sampling were combined in this research. With care given to the selection of cases and minimizing personal bias, this research selected a set of cases that could maximize the diversity relevant to the research question (Given, 2008) to compensate for the initial non-random selection (Heckathorn, 1997). The sampling framework, including the business sector, year of establishment, and background, was chosen to select the participant firms. This research expected to identify:

1. the critical internationalization events, sequences, and patterns of the IIFs;
2. the knowledge and network resources that enabled the unfolding of the internationalization episode patterns; and

3. the resource co-evolution mechanisms in driving the unfolding of the under-investigated processes common across the diversity (Patton, 2015) to construct the model to illustrate the process mechanisms and patterns.

At the case level, this research identified and recruited key informants from a wide range of managerial levels, including the founders, the middle-level professionals who are/were responsible for the international development of the case firms, such as sales, export, and business development managers, and some external informants, including customers, partners, suppliers, and regulators. These external informants usually have first-hand knowledge about the case firms' internationalization. The researcher started by listing the potential key informants to get a diverse set of representatives from different backgrounds. This diversity then provided a wide range of perspectives. It was expected the entire group of informants could help inform how and why the case firms' internationalization is driven by the co-evolution of knowledge and network resources. At the end of each interview, the informants were asked to refer the researcher to other potential participants within and outside the firm. The informants were willing to share, as being referred made it more likely for new informants to participate in this study.

4.5.4 Number of Cases

This thesis adopted a multi-case approach, which enables comparison, replication, and extension among individual cases, and hence the evidence becomes more robust and compelling (Chetty, 1996; Johnston et al., 2001; Yin, 1994). Given this study was a qualitative multiple case study, it was necessary to consider the mix of cases inclusively. This research selected seven case firms based on "constrained variation" (Eisenhardt,

1989) to inform the process findings. The final sample size involved a trade-off between more depth versus greater breadth. Seven cases were considered sufficient as this sample size met the saturation level with no additional findings being confirmed (Glaser, 1978). The number of seven cases also fell within the optimal range of the number of cases recommended for qualitative research. Eisenhardt (1989) suggested that the number of cases should be at least four. With fewer than four cases, it is challenging to build a theory with much complexity. Moreover, its empirical grounding would likely be unconvincing. For the maximum, Hedges (1985) set an upper limit of 12 cases due to the high costs involved in qualitative interviews. The amount of qualitative data from 12 cases can be effectively assimilated.

4.5.5 Case Selection

Case selection lies at the core of what constitutes qualitative case study research (M. Fletcher et al., 2018). It essentially influences the conduction and results of qualitative multi-case studies (Patton, 2015). Cuervo-Cazurra et al. (2016) suggested that justification for case selection decisions may enhance confidence and elevate the importance of qualitative research in IB. Siggelkow (2007) pointed out that the selection of cases or phenomena in case study research also determines the case study's contribution. Seawright and Gerring (2008) argued that a lack of rigor in selecting cases in qualitative case study research might render findings hard to interpret and jeopardize theorizing and the transferability of case study evidence. Case selection can be quite far from settled, but it usually depends on the unit of analysis, sampling strategies, and sample size, i.e., the number of cases (Ragin & Becker, 1992).

The present research selected theoretically salient cases (Eisenhardt, 1989; Leonard-Barton, 1990; Pettigrew, 1990). There was a total of eight IPIs in New Zealand during the data collection of this thesis. This study worked with seven of them, which shape the New Zealand – China cross-border mobile payment ecosystem. These case firms provide cloud-based solutions to New Zealand based cross-border retailers. They extend Chinese digital platforms globally, helping New Zealand and international MNEs participate in and take advantage of digital platform-based ecosystems.

Given this research was a multiple case study, careful considerations were given to the mix of the cases. The selected cases were comparable to the extent that they were conceived in the same industry contexts. Their internationalization originated from the same home and host countries, and they had the same commercialization strategies upon original internationalization. Moreover, the cases varied in terms of their internationalization trajectories and resource development. To avoid success bias, this study included three "near-death" case firms. However, it was found that even the relatively more successful case firms had faced "near-death" experiences and none of the cases achieved sustained international success in the period of this study. The excluded firm among the total of eight IPIs from New Zealand is not comparable to the selected cases regarding firm history, size, and commercialization strategies. An overview of the characteristics of the case firms in this research can be seen in Table 4.3.

Table 4. 3. ***Characteristics of Case Firms***

Case No.	Fictional Names	Est.	Firm Size	Sectors*	Products and Services	Internationalization Trajectories	Home and Host Countries	State of Knowledge and Network Resources at Inception
#1	Mercury	2014	7	Internet advertising and service provider	WeChat Pay, and WeChat based Instant online Shop	Internationalized at inception; expanded to Australian and Japan; ran out of capital during expansion; survived but moved headquarter to Australia.	NZ, CN, AU, and JP	IT background, and social network with supplier.
#2	Venus	2015	9	Financial consulting, advising, planning and support services	WeChat Pay, Alipay; Union Pay; POS	Internationalized at inception; constantly integrated innovations to its APIs; experienced several international withdrawals.	NZ, CN, AU, JP, and TH	IT background, and social network with supplier.
#3	Mars	2015	8	Financial consulting, advising, planning and support services	WeChat Pay, and Alipay	Internationalized at inception by exiting home market; experienced fast expansion; expanded to previous home market; experienced withdrawals; then acquired by Venus.	NZ, CN, AU, and SGP	IT and financial service background, and intermediary social network with supplier.
#4	Jupiter	2012	7	Financial consulting, advising, planning and support services	WeChat Pay, Alipay, Instant online shop	Internationalized at inception as a currency exchange company; transformed to an IPI; international and domestic expansion were empowered by in house R&D.	NZ, CN, and AU	Previous parent company CTO's IT background, and previous parent company's merchant pool.
#5	Saturn	2016	5	Financial consulting, advising, planning and support services	WeChat Pay, Alipay, and POS	Internationalized at inception; international and domestic expansion were mainly empowered outsourcing.	NZ, CN, and AU	Telecommunication background, and social network with certain scale of potential merchant users.
#6	Uranus	2014	9	Financial consulting, advising, planning and support services	WeChat Pay, Alipay, and e-commerce platform	Internationalized at inception; transformed to an IPI; international and domestic expansion were empowered by in house R&D.	NZ, CN, and AU	Experience, and social network with a certain scale of merchant users.
#7	Neptune	2019	5	Internet advertising and service provider; Financial consulting, advising, planning and support services	WeChat Pay and Instant online shop	Internationalized at the inception; international and domestic expansion were mainly empowered by outsourcing; experienced quick international expansion and withdrawal.	NZ and China	Experience and social networks with a certain scale of merchant users.

*The case firm's business sector is listed at https://companies-register.companiesoffice.govt.nz/

In these firms, the phenomenon of interest was "transparently observable" (Pettigrew, 1990, p. 275). At the early stage of internationalization, the firms had limited organizational resources ready to exploit, so they had to engage in knowledge and network resource development for their subsequent survival and growth. The choice of the case firms with these characteristics allowed this research to trace the internationalization processes, resource co-evolution processes, and mechanisms of change. Cross-case variations enabled this research to rule out alternative explanations.

4.5.6 Data Collection Process and Sources of Evidence

Data collection for this research commenced in mid-2018 and was completed in late 2019. Data collection for this study included three stages: (a) background research of the potential cases, (b) inviting cases, and (c) probing case study themes. Case study evidence can come from many sources, including interviews, direct observation, participant-observation, documentation, archival records, and physical artifacts (Yin, 2014). To "understand the case in its totality" (Kumar, 2011, p. 127), this research adopted multiple sources of evidence to provide as much information as possible (Yin, 2014). Specifically, (a) interviews, (b) archival records, (c) documents, and (d) physical artifacts were the four primary sources of data collected for this research. These sources were combined with data collection processes in portraying the phenomenon of interest (see Table 4.4). When the internationalization patterns were confirmed, and no new insights were yielded from the data, this present thesis' data collection was considered complete.

Table 4. 4. ***Data Collection Process and Sources of Evidence***

Source of Information			Data Collection Process	Identifying New Zealand IPI Companies	Company Background Study and Case Selection	Interviewee Filtering and Selection	Building Connections and Making Invitations	Providing Interview Themes	Probing Process Level 1: Internationalization	Probing Process Level 2 - Key Resources in Internationalization	Probing Process 3 – Mechanisms of Resource Co-evolution enabling IIF Internationalization	Seeking for Referral
Archival Records	Factiva				√			√	√	√	√	
	NZ Companies Office				√			√	√	√	√	
Documentary Sources	LinkedIn			√	√	√	√	√	√	√	√	
	Company Website				√	√		√	√	√	√	
	Facebook			√	√	√	√	√	√	√	√	
	Tweeter			√	√	√	√	√	√	√	√	
	WeChat Official Account				√	√	√	√	√	√	√	
	Annual Report				√	√		√	√	√	√	
	Progress Report								√	√	√	
	Agreement								√	√	√	
	Brochure				√	√		√	√	√	√	
Semi-structured Interviews	Internal	General Manager							√	√	√	√
		CEO							√	√	√	√
		COO							√	√	√	√
		CTO							√	√	√	√
		Senior Manager							√	√	√	√
		Marketing Manager							√	√	√	√
		Business Development Manager							√	√	√	√
		Sales Manager							√	√	√	√
		Administrator							√	√	√	√
		Accountant							√	√	√	√
		Director							√	√	√	√
		Founder							√	√	√	√
		Head of International Subsidiary								√	√	√
		Advisor							√	√	√	√
	Externa	International Supplier							√	√	√	√
		International Customer							√	√	√	√
		International Retailer/Reseller							√	√	√	√
Others	Existing Contact			√	√	√	√					√
	FinTechNZ Website			√								
	NZ FinTech Summit 2018			√			√		√	√	√	
	Alipay Merchant Seminar 2018			√		√	√		√	√	√	
	WeChat Merchant Seminar 2018			√		√	√		√	√	√	
	Google			√	√							

The interviews were the most important data source for this research to develop the case firms' internationalization histories and resource co-evolution histories. The interview questions developed in Section 4.5.1 covered topics such as the prior history of the firms' domestic development, the international development, the resource co-evolution underlying the firms' internationalization, and the potential process mechanisms (see Table 4.2).

As there have been limited studies to date addressing IIF internationalization, to support the literature review and theoretical framework developed here, this study conducted three pilot interviews within the case firm of Mars. The data collected from this pilot case study is intended to develop an evidence base to assist further investigation and theorizing. Mars was chosen for the pilot study as it is the earliest IPI in New Zealand and its internationalization is one of the most complex cases among the seven case firms. Following the pilot interviews, no significant changes were made to the interview schedule. These three pilot interviews were included for the subsequent stage of analysis.

Participants were recruited through personal contacts, LinkedIn, and the snowballing technique. Given the interest of this research, a diversity of informants was necessary. In this study, in-depth face-to-face semi-structured interviews were conducted with key informants, including General Managers, CEOs, COOs, CTOs, Senior Managers, Marketing Managers, Business Development Managers, Sales Managers, Administrators, Accountant, Director, Founder, Head of International Subsidiary, Advisor, International Supplier, International Customer, and International Retailer/Reseller. Each informant had relevant experiences in the firm's internationalization.

When informants were invited, they were sent a copy of the Information Sheet (Appendix 1), which explains the research project, the participant's rights regarding the interviews, and Massey University Human Ethics Notification. Before commencing the interviews, informants were required to sign the Interview Participant Consent Form (Appendix 2). Moreover, the informants also received the Confidentiality Agreement signed by the researcher (Appendix 3). Interviewees were mainly asked to recount critical experiences regarding the case firms' internationalization, learning/knowledge/technology development from idea to market, and networking/network development throughout the process. A full interview guideline can be seen in Appendix 4.

All the recorded interviews were transcribed for further data analysis. Transcribing audio-recorded interviews is time-consuming. Robson (2002) suggested that a one-hour interview recording may cost 10 hours to transcribe. Therefore, the audio-recordings were first transcribed using an automated transcribing machine (iflytek) to reduce the time needed (Saunders et al., 2009). The machined-based transcription required careful checking (Saunders et al., 2009). Thus, after the machine transcription, manual verification was conducted by the researcher by comparing each voice record to the transcription word by word. Words or phrases that the researcher did not understand were clarified with the information providers through follow-up face-to-face, video, mobile interviews, and social media messages with consent.

Given the length of time a case firm took to internationalize, the interviews were unavoidably retrospective. The passage of time had its pros, particularly in terms of interviewees' willingness and ability to reflect on failures and disappointments (Kriz & Welch, 2018). However, trustworthy reconstructions of the retrospective narratives

needed to be obtained with careful data triangulation and verification (Kipping et al., 2014).

Regarding data triangulation, in this thesis, at least three people were interviewed per case. Before, during, and after each interview, the researcher attempted to gather as many other data as possible with consent for documentation and data triangulation purposes. These various types of data included firm history and news from the digital database, firm history and news from internet sources, corporate fact sheets, brochures, operation procedures, annual reports, agreements, and physical artifacts such as devices, tools, and products of the firms.

Regarding verification, the procedures took the following four forms. First, based on multiple case studies, this research developed a detailed understanding of each case firms' critical events. Interviewee accounts could be compared. Any discrepancies could be further probed. Second, some participants were able to produce evidence at or close to the time of the events they covered. Thus, such evidence was non-retrospective. Third, once histories of critical events were initially constructed, they were sent to the key informants for clarification and feedback. Particularly, clarification and additional information were sought to resolve any ambiguities. All respondents returned or approved the histories with only minor clarification being made. No disagreements needed to be addressed. Last, findings and conclusions were summarized and sent to the key informants to confirm the plausibility of the conclusions of this research.

4.5.7 Language Choice

It is noteworthy that Chinese migrants are predominant in New Zealand IPI contexts, and they tend to speak both Mandarin and English. The choice of language for this research may have unexpected consequences for data collection and reporting results (Cortazzi et al., 2011). Hence, it was necessary to determine who chose when to use which language before starting the interview. Due to the probing nature of the interviews, the participants were encouraged to use their first language in interviews. Using the first language could be more effective and efficient (Liu, 2008), as by doing so, the participants could freely communicate complex experiences and events (Liu, 2008; Chiu, 2009). If a participant's language ability was not good enough, the participant might feel constrained discussing complex topics, such as firm internationalization, knowledge acquisition, and networking. The degree of meaning and expression could be sacrificed in the trade-off between the participant's desire to express complex experiences and simplify the language in feasible terms.

Despite the participants being encouraged to use their first language in interviews, their use of a second language was equally acceptable if they felt more comfortable to discuss the topics in their second language. Some concepts were indeed more easily explained in one language rather than another. For example, the term "guanxi" was more easily to be understood if expressed in Chinese, as neither "connections" nor "relationships" sufficiently reflected the vast cultural implications that "guanxi" described.

The researcher is highly fluent in both languages. Therefore, the interviews in Chinese were transcribed, coded, and analyzed in Chinese, and the findings, including quotes, were then translated into English.

4.5.8 Creation of Case Study Database

A summary of the data collected for this study can be seen in Table 4.5. As recommended by Yin (2003), a case study database enables the researcher and other researchers to review the evidence directly. This research stored the collected data in seven folders for ease of retrieval with password protected. Each folder formed a case study database.

Table 4. 5. ***Summary of Data Collection between May. 2018 and Nov. 2019***

Case No.	Fictional Names	Interviewees	Language Used in the Interviews	Observations (Every 4-8 weeks)	Number of Archival Records	Sources of Archival Evidence
#1	Mercury	Founder: 1 BD Manager: 1 Marketing Manager: 1 Sales Manager: 1 Suppliers: 10 Seller Users:2	Mandarin: 12 English: 4	At seller's level: 40 At buyer's level: 40	122	NZ Companies Register: 4 LinkedIn: 1 Company Website: 1 Company WeChat Official Account: 90 WeChat Pay Website: 25 Agreement: 1
#2	Venus	Founder: 1 BD Manager: 1 Marketing Manager: 1 Sales Manager: 1 Suppliers: 24 Seller Users: 4	Mandarin: 28 English: 4	At seller's level: 40 At buyer's level: 40	153	NZ Companies Register: 1 LinkedIn: 1 Company Facebook: 34 Company WeChat Official Account: 23 WeChat Pay: 25 Alipay: 61 UnionPay:6 Agreements: 2
#3	Mars	Founder: 1 Investor: 1 General Manager: 2 BD Manager: 1 Sales Manager: 1 Admin: 1 Suppliers: 23 Seller Users: 4	Mandarin: 30 English: 4	At seller's level: 40 At buyer's level: 40	154	NZ Companies Register: 1 LinkedIn: 1 Company Website: 4 Company Facebook: 23 Company WeChat Official Account: 36 WeChat Pay: 25 Alipay: 61 Agreements: 3
#4	Jupiter	Founder: 1 CEO: 1 CTO: 1 CFO: 1 BD Manager: 1 Suppliers: 23 Seller Users: 4	Mandarin: 28 English: 4	At seller's level: 40 At buyer's level: 40	112	NZ Companies Register: 1 LinkedIn: 2 Company Website: 7 Company Twitter: 7 Company Instagram: 7 WeChat Pay: 25 Alipay: 61 Agreements: 2

#5	Saturn	Managing Directors: 2 Marketing Manager: 1 Suppliers: 23 Seller Users: 4	Mandarin: 26 English: 4	At seller's level: 37 At buyer's level: 37	798	NZ Companies Register: 1 LinkedIn: 1 Company Website: 37 Company Facebook: 285 Company Twitter: 280 Company WeChat Official Account: 4 Company YouTube: 100 WeChat Pay: 25 Alipay: 61 Agreements: 4
#6	Uranus	Founder: 1 Marketing Manager: 1 Sales Manager: 1 CFO: 1 Suppliers: 23 Seller Users: 2	Mandarin: 24 English: 5	At seller's level: 40 At buyer's level: 40	649	NZ Companies Register: 1 LinkedIn: 3 Company Website: 63 Company Facebook: 353 Company Twitter: 88 Company WeChat Official Account: 26 Company YouTube: 27 WeChat Pay: 25 Alipay: 61 Agreements: 2
#7	Neptune	Director: 1 CEO: 1 Investors: 2 Supplier: 1 Seller Users: 4	Mandarin: 8 English: 1	At seller's level: 5 At buyer's level: 5	71	NZ Companies Register: 1 LinkedIn: 2 Company Website: 5 Brochure: 2 Company Mini Programme: 23 WeChat Pay: 25 Agreements: 13
Total	N/A	182	182	484	2059	2059

4.6 Data Analysis

4.6.1 Summarizing and Becoming Familiar with the Collected Process Data

As part of the initial data analysis, the researcher increased familiarity with the raw data by reading the archival data and then listening to the audio-recorded interviews to acquire an overall understanding of the interviewees' main points. When interviews were transcribed, the researcher read the transcriptions. At this stage, no specific analysis was conducted as the first readings were just for gaining initial familiarity with the collected data. However, the researcher summarized the data and even did some mapping at this stage and throughout the analysis process to record any emerging ideas, codes, and possible relationships between process categories and subcategories (Eisenhardt, 1989; Miles & Huberman, 1994). Summarization is considered significant for the researcher to recognize the emerging theoretical insights from data analysis (Pettigrew, 1988). It also entails the first step for zooming in on some segments of data (Marvasti, 2003; Miles & Huberman, 1994).

4.6.2 Strategies for Theorizing from the Collected Process Data

After initial familiarization, the researcher began to clean, structure, and analyze the collected process data. Process analysis centers on events and temporal patterns (Langley, 2009; Van de Ven & Huber, 1990). However, as many scholars have noticed, process data are inherently messy (Langley, 1999; Poole & Van de Ven, 2004). This research followed Langley's (1999) strategies for analyzing and theorizing from the process data (Table 4.6). This research adopted the narrative strategy, temporal bracketing strategy,

and visual mapping strategy. Justification and application will be explained in more detail in the following sections.

Table 4. 6. ***Strategies for Theorizing from the Process Data***

Strategy	Operation	Key Anchor Point	Typology	Fit with Process Data Complexity	Form of Sense Making	Use in This Research
Grounded theory strategy	Systematic compare small units of data and gradually construct a system of "categories" that describe the phenomena being observed.	Incidents (units of text) categories	Grounding strategy	Adapts well to eclectic data and ambiguity. May miss broad high-level patterns.	Meanings, patterns	N/A
Alternative template strategy	Process several alternative interpretations of the same events based on different but internally coherent sets of a priori theoretical premises.	Theories	Grounding strategy	Adaptable to various kinds of complexity. Different templates capture different elements.	Mechanisms	N/A
Narrative strategy	Construction of a detailed story from the raw data.	Time	Organizing strategy	Fit with ambiguous boundaries, variable temporal embeddedness, and eclecticism	Stories, meanings, mechanisms	Step 1: Identify internationalization and resource events. Step 3: Identify the co-evolution of knowledge and network resources as the motor of change.
Visual mapping strategy	Use visual graphical representations to show the simultaneous representation of many dimensions.	Events, ordering	Organizing strategy	Deals well with time, relationships, etc. Less good for emotions and interpretations.	Patterns	Step 1-3: Tool that facilitates each step of data analysis and theorizing.
Temporal bracketing strategy	Structure the description of events into successive "periods". There might or might not be theoretical significance at certain continuities and discontinuities.	Phases	Replicating strategy	Can deal with eclectic data but needs clear temporal breakpoints to define phases.	Mechanisms	Step 2: Identify internationalization sequences and key resources and their functions to the sequences.
Quantification Strategy	Systematically list and code qualitative incidents according to predetermined characteristics, gradually reducing the complex mass of information to a set of quantitative time series that can be analyzed using statistical methods.	Events, outcomes	Replicating strategy	Focuses on "events" and their characteristics. Eschews ambiguity.	Patterns, mechanisms	N/A
Synthetic strategy	Take the process as a unit of analysis and attempts to construct global measures from the detailed event data to describe it.	Processes	Replicating strategy	Needs clear process boundaries to create measures. Compresses events into typical sequences.	Prediction	N/A

Adapted from: Langley (1999).

4.6.2.1 Constructing Event Chronologies

As previously emphasized, "process data are messy" (Langley, 1999, p. 691). Thus, process data analysis sometimes needs the manipulation of words (Miles & Huberman, 1994). After initial familiarization, this thesis applied what Langley (1999) called narrative strategy to develop the seven case firms' event chronologies by triangulating across multiple sources of data in the case database (Jick, 1979; Lincoln & Guba, 1985). The event chronologies were close to raw process data, but they constructed a more detailed process story from the raw process data (Langley, 1999; Sandberg & Tsoukas, 2011).

Guided by the research aims, theoretical framework, and research questions, this thesis identified key events from interview transcripts, archival records, documents, and observation field notes. A table was used to reconstruct the key events, and time played a significant role in structuring the chronologies. It is noteworthy that it was challenging to simultaneously capture the internationalization events and the critical knowledge and network resources to internationalization. Thus, the internationalization events were first developed into chronologies, and then the compelling account of the critical knowledge and network resources were produced (Pellegrino & McNaughton, 2015).

The internationalization and critical knowledge and network resources were identified in "every way possible" (Glaser, 1978; Langley et al., 2013). Different events were categorized and elaborated into as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56). Throughout this process, this research answered three questions:

1. *What is this data a study of?*
2. *What category does this event indicate?*
3. *What is happening in the data?*

These three questions helped the researcher be theoretically sensitive during data collection and analysis (Glaser, 1978).

The development of the event chronologies first focused on the explicit references to internationalization and then knowledge and network resources, which provided rich evidence central to the resource co-evolution mechanisms driving the joint development of knowledge and network resources, enabling the internationalization of IIFs. However, it was then realized that references to resource development and internationalization norms were sometimes implicit, which required contextual interpretation and reading between the lines. For example, the CEO of Mars recalled how the firm exited Australia before establishment: "*My boss* [the founder of the firm] *is an Australian Chinese, and he lives in Sydney. ... Before he started his business [in New Zealand], he was a compliance officer of ABC (fictional name) in Sydney. ... It was his friend leading his idea of doing the cross-border mobile payment business. My boss was a typical follower… This friend had already started up in Australia, so he then shifted to New Zealand. ... I think we've always been avoiding any conflict with him [the founder's friend]. ... My boss is resourceful but not as resourceful as him [the founder's friend]. ... "Money comes from harmony." We don't want any unnecessary competition or conflicts or even enemies. ... We sometimes benefit from this friend because he has strong guanxi with ABC*". Although the interviewee did not explicitly mention international withdrawal, experience, and social relationships, the quote was revealing.

Once the event chronologies were constructed, they were sent to the interviewees for confirmation, clarification, and feedback. This process sought to resolve any ambiguities and additional information required for filling in missing data (Bresman, 2013). Verification was an interactive process, which was also helpful for the interviewees to recall past events or recognize the interconnections between events triggering the recollection of data (Chandra, 2007; Miles & Huberman, 1994). All interviewees approved and returned the case histories with minor changes being made.

The confirmed and clarified event chronologies provided a synthesis of each case firm's internationalization process and resource development process (Miles & Huberman, 1994), placing the case firms into their broader temporal, internal, and external contexts (Kriz & Welch, 2018). The richness and variety of what was known about every case conveyed a high degree of authenticity (Golden-Biddle & Locke, 1993). The verification of the event chronologies constituted the first step of data analysis. At this stage of data analysis, it became clear that the identified events began as a series of disconnected efforts.

4.6.2.2 Level 1: Analyzing the Internationalization Process

After verifying the case firms' internationalization and resource co-evolution event chronologies, this thesis moved on to analyze the internationalization process of the case firms. As explained earlier, the internationalization process of IIFs is the "Level 1" process under investigation in this thesis, and it acts as a data grounding and organizing device for the subsequent analysis and explanation building.

This thesis adopted a combination of what Langley (1999) called temporal bracketing strategy and visual mapping at this stage of data analysis. With the combination of these two strategies, this thesis transformed the shapeless mass of internationalization chronologies into a series of more "discrete but connected blocks" (Langley, 1999, p. 703) for the cross-case comparison for the exploration, explanation, and replication of sources of variation (Langley, 1999; Lok & De Rond, 2013).

Specifically, considering the continuities and discontinuities of the internationalization events of the focal case firms, this thesis adopted the temporal bracketing strategy to decompose the event chronologies into sequences as there were certain continuities in the events within each sequence and discontinuities at each sequence's frontier (Langley & Truax, 1994). The decomposed sequences would be stable or linearly evolving internationalization episodes, while the discontinuities became more evident at the beginning and the end of the bracketed episodes. The discontinuities led to the replication of the analysis in new episodes (Langley, 1999).

When bracketing the internationalization events, this thesis also combined the visual mapping strategy (Langley, 1999) to develop detailed graphical representations as an intermediary step between events and event sequences (Lok & De Rond, 2013). Throughout this process, this thesis answered three questions:

1. *In what way does each episode constitute the internationalization process of IIFs, and what is its (potential) practical and theoretical implications?*
2. *How does the episode subsequently evolve or resolve?*
3. *How might one episode precede or follow another?*

By carefully exploring these questions, this thesis tried to describe how the internationalization process of IIFs unfolds overtime (Lok & De Rond, 2013).

Based on shifts in internationalization and comparison of the shifts across the seven cases, six internationalization episodes were derived inductively from the event chronologies, which are: (a) inception, (b) siloing, (c) bundling, (d) multiplying, (e) international replicating, and (f) international withdrawal (Table 4.7).

Table 4. 7. ***Internationalization Episodes Identified from the Cases***

Internationalization Episode	Description
Inception	The process in which an IIF conceives.
Siloing	The process in which an IIF connects cross-border two-sided market players through a paralleled communication channel(s).
Bundling	The process in which an IIF connects cross-border two-sided market players through integrating communication channel into its current communication channel, leading to a unified and seamless shift within the multiple channels.
Multiplying	The process in which an IIF multiplies transaction scenarios between cross-border buyers and sellers.
International Replicating	The process in which an IIF replicates its successful business model to a new international market.
International withdrawal	The process in which an IIF changes to less resource-committing operation in one or more international markets.

These sequences are not predictable or sequential, but the characteristic patterns of different IIF internationalization status (Langley, 1999). Explicit and detailed data and

graphical representations, descriptions, and explanations of these identified internationalization process patterns of IIFs will be shown in the data section in Chapter 5.

4.6.2.3 Level 2: Analyzing the Knowledge and Network Resources

Based on the identified internationalization patterns, this thesis moved on to analyze the knowledge and network resources that enable the unfolding of IIF internationalization. As explained earlier, the joint development of knowledge and network resources is the "Level 2" process under investigation in this thesis.

At this stage of data analysis, the combination of the narrative strategy and the visual mapping strategy (Langley, 1999) was used again. After identifying the focal firms' internationalization patterns, the compelling account of the knowledge and network resources that predetermine the identified internationalization patterns were traced and mapped out (Pellegrino & McNaughton, 2015).

Based on comparison across the identified internationalization patterns in which knowledge and network resources act as sources of influence (Langley, 1999), this research further identified two types of knowledge and three types of network resources (see Table 4.8). Following the examples of other researchers, this research used their definitions and defined these resources. A particular combination of these knowledge and network resources may prevail for a while, in which a relatively stable internationalization episode unfolds.

Table 4. 8. ***Key Knowledge and Network Resources that Enables the Internationalization of IIFs***

Resource	Description
Product logic	"The development, production, distribution, and support of products" (Gandy & Edwards, 2017, p. 437).
User logic	In response to a specific usage scenario, the users' automatic habit to use the product (Duhigg, 2012).
Buyer	The business or customer that buy or agree to buy goods or services (Sale of Goods Act, 1908).
Seller	The business or customer that sell or agree to sell goods or services (Sale of Goods Act, 1908).
Supplier	A party that supplies goods or services, especially over a long period of time (Cambridge Dictionary, 2019).

Explicit and detailed data and graphical representations, descriptions, and explanations of these identified knowledge and network resources will be shown in the data section in Chapter 5.

4.6.2.4 Level 3: Analyzing the Resource Co-evolution Mechanisms

After investigating the internationalization process and resource co-evolution of the case firms, this thesis then interrogated empirical material to account for the "motor of change" that drive the succession of the temporal episodes (Van de Ven & Poole, 1995) – the "Level 3" process under investigation in this thesis.

The analysis at this stage also relied on the narrative strategy and the visual mapping strategy (Langley, 1999). First, the process data were rechecked, with attention to:

1. *How and why do the IIFs seek to progress the knowledge resources from the network resources?*
2. *How and why do they progress the network resources from the knowledge resources at the time and in retrospect?*

By doing so, the data analysis at this stage provided additional insights into the critical resources the focal firms constructed and encountered, as well as the contextual variations across cases (Kriz & Welch, 2018). As Lewin et al. (2004) and Lewin and Volberda (1999) noted, selection and adaptation represent two levels of analysis that do not intersect. Thus, this thesis then interactively proceeded to analyze the mutual selections and adaptations of the identified knowledge and network relationships along with the internationalization of IIFs.

Elaborating new narratives to the process maps, the knowledge and network resources' mutual selections and adaptations soon became apparent. Based on cross-case comparisons, it was found that, in co-evolutionary terms, the focal cases' product logic and user logic select their associated network members. Moreover, the associated network members also foster the focal firms' development of product logic and user logic. The adaptation of their knowledge to their network resources occurs when the IIFs' product logic matches user logic. The adaptation of their network resources to knowledge happens when cross-border buyers and sellers interact through the IIF-centric Internet infrastructure.

Moreover, as stated earlier, the overall analytic approach was abductive and interactive, intending to build a teleological explanation to the co-evolution of knowledge and network resources driving the internationalization of IIFs from rich case study research. After identifying the resource co-evolution patterns, this research began more deliberate theorizing (Jay, 2013; Kriz & Welch, 2018).

Based on cross-case comparisons, this research identified and elaborated on changes in the IIFs' focal network effects, internalization business approach, and externalization business approach. Specifically, network effects refer to those in multi-sided markets, where one side's benefits from participating in a market depend on the size of the other side (Armstrong, 2006). Internalization refers to a business approach through which organizations use their governance to internalize business activities rather than investing in more costly market options (Buckley & Casson, 1976; Williamson, 1975). Externalization refers to an approach to business through which organizations' transactions and value-adding activities are performed external to the firm (Chandra & Coviello, 2010; Chen et al., 2019). These findings will be examined and discussed in more detail in Chapter 5.

4.7 Evaluation Criteria

The quality of this current research was evaluated from two aspects: reliability and validity. Reliability refers to the consistency and repeatability of the research procedures (Yin, 2014). Validity refers to the correctness or credibility of description, explanation, conclusion, or other sorts of accounts, and validation determines the research outcomes' accuracy or credibility (Maxwell, 2009). Yin (2009) suggested that construct reliability,

validity, internal validity, and external validity can be four essential criteria to evaluate the quality of case study inquiry. This research employed Yin's (2009) criteria, as it has been widely applied for assessing the quality of case study research. How these four criteria were employed in this thesis is presented in Table 4.9. In the following, these criteria will be discussed with a description of how each criterion was employed in this current thesis.

Table 4. 9. ***Criteria for Research Quality***

Research Quality Criteria	Evidence	Research Phases
Reliability	• Description of a clear purposeful sampling criteria. • Case study protocols. • Cross-interviews with additional key informants on certain important events revealed by the key informant in the cases where applicable. • Developing a case study database.	• Case selection • Data collection • Data analysis
Construct Validity	• Use of multiple sources of evidence. • Multiple interviews within a case where applicable. • Key informants reviewed chronology of events and visual maps. • Chain of evidence. • Definitions and operations grounded in the literature.	• Data collection • Data analysis
Internal Validity	• Theoretical framework. • Use of time series to develop a chronological understanding of the processes under research. • Pattern matching. • Theoretical triangulation.	• Case selection • Data collection • Data analysis
External Validity	• Use of replication logic in multiple-case studies and explanation building; analytical generalizations.	• Case selection • Case analysis

4.7.1 Reliability

Reliability is about the research operations that are consistent and repeated with the same results (Yin, 2003). This present thesis enhanced its reliability first by clearly describing its purposeful sampling criteria. Then, this research used the well-organized case study protocol and case study database to enhance the transparency of the research process. The core of the protocol was the set of interview questions. A case database was established to store interview records, archival records, physical artifacts, articles, photos, case histories, the chronology of events, events mapping, and data displays. The cross-case replication and longitudinal replication with multiple information sources also helped increase the reliability of the information and various events in each focal firm (Langley et al., 2013).

4.7.2 Construct Validity

Construct validity is about "the extent to which the study investigates what it claims to investigate" (Farquhar, 2012, p. 101). Yin (2009) suggested three strategies to strengthen construct validity, including:

1. using multiple sources of evidence in the data collection phase,
2. establishing a chain of evidence to illustrate how the researcher reached conclusions, and
3. asking interviewees to review case study drafts.

This research followed Yin's (2009) suggestions by using the triangulation of sources of evidence and employing a chain of evidence. Besides, this research also relied on key informants to review the event chronologies and visual maps to strengthen validity.

4.7.3 Internal Validity

Internal validity concerns inferring a causal relationship whereby certain conditions are shown to lead other conditions (Yin, 2003). According to Yin (2009), pattern matching and explanation building are particularly useful to enhance internal validity. Following Yin (2009), this thesis employed pattern matching, which involves comparing an empirically based pattern with a predicted one. The development of the event chronologies and visual maps based on the dimensional framework and the theoretical framework developed from the literature facilitated the researcher to see the causal linkages of events and the inter-relationship among constructs. Besides, this thesis relied on explanation building. Based on comparing the case evidence with the mainstream IB theories reviewed in Chapter 2, rival explanations were explicitly addressed and ruled out. The initial process mechanisms were compared with the initial case and then revised based on the initial and the subsequent cases.

4.7.4 External Validity

External validity concerns the extent to which the findings from multi-case studies can be analytically generalized to other situations that are not part of the original study (Yin, 2014). The case study inquiry is not to accomplish statistical generalization but analytical generalization (Yin, 2009, 2014). This research employed replication logic to pursue external validity. Multi-case studies were conducted employing a replication of similar findings across cases and temporal observations (Langley et al., 2013). Multi-case studies on a given topic were conducted to enhance external validity (Leonard-Barton, 1990).

4.8 Ethical Considerations

A low-risk ethics notification for this present research was submitted to Massey Human Ethics Committee (MUHEC) before the data collection of this study [Application ID: 4000017715]. Before submitting the low-risk notification, the researcher of this present thesis carefully read through Massey University Ethics Code (Massey University, 2015). Moreover, in line with this Ethics Code, two supervision panel members and two Ph.D. confirmation panel members were also consulted regarding any potential ethical issues that may arise as due to this research, and there was a consensus that deemed this to be a low-risk research project.

This present thesis was conducted following the Massey University Ethics Code (Massey University, 2015). Before data collection, an informed consent form was developed. Consent forms were sought from all interview participants by signing the forms. All personal and company information was made as anonymous as possible. Fictional names were used when an individual source of information was needed to be cited in this present thesis. Participants were informed that data would be collected, stored, and accessed only for academic use. Data would only be accessible to the researcher and the supervisors (if necessary) of the research project, and no other people would have access to the information. The participants were also informed of their right to retract any information they do not want to use.

4.9 Chapter Summary

In sum, in this chapter, the researcher's philosophical position of critical realism was

introduced. Then, the research design and conduct, as well as data analysis, were described and justified. Specifically, this research was positioned within a critical realism paradigm and used a mix of deductive and inductive approaches. The theoretical framework and leading research question guided the research design, data collection, and data analysis. This thesis applied the process approach to multiple qualitative case studies and broke down the main research question into several multi-case study questions. This thesis focused on firm-level events. With the purposeful sampling strategy, this research recruited seven international IPIs from New Zealand. Data collection was carried out, probing three processes under investigation in this study. They are the internationalization process of IIFs, the co-evolving knowledge and network resources that posit significant functions to the internationalization process of IIFs, and the process mechanisms. Interviews with key informants were the primary source of data. Archival records and documents and physical artifacts were supplementary to the interviews. Interviews were mainly conducted using the participants' first language. After data collection, a case study database was created.

At the stage of data analysis, the researcher first became familiar with the data. As the collected qualitative process data were messy, this research then adopted the narrative strategy and temporal bracketing strategy to clean, structure, and theorize from the data, as suggested by Langely (1999). The first analytical step was constructing the event chronologies. The events chronologies were then decomposed into temporal phrases with key knowledge and network resources identified. Then, this research again investigated the narratives and interrogated the narratives for a resource co-evolutionary explanation.

Then, the rigor and quality concerning the research design and conduction were discussed,

based on four evaluation criteria. In the last section of this chapter, the ethical considerations of this study were presented. The findings will be presented in Chapter 5.

CHAPTER 5 – DATA ANALYSIS AND FINDINGS

5.0 Overview

This chapter contains the within- and cross-case findings of this thesis. This chapter first justifies the selection of the featured cases to report the findings. Then, this chapter presents the findings from the four selected exemplar cases. After this, this chapter draws out the cross-case findings from the seven cases.

5.1 Selecting the Featured Cases

Given the overall length of the seven case firms' internationalization histories – up to 35 years of internationalization in total, the present thesis discussed four case examples of the total seven participant case firms. Based on the findings across the seven participant cases, Neptune, Saturn, Mercury, and Jupiter were selected to feature the seven case firms' internationalization trajectories. The process model developed in Chapter 6 was informed by all of the seven cases. For privacy and confidentiality consideration, this thesis used fictional names to represent the case firms and their associated network participants appeared in the data. Table 6.1 summarizes the rationale for selecting the example cases and the evidence on which the analytical narratives in this section were based. An overview of the event chronologies and visual maps of the other three cases is provided in Appendix 5 and 6.

Table 5. 1. ***Featured Cases: Selection and Evidence***

Firm	Episodes	Replication in Other Firms	Rationale for Featuring
Neptune	Inception and siloed channeling	Mercury, Venus, Mars, Jupiter, Saturn, and Uranus	Neptune was the newest among the case firms, and its development was instrumental for understanding the nature of the international IIFs' start
Saturn	Inception, siloed channeling, integrated channeling, and international replicating	Venus, Mars, and Jupiter	Saturn experienced the greatest number of integrations among the case firms, and hence its integrated channeling episode was the most puzzling.
Mercury	Inception, siloed channeling, international replicating, and international withdrawal	Venus and Mars	Mercury had the longest period of withdrawal, and it was more complicated than Venus' and Mars'.
Jupiter	Inception, siloed channeling, integrated channeling, multiplying, and international replicating	Uranus	These two (Jupiter and Uranus) firms' transformation trajectories were similar, however Jupiter's process was more completed.

Specifically, Neptune was selected to feature the internationalization episodes of inception and siloed channeling. Neptune was selected because it shared many features with the other case firms. Moreover, it was newly founded, and its internationalization episodes were instrumental for understanding the nature of the international IIFs' start.

Then, this research selected Saturn to present the internationalization episodes of inception, siloed channeling, integrated channeling, and international replicating. Saturn

was selected because it experienced the greatest number of integrations among the case firms, and hence its integrating process was the most puzzling.

Next, Mercury was selected to report the internationalization episodes of inception, siloed channeling, international replicating, and international withdrawal. Three case firms experienced international withdrawal – Mercury, Venus, and Mars. Among these three firms, Mercury experienced international withdrawal twice. Mercury had the most prolonged period of international withdrawal, and it was the most complicated one among the case firms because Mercury experienced international withdrawal and domestic withdrawal.

Last, Jupiter was selected to report the internationalization episodes of inception, siloed channeling, integrated channeling, multiplying, and international replicating. Jupiter's case report focused on the multiplying period. Among the case firms, both Jupiter and Uranus experienced the multiplying episode, and their multiplying episodes were similar to each other. As Jupiter had a more comprehensive international development process, which could facilitate cross-case comparison, this research selected Jupiter to report the findings. Uranus' internationalization did not have an international replicating episode. In the next part of this chapter, findings from the selected four featured cases will be reported.

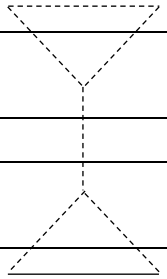
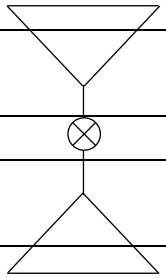
5.2 Case Report: Neptune

As explained earlier, this research selected Neptune as an example to feature because Neptune's inception and siloed channeling processes share many features with all the case

firms. Moreover, Neptune was newly founded, and its international development episodes are important for understanding the international IIFs' start. Despite the founder having prior knowledge and network resources to its inception, Neptune still experienced a one-year preparation. Thanks to this relatively long preparation stage compared to other technology firms, Neptune's was the case in this study whose products/services was the most advanced at inception.

Neptune's founder has been seeking to achieve cross-side network effects between the Chinese online shoppers and New Zealand cross-border clicks-and-mortars. There was one period of apparent resource co-evolution during which this strategic vision seemed within reach (see Table 6.2). Neptune spent less than two months from inception to having its first app go-live at its seller users' tier. This quick achievement could be attributed to certainties due to the firm seeking to purposefully and cumulatively progress a discovery of business opportunity at an early stage.

Table 5. 2. ***Key Episodes and Resources in Neptune's Internationalization***

Internationalization Episodes		Episode No. 1: Inception	Episode No. 2: Siloing
The End State of Each Episode	**Buyer users**		
	Third-party platform		
	IIF		
	Communication channel		
	Seller users		
Key Resources	**Knowledge resources**	• Seller user logic • Supplier's product logic	• Seller user logic • Supplier's product logic
	Network resources	• Buyers • Supplier • Sellers	• Buyers • Supplier • Sellers

Note. As IIFs integrate and orchestrate interfaces of different network players, to indicate the issue domain within which the internationalization event is associated, the horizontal band of internationalization is divided into buyer user, third-party platform, communication channel, and seller user. The dash line represents the organization-to-be's capability to cooperate with the platform and enable communication between the sellers and buyers, while the solid line means the organization has cooperated with the platform and siloed the communication between the sellers and buyers. The circle at the center represents the IIF's interface.

5.2.1 Episode No. 1: Inception (2018~2019)

Neptune was established in early 2019, and it is a New Zealand based cross-border Software-as-a-Service (SaaS) and mobile retailing and payment product/service provider. Neptune offers ready business apps on a subscription basis and is maintained in the supplier's datacenter. Neptune's primary products/services include all integrations from and to its SaaS products/services. The integrations play a vital role in seamlessly passing information from one to another communication silo. Table 5.3 exhibits the key events of Neptune's inception, which begins with the founder's immigration from China to New Zealand and ends with the structure of the organization-to-be's cross-border two-sided market consisting of cross-border buyers and sellers. This full range has been classified into one event episode as they are all inception activities arising from before and during the firm was founded.

Table 5. 3. ***Event Chronology of Neptune: Inception***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2016	Founder moved from China to New Zealand.	China and New Zealand.	Inward	Founder	N/A.	N/A.
2016 ~ 2018	Founder worked in a New Zealand based cross-border mobile integrated firm.	China and New Zealand.	Inward	Founder	Founder worked in a New Zealand based cross-border mobile integrated firm.	Founder worked in a New Zealand based cross-border mobile integrated firm.
2018	Founder went on a business trip to China.	China and New Zealand.	Inward	Initial business idea	Product phenomenon of smart retailing.	The scale of Chinese online buyer users.
2018	Achieved intent of cooperation with cloud provider.	China and New Zealand	Inward	Initial intent of cooperation with third-party platform, which was also the platform and technology supplier of Neptune.	User logic of New Zealand based cross-border clicks-and-mortars and their Chinese online consumers.	Searching, exploring, and choosing suppliers that could help New Zealand sellers to access a certain scale of Chinese online buyers.
2018	Recruited seed investors and their merchant resources who had already had Chinese online customers.	China and New Zealand.	Inward and outward.	New Zealand based seller users and their already own Chinese online customers.	The development, functions, background systems, charging modes, supports of the product.	Searching, exploring, and choosing seed investors who could bring in New Zealand based cross-border click-and-mortar users to the organization-to-be.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

Since the founder noticed the business opportunity, he spent one year developing the firm's business landscape. While the founder worked in his previous job, the phenomenon of New Zealand to China cross-border e-commerce and social commerce emerged. According to the founder: "..…*they organically became my next clients ... with these merchants at hand, I can in-license many Chinese e-commerce platforms, product/services, modes to New Zealand because they [New Zealand merchants] need them [e-commerce or social commerce tools] to broaden their bottlenecks or to help them compete in Chinese online markets*" (interview with founder, 2 June 2019). The founder's previous experience and focus on New Zealand sellers and Chinese buyers enabled him to match between these two groups' interactions and needs, which then determined his exploration and selection of in-licensed products/services and suppliers.

The interview with the managing director confirms that "… *well, if you see the platformization in China's e- and social commerce marketplace, you'll probably have the vision of the future New Zealand – China cross-border e- and m-commerce… Mobile payment, I think, is becoming homogenized, I mean, if you see each agent's products, services, users, scenarios, strategies, etc. etc., you'll find that they are quite similar and simple. I think the systems should be more complex, so the agents could differentiate themselves from each other, rather than fight a price war, but for the users, I think it should be as simple as possible. If it's too complicated for the users, then they will just delete the app and forget it. They will not use it, and in the end it won't spread. ... We need it to be used and spread by the users automatically. ... Now it seems that the systems are too easy, but for the cashiers and payers, the systems too, erm, not friendly at all. ... But if you think why these Chinese hyper platforms start their international expansion with their payment systems, I think you will find the importance of mobile payment in*

digital ecosystem, digital infrastructure, or customers' digital purchase path. ... etc. ... Every trade needs a transaction. ... But if you see the status quo, you'll find that the market for pure mobile payment has become very limited already. Both the platform companies, local agents, and other ecosystem partners need to level up their systems, products, services, devices, interfaces etc. ... Of course, we shouldn't give up the mobile payment infrastructures. We should leverage these systems and infrastructure. ... So, we start with e-commerce retailers who have been familiar with mobile payment platforms, and we level up their e-commerce to mobile commerce and social commerce" (Interview with managing director, 4 June 2019).

5.2.2 Episode No. 2: Siloing (2019)

Next is Neptune's siloing. Table 5.4 demonstrates the key events of Neptune's siloing, which begins with the firm's in-license of its cloud supplier's global platform and open source and ends with the firm's product/service going live at its seller users' tier. This full range has been classified into one event episode because they are all Neptune's initial interconnecting activities arising during the period when the firm was integrating from the cloud supplier and integrating to the merchant users through a siloed communication channel. It can be seen from the data that Neptune's siloing process is different from those identified in the literature. Neptune's siloing is externalized, bi-directional, and interactive.

Table 5. 4. ***Event Chronology of Neptune: Siloing***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic -Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2019	In-licensed the right to use the platform from the platform supplier.	China and New Zealand	Inward	The right to use the supplier's global open platform for a period of time, and to freely use, modify, and share the platform to its second-tier users.	Experience.	Seller users-to-be.
2019	Out-licensed Neptune's product/service to New Zealand to China cross-border clicks-and-mortars.	China and New Zealand	Inward	The right to use Neptune's product/service for a period of time, and to freely use, modify, and share the platform to its next-tier users.	Match of product logic and user logic.	Buyer users-to-be.
2019	Product/service went live at seller user's tier.	China and New Zealand.	Inward and outward	Communication channel between New Zealand sellers and Chinese buyers.	Product and technology knowledge.	Supplier, buyer users, and seller users.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

Neptune's ready business apps could claim to be a New Zealand first, and it interconnected New Zealand sellers and Chinese buyers through ways that its competitors could not offer. The founder's recognition of the business opportunity triggered his search for product/service and supplier. His merchant user base increased his bargaining power with the supplier (interview with founder, 2 June 2019). The search for the supplier was conducted in China, given the cross-border e-commerce market scale. The supplier then out-licensed Neptune the right to use its global open platform for a certain period and freely use, modify, and share the platform to its second-tier users online at any location in Oceania (Agency Agreement, 2019). The supplier also provided complementary

technologies. As the founder prepared and anticipated, Neptune's product/service in-licensed from its first supplier opened its market between the identified New Zealand sellers and Chinese buyers. The product/service advanced Neptune to generate cross-side network effects between the Chinese online shoppers and New Zealand clicks-and-mortars. Moreover, when competitors wanted to launch similar products/services, Neptune had integrated from and to many different SaaS products/services, based on merchant users' needs. Thus, compared with its competitors, Neptune could provide more advanced SaaS solutions (interview with the director, 2 June 2019).

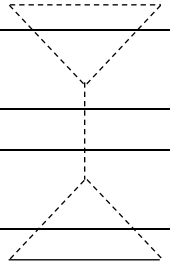
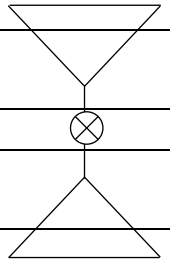
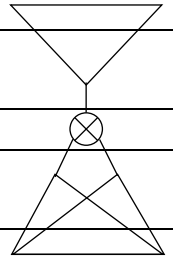
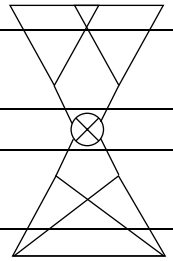
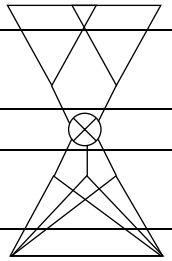
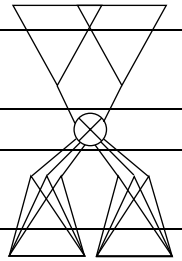
5.3 Case Report: Saturn

Saturn's inception and siloed episodes are comparable to Neptune's in that Saturn experienced substantially purposeful and cumulative progressing of the discovery of business opportunity at an early stage. Like Neptune, Saturn's early internationalization was around developing cross-border online markets between the Chinese online shoppers and the New Zealand cross-border retailers, given the emerging phenomenon of the New Zealand-China cross-border e-commerce and social commerce. However, unlike Neptune, Saturn's product/service was not new to the market upon inception. However, after several years of commercialization, Saturn's products/services were the most advanced in New Zealand. Because of its advanced products/services, Saturn collected Australian users even before its expansion to Australia.

Saturn's internationalization episodes and the combinations of the desired knowledge and network resources are presented in Table 5.5. Saturn's founders attempted to avoid any direct competition. After inception and siloed channeling New Zealand sellers and

Chinese buyers, Saturn embarked on domestic bundling, which could claim to be a New Zealand first. However, to meet most of its seller users' and buyer users' needs, Saturn assimilated its products/services to its competitors', but despite doing so, Saturn's subsequent development was still focused on differentiating from its domestic competitors. In the first three years after establishment, Saturn completed one siloing, three bundling episodes, and one international replicating. Each of these episodes allowed the firm to appeal to a broader seller and buyer user base. The virtuous circle of Saturn's products/services and user base can be attributed to the decision makers purposefully and constantly noticing and searching for solutions to more and more interaction needs between the sellers and buyers.

Table 5. 5. ***Key Episodes and Resources in Saturn's Internationalization***

Internationalization Episodes		Episode No. 1: Inception	Episode No. 2: Siloing	Episode No. 3(1): Domestic Bundling	Episode No. 3(2): International Bundling	Episode No. 3(3): Domestic Bundling	Episode No. 4: International Replicating
The End State of Each Episode	**Buyer users**						
	Third-party platform						
	IIF						
	Communication channel						
	Seller users						
Key Resources	**Knowledge resources**	• Supplier's product logic • Seller user logic	• Supplier's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Seller user logic
	Network resources	• Seller users-to-be • Competitors • Buyer users-to-be	• Buyer users • Supplier • Seller users • Competitors	• Buyer users • Supplier • Seller users • Competitors	• Buyer users • Supplier • Seller users • Competitors	• Buyer users • Supplier • Seller users • Competitors	• Buyer users • Seller users • Suppliers

Note. As IIFs integrate and orchestrate interfaces of different network players, to indicate the issue domain within which the internationalization event is associated, the horizontal band of internationalization is divided into buyer user, third-party platform, communication channel, and seller user. The dash line represents the organization-to-be's capability to cooperate with the platform and enable communication between the sellers and buyers, while the solid line means the organization has cooperated with the platform and siloed the communication between the sellers and buyers. The circle at the center represents the IIF's interface.

5.3.1 Episode No. 1: Inception (2015~2016)

Saturn's inception was similar to Neptune's in many ways. Table 5.6 displays the key events of Saturn's inception, which begins with the founder noticing the phenomenon of New Zealand to China cross-border e-commerce, social commerce, and Renminbi (RMB) cross-border mobile payment, and ends with the founder and co-founder having achieved merchant user base, buyer users-to-be, product/service-to-be, supplier-to-be, and differentiation strategy that de-risked the business opportunity. Saturn's threshold knowledge and merchant user base had been incubated for more than one year.

Table 5. 6. ***Event Chronology of Saturn: Inception***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2002	Founder moved from China to New Zealand for a Bachelor's degree.	China and New Zealand	Inward	Founder	The founder lived in China before he came to New Zealand.	N/A.
2007 ~ 2013	N/A.	New Zealand	N/A.	N/A.	Founder worked in a traditional telecommunicatio n company.	Founder worked in a traditional telecommunicatio n company.
2015	Initial business idea.	China and New Zealand.	Inward	Initial business idea.	Product phenomenon of cross-border e-commerce and cross-border mobile payment.	Founder's friend was a business owner of an Australia based RMB cross-border payment firm.
2016	Recruited startup partner who could help Saturn to approach to plentiful New Zealand based cross-border clicks-and-mortars.	New Zealand and China	Inward and outward	Co-founder	Product logic and user logic.	Co-founder's network resources of New Zealand based New Zealand to China cross-border clicks-and-mortars.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

When the Renminbi (RMB) cross-border mobile payment phenomenon was emerging, the founder recognized the business opportunity in New Zealand to China cross-border e-commerce. By chance, a friend of the founder was a business owner of an Australia based RMB cross-border mobile payment firm. This friend of the founder introduced to the business logic of providing RMB cross-border mobile payment products/services in Australia. The founder then came up with the idea of doing RMB cross-border mobile payment in New Zealand (interview with founder, 8 December 2018).

The founder spent almost one year persuading the co-founder to work with him (interview with co-founder, 8 December 2018). The co-founder was able to help the organization-to-be fast open its market in the New Zealand tourism sector. China has been New Zealand's largest inward international tourism market in terms of spending. Chinese tourists' expenditure in New Zealand is considerable. However, New Zealand tourism sector had been neglected by the RMB cross-border mobile payment firms. At that time, Alipay and WeChat Pay were introduced to New Zealand, but they were mainly adopted by Daigou shops (interview with founder, 8 December 2018).

The co-founder enabled Saturn to capture its early seller users through personal networks. The first seller users were very interested in breaking into China's online market through mobile payment platforms. These early seller users also played a supportive role in attracting New Zealand local seller users to adopt the organization-to-be's product/service at the initial stage (interview with founder, 8 December 2018).

5.3.2 Episode No. 2: Siloing (2016~2018)

The second episode of Saturn's internationalization is siloing. Table 5.7 shows the key events taking place in Saturn's siloing episode, which begins with the firm's in-license from its first supplier and ends when the firm's RMB cross-border mobile payment went live at its next-tier merchant users' sites.

Table 5. 7. ***Event Chronology of Saturn: Siloing***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2016	N.A.	N.A.	N.A.	N.A.	Financial Service Provider (FSP) license.	Supplier-to-be.
2016	Rented background system from a Chinese supplier.	China and New Zealand	Inward	Background system.	Product logic.	Referral.
2016	In-licensed from supplier.	China and New Zealand	Inward	Partner Identity (PID), Application Program Interface (API) integration document, and supplier 1's aftersales support for a period of time.	FSP, background system, and technology capability.	Supplier-to-be and seller users-to-be.
2016	Implemented API.	China and New Zealand	Inward	Integration between Saturn and supplier.	Technology capability.	Supplier.
2016	Out-licensed Saturn's product/service to New Zealand tourism merchants.	China and New Zealand	Inward	The right to use Saturn's product/service for a period of time.	Buyer user logic and seller user logic.	Co-founder's network with New Zealand tourism sector; access to Chinese online shoppers.
2016	Product/service going live at the seller user's tier.	China and New Zealand	Inward and outward	Communication channel between cross-border sellers and buyers.	Technology capability.	Supplier and seller users.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

Saturn's product/service was not new to the New Zealand market. The founder's friend, a business owner of an Australia-based RMB cross-border payment agent, played an important role in the founder's vicarious learning. This friend also introduced the founder

to the supplier. Saturn's Financial Service Provider (FSP) qualification and the co-founder's merchant user base enabled Saturn to successfully achieve the in-license agreement from the supplier and shortly launch its product/service (interview with co-founder, 8 December 2018).

Saturn in-licensed from its supplier (a) a Partner ID for the supplier to identify Saturn's account, (b) Application Program Interface (API) documents to use, modify, and share the platform to Saturn's second-tier users, and (c) supplier's support to maintain the platform (Membership Agreement, 2016). Saturn then co-worked with the supplier's IT department and implemented its background system with the supplier's API (interview with co-founder, 8 December 2018). This integration could be labelled as first-tier integration (research note). Due to the co-founder's social network with the New Zealand tourism sector, Saturn opened its market in the New Zealand tourism sector (research note). Saturn out-licensed and integrated its product/service to its merchant users (interview with co-founder, 8 December 2018). The integration of Saturn and its next-tier merchant users could be labeled as second-tier integration (research note). At the end of this second-tier integration, the supplier's technical support performed live tests at the merchant's tier. After the integration passed the test, the product/service went live and the holistic siloing process was completed (Integration Guide, ABC (fictional name), 2018).

Unlike Neptune, Saturn's first product/service was not new to New Zealand sellers. The founder acknowledged this issue, so he recruited the co-founder whose merchant user resources catered to many Chinese shoppers each year but located beyond the early New Zealand adopters of RMB cross-border mobile payment products/services (interview with

founder, 8 December 2018). The fast pace of Saturn's set-up and internationalization was partly due to the unique nature of the cloud service industry. Such operations were mainly conducted in the supplier's IT center, which decreased the technology burden of establishing cooperation with the supplier's first-tier global licensees and their licensees' next-tier developers and adopters. Moreover, it was also attributable to the mature state of the product/service in the international markets where there was a large scale of potential buyers. At this stage, Saturn's RMB cross-border mobile payment product/service was primarily a standardized solution.

5.3.3 Episode No. 3: Bundling (2018)

After siloing, Saturn embarked on a series of bundling. Saturn integrated third-party Platform-as-a-Service (PaaS) components to its single integrated RMB cross-border mobile payment product/service (Saturn's organizational blog 2018, 2019). Table 5.8 shows the key events of Saturn's bundling episode, which begins with in-licensing from another supplier's platform and components and ends with Saturn's RMB cross-border mobile integrated payment going live at its seller users' tier.

Table 5. 8. ***Event Chronology of Saturn: Bundling***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2018	N/A.	N/A.	N/A.	N/A.	Seller user logic.	Domestic competitors and seller users.
2018	N/A.	N/A.	N/A.	N/A.	In-licensed from supplier 2.	In-licensed from supplier 2.
2018	N/A.	N/A.	N/A.	N/A.	Technology capability.	Supplier 2 and supplier 2's seller users.
2018	N/A.	N/A.	N/A.	N/A.	Seller user logic.	Out-licensed to New Zealand seller users.
2018	Transactions between Chinese buyers and New Zealand sellers.	China and New Zealand	Inward and outward	Transactions.	N/A.	Seller users and buyer users.
2018	In-licensed from supplier 3.	China and New Zealand	Inward	Partner Identity (PID), Application Program Interface (API) integration document, and supplier 1's aftersales support for a period of time.	FSP, background system, technology capability, and vicarious learning.	Competitor and seller users.
2018	Out-licensed to seller users.	China and New Zealand	Inward	The right to use Saturn's product/service for a period of time.	Technology knowledge.	Seller users.
2018	Product/service went live at seller users' tier.	China and New Zealand.	Inward and outward	Communication channel.	Technology knowledge.	Supplier 3 and seller users.
2018	Cross-border imitation.	China, New Zealand and Australia	Inward	Supplier's operation in international market.	Supplier 3's performance in Australia.	Supplier 3.
2018	Integrated into vend.	China and New Zealand	Inward and outward	Communication channel.	Learning and technology capability.	Supplier 4 and seller users.
2018	Out-licensed to seller users.	China and New Zealand	Inward	The right to use Saturn's product/service for a period of time.	Technology knowledge.	Seller users.

2018	Product/service went live at seller users' tier.	China and New Zealand.	Inward and outward	Communication channel.	Technology knowledge.	Supplier 4 and seller users.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

Saturn experienced one in-license from an overseas supplier and three cross-border product/service going-live at its merchant users' tier. The founder and co-founder's managerial consensus that they should improve their current product/service triggered these bundling processes. The competitors become RMB cross-border mobile integrated payment firms and bundled various new functions as a single integrated product/service. Moreover, the founders acknowledged it was only a matter of time before their competitors learn their products/services (interview with co-founder, 8 December 2018). Seeking to avoid direct competition, integrating with the local Point of Sales (POS) system was considered an option, allowing the firm to appeal to a broader merchant user base still located beyond the early New Zealand adopters.

While Saturn had sought to differentiate its product/service and its merchant adopter base from its competitors, the RMB cross-border mobile integrated payment product/service in New Zealand tended to be similar (research note). After assessing the pros and cons of differentiating or following the competitors, Saturn in-licensed new components from Chinese owned cloud supplier, leading to Saturn's products/services more comparable to its competitors'. As Saturn already had many seller users beyond the supplier's merchant adopter base in New Zealand, the in-license this time was faster than before (interview

with co-founder, 8 December 2018). The integration with this supplier's components enlarged Saturn's Chinese buyer user base. After this bundling, Saturn's products/services became more comparable to competitors, but because of its first bundling with POS, its products/services were the most advanced among the market players (research note).

Following the success of enriching the product/service portfolio and broadening the seller and buyer user base, Saturn's founders decided to step into a new market niche – the Vend system. Saturn's management narrowed down to Vend in New Zealand after noticing a supplier's integration into Vend in Australia. However, Saturn's integration into Vend was slower as its suppliers did not favor the Vend merchant base in New Zealand, given its small size. The founders spent months persuading all their suppliers to support Saturn integration into Vend (interview with founder, 8 December 2018). The integration into Vend in New Zealand was not as successful as anticipated, but it facilitated Saturn's expansion to Australia.

5.3.4 Episode No. 4: International Replicating (2018)

After Saturn completed several rounds of bundling, it replicated its business model and products/services to Australia-China cross-border e-commerce and social commerce (company website, 2018). Table 5.9 displays the key events in Saturn's international replicating, which begins with Saturn's New Zealand seller users referring its product/service to their Australian counterparts and ends with Saturn's product/service going live at its Australia seller users' tier.

Table 5. 9. ***Event Chronology of Saturn: International Replicating***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2018	Export product/service to Australia.	China, New Zealand, and Australia.	Outward	Product/ service.	Match of Saturn's product logic and Australia seller users-to-be's user logic.	New Zealand seller users' referral to Australia seller users.
2018	Product/service went live at Australia seller users' tier.	China, New Zealand, and Australia.	Outward.	Product/ service.	Technology capability.	Australia seller users.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

Saturn obtained merchant users before it expanded to Australia. As the co-founder recalled: "*because we have integrated with POS, and POS is the dominant cashier system in Australia and New Zealand, so a lot of our New Zealand users referred us to Australian merchants …we don't want an office in Australia and then hire a bunch of people to knock the doors. That's too slow. We stay in New Zealand and communicate with our Australian clients through emails and skype. We also did a lot of YouTube tutorials. … We currently only cooperate with the head office and B2C platforms in Australia. … We have integrated into XYZ (fictional name), it's an Australian ticketing platform. When the platform accepted our payment solutions, their merchants accepted our products automatically …*" (interview with co-founder, 8 December 2018).

Regarding Saturn's domestic and international expansion, the founder expanded that "… *our competitors compete for a price war, but we think it's useless, … people use you not because you're cheap. And as we observed, in many cases, because the cashiers are Kiwi*

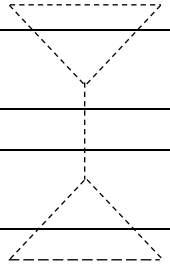
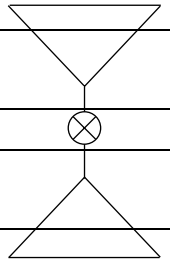
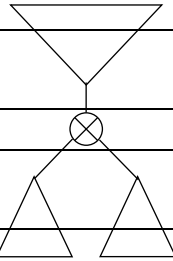
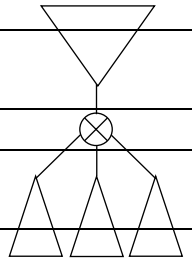
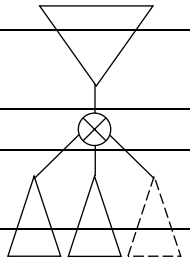
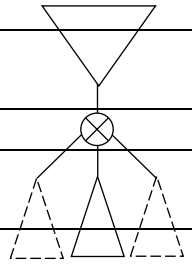
and they don't know any Chinese [so they don't know how to operate Alipay or WeChat Pay whose interface and operation system is Chinese], they wouldn't let the buyers pay through Alipay or WeChat pay. They would just directly tell the payers that they don't accept it, or the [payment] system is not working. ... Because some cashiers don't know how it works, they are fooled by some buyers just with a picture on the mobile screen showing the payment has been completed successfully. ... So, we need to have it work here, and therefore we extended it to POS and Vend systems. Then the cashiers will use it. ... Our competitors only look at each other, but as you know, we've always been trying to avoid directly competing with them, so we follow some Australia and New Zealand [owned] payment platforms' footprints…. That means we monitor what kind of scenario, merchants, or systems that they integrate with, and we go to talk to these merchants or system providers and see if we could bundle our products [Chinese owned Alipay and WeChat Pay, and Australia and New Zealand owned payment systems and gateways where appropriate] to their systems. ... Our first expansion to Australia is very reactive, actually. Because some of our merchants have franchises in Australia, once we integrate our products to their systems, our payments work in their systems in both Australia and New Zealand" (interview with founder, 8 December 2018).

5.4 Case Report: Mercury

This section presents the research findings from the case of Mercury. Mercury was founded in 2014, and like Neptune, Mercury is also a New Zealand based cross-border SaaS and mobile retailing and payment product/service provider. As was justified earlier, Mercury was selected as a featured case because its withdrawal was the longest and most complex among the case firms'. Mercury's international development consisted of six

event episodes – inception, siloed channeling, two international replicating, international withdrawal, and domestic withdrawal. The end states of Mercury's internationalization episodes and key resources desired by each of the episodes are presented in Table 5.10. Like Neptune and Saturn, Mercury was dependent on its cross-border two-sided market from inception. However, unlike Neptune and Saturn, Mercury failed to achieve a virtuous circle in which its knowledge and network resources mutually supported each other. Disappointing results from knowledge development undermined its network resources, creating a vicious instead of a virtuous circle. This section will discuss Mercury's internationalization features in detail and interrogate the evidence for the emerging resource co-evolutionary explanation.

Table 5. 10. ***Key Episodes and Resources in Mercury's Internationalization***

Internationalization Episodes		Episode No. 1: Inception	Episode No. 2: Siloing	Episode No. 3(1): International replicating	Episode No. 3(2): International replicating	Episode No. 4(1): International Withdrawal	Episode No. 4 (2): International Withdrawal
The End State of Each Episode	**Buyer users**						
	Third-party platform						
	IIF						
	Communication channel						
	Seller users						
Key Resources	**Knowledge resources**	• Supplier's product logic • Seller user logic	• Supplier's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Seller user logic	• Product logic and user logic do not match in host country lead to market exit	• Product logic and user logic do not match in host market result in exit in home market
	Network resources	• Seller users-to-be • Competitors • Buyer users-to-be	• Seller users • Suppliers • Buyer users	• Buyer users • Suppliers • Seller users	• Buyer users • Suppliers • Seller users	• Seller users • Suppliers • Buyer users	• Seller users • Suppliers • Buyer users

Note. As IIFs integrate and orchestrate interfaces of different network players, to indicate the issue domain within which the internationalization event is associated, the horizontal band of internationalization is divided into buyer user, third-party platform, communication channel, and seller user. The dash line in Episode 1 represents the organization-to-be's capability to cooperate with the platform and enable communication between the sellers and buyers. The dash line in Episode 4(1) and 4(2) represent the IIF's loss of market. The solid line means the organization has cooperated with the platform and siloed the communication between the sellers and buyers. The circle at the center represents the IIF's interface.

5.4.1 Episode No. 1: Inception (2014~2016)

Mercury's product/service had been incubated for two years before it was spun out. Table 5.11 demonstrates the key events of Mercury's inception, which begins with the founder receiving a cooperation request from a friend who worked in his future supplier company, and ends with the founder's identification of the Chinese cross-border online buyers and their needs, the New Zealand cross-border online retailers and their needs, the match of these needs, the supplier's products/services, the modes of cooperation with the supplier, and the pricing strategies (interview with founder, 4 December 2018).

Table 5. 11. ***Event Chronology of Mercury: Inception***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic -Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2014	Received informal cooperation request from the friend in EFG (fictional name).	China and New Zealand	Inward	Cooperati on request	Product logic; IT capacity	Received informal cooperation request from the friend in EFG (fictional name).
2014	Achieved initial intent of cooperation with EFG.	China and New Zealand	Inward	Intent of cross-border cooperatio n.	Product logic, user logic, business logic.	Achieved initial intent of cooperation with EFG.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

Mercury's slow pace of inception could be attributable to its product/service's newness. Mercury's initial product was Research and Development (R&D) intensive. The complex nature of cross-border communication and transaction processes between the Chinese

online buyers and the New Zealand cross-border clicks-and-mortars necessitated establishing various interfaces (research note). The supplier enabled Mercury's vicarious learning and allowed Mercury to narrow down to cross-border retailing. Thus, Mercury's R&D focused on New Zealand to China cross-border mobile commerce. Its product/service catered to communications and transactions between these two groups of participants (interview with marketing manager,4 December 2018).

5.4.2 Episode No. 2: Siloing (2016~2018)

After the firm was founded, it entered a prolonged setting-up stage. Table 5.12 demonstrates the key events of Mercury's siloing, which begins with the focal firm's collaboration with its future supplier and ends with its product/service going live at its next-tier New Zealand seller users' sites. During this stage, the founder sought investors, registered FSP for cross-border mobile payment, developed the background system, and captured seed users and investors in New Zealand. Mercury in-licensed from its supplier with the help of the founder's friend who worked in the company and initiated this cooperation. Mercury did not have any merchant users upon inception. At that time, it was difficult for Mercury to sell and install its product/service at the merchant sites because its product logic was poor (research note). Then, Mercury started to imitate its rival in mainland China (investor's website, 2018). With the new product/service better matching its users' needs, Mercury accumulated its New Zealand cross-border click-and-mortar users and then attracted its investor's attention (interview with founder, 4 December 2018).

Table 5. 12. ***Event Chronology of Mercury: Siloing***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2015	Collaboration with EFG on product/service design.	China and New Zealand	Inward	Collaboration with EFG on product/service design.	Product logic, user logic, and business logic in New Zealand to China cross-border e-commerce retailing.	Collaboration with EFG on product/service design.
2016	N/A.	New Zealand	N/A.	N/A.	Business logic, product logic, user logic, and FSP.	Outsource to law firm.
2016	On-line application for in-license EFG's global open platform and components.	China and New Zealand	Inward	On-line application for in-license EFG's global open platform and components.	Product logic, user logic, business logic, FSP, IT capability, and other required documents.	Achieved initial intent of cooperation with EFG.
2016	In-licensed by supplier.	China and New Zealand.	Inward	In-license.	Partner ID (PID), Application Program Interface (API) integration document, and (3) EFG's support to next-tier integration in the area of New Zealand.	Partnership with EFG.
2016	First-tier integration.	China and New Zealand	Inward	Developed background system.	IT capacity; in-house developed background system.	Supplier.
2017	The first user conference.	New Zealand	Inward and outward	Offline interconnection.	Mercury launched product/service to market.	Supplier, Chinese online buyers, and New Zealand sellers.
2017	Second-tier integration.	China and New Zealand	Inward and outward	Online interconnection.	Mercury integrated its product/service into seller's system.	Supplier, Chinese online buyers, and New Zealand sellers.
2017	Learn from international counterpart.	China and New Zealand	Inward	Learn from international counterpart.	Improved product logic.	Supplier, Chinese online buyers, New Zealand sellers, and international counterpart.
2017	The second user conference.	New Zealand	Inward and outward	Offline interconnection.	Experience, cross-border cross-side network effects,	Supplier, Chinese online buyers, and

					domestic same-side network effects.	New Zealand sellers.
2017	Second-tier integration.	China and New Zealand	Inward and outward	Online interconnection.	Mercury integrated its product/service into seller's system.	Supplier, Chinese online buyers, and New Zealand sellers.
2017	N/A.	New Zealand	N/A.	N/A.	Product logic, user logic, business logic, market phenomenon of New Zealand to China cross-border e-commerce.	Supplier, Chinese online buyers, New Zealand sellers, and seed investors.
2017	The third user conference.	New Zealand	Inward and outward	Offline interconnection.	Experience, cross border cross-side network effects, domestic same-side network effects.	Supplier, Chinese online buyers, New Zealand sellers.
2017	Second-tier integration.	China and New Zealand	Inward and outward	Online interconnection.	Mercury integrated its product/service into seller's system.	Supplier, Chinese online buyers, and New Zealand sellers.
2017	N/A.	New Zealand	N/A.	N/A.	Product logic, user logic, business logic, market phenomenon of New Zealand to China cross-border e-commerce, the number of seller users.	Supplier, Chinese online buyers, New Zealand sellers, and seed and angel investors.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

5.4.3 Episode No. 3: International Replicating (2017 ~ 2018)

Interest from investors was positive, which opened new opportunities for Mercury to expand to Australia and Japan. Then, Mercury's development entered the next stage –

international replicating. Table 5.13 displays the key events of Mercury's international replicating, which starts with the investors' proposal to expand to Australia and ends with founding a subsidiary in Japan. This full range has been classified into one event episode. They are all Mercury's international expansion activities arising out of when the firm was replicating its successful businesses in New Zealand to China e-commerce retailing, to international markets to China e-commerce retailing. This replication aimed at broadening seller user base resulting in increasing cross-border transactions and better financial performance.

Table 5. 13. ***Event Chronology of Mercury: International Replicating***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2017	Mercury Australia PTY Ltd was founded.	China, New Zealand, and Australia	Inward and outward	Geographical presence in Australia.	Experience, product/service, and technology.	Investors' network in Australia, and New Zealand seller users' network in Australia.
2017	N/A.	Australia	N/A.	N/A.	Authorized by an Australian Financial Service License (AFSL) holder.	Authorized by an Australian Financial Service License (AFSL) holder.
2017	Copied to Australia.	China, New Zealand and Australia	Inward and outward	Experience, product/service, and technology in New Zealand to China e-commerce.	Experience, product/service, and technology in New Zealand to China e-commerce.	Investors' network in Australia, New Zealand seller users' network in Australia.
2017	Second-tier integration.	China and New Zealand	Inward and outward	Interconnection.	Mercury integrated its product/service into seller's system.	Investors' network in Australia, New Zealand seller users' network in Australia.
2017	The third user conference.	New Zealand	Inward and outward	Interconnection.	Experience and business logic, same-side network effects of Australia and New Zealand sellers.	Supplier, Chinese online buyers, New Zealand sellers, and Australia sellers.
2017	Second-tier integration.	China and New Zealand	Inward and outward	Interconnection.	Mercury integrated its product/service into seller's system.	Supplier, Chinese online buyers, and New Zealand sellers.
2017	Mercury Japan was founded.	China, New Zealand, and Japan	Inward and outward	Geographical presence in Japan.	Experience, product/service, and technology.	Supplier and investors' willingness.
2017	Copied to Japan.	China, New Zealand, and Japan	Inward and outward	Experience, product/service, and technology in New Zealand to China e-commerce.	Experience, product/service, and technology in New Zealand and Australia to China e-commerce.	Supplier referred Mercury to cooperate with a bank in Japan.
2018	N/A.	Australia	N/A.	N/A.	Capacity of providing product/service customization for government project.	Investors referred Mercury to participate in a government conference in Australia.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

The investors' financial support enabled Mercury to establish an Australian subsidiary, which then supported Mercury in replicating its successful business model and product/service to Australia to China cross-border e-commerce and social commerce. Moreover, the investors' networks also allowed Mercury to grow fast in Australia. Seeing the investors' financial support, the supplier was motivated and promised to provide enough network and technological support for Mercury to expand to Japan. This proposal resulted in further investment from the investors. However, Mercury's international expansions and replications took place too fast without adequately assessing the risks (interview with the director of business development, 4 December 2018).

5.4.4 Episode No. 4: International Withdrawal (2018)

After expanding to Japan, Mercury experienced poor product/service performance, disappointing sales, and cost overruns. Table 5.14 demonstrates the key events of Mercury's withdrawal, which begins with its exit from Japan and ends with its withdrawal from its domestic market – New Zealand and moving the headquarters to Australia. This full range has been categorized into one event episode because they are all Mercury's withdrawal activities arising out of when the firm exited and switched to less resource-committed operations in international and domestic markets.

Table 5. 14. ***Event Chronology of Mercury: International Withdrawal***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2018	Exited Japan to China e-commerce.	China, New Zealand, and Australia.	Reverse	Governance and property.	Poor product logic.	Poor capture of seller users, and lost investors' support.
2018	Exited New Zealand to China e-commerce.	China and Australia.	Reverse	Governance and property.	Current experience and product/service would not enable Mercury to survive from cost overrun in Japan and New Zealand.	Downsized in New Zealand resulting in poor seller user relationship management.
2018	Moved headquarters to Australia.	China and Australia.	Inward and outward	Governance.	Experience and product/service in Australia to China e-commerce.	Australia to China e-commerce retailers and their same-side network effects on other Australia sellers.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

Because of the supplier's technological and networking support and investors' financial support, Mercury's management took the expansion to Japan for granted as low risk. However, as interviews with three board members confirmed, the supplier and investors' positive interest influenced Mercury's risk assessment negatively. Mercury first replicated its successful business model in Australia and New Zealand (ANZ) to China cross-border e-commerce and social commerce to Japan. However, owing to a poor understanding of the Japanese merchants' user logic, the firm's operations were stretched significantly.

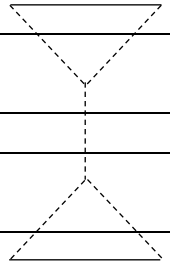
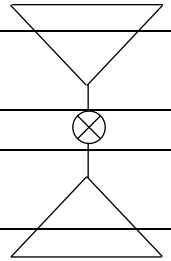
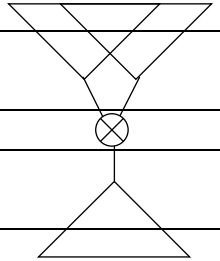
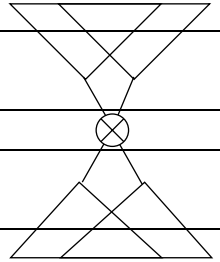
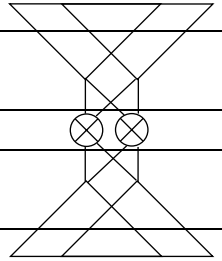
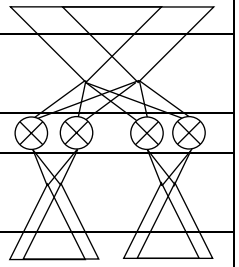
As the director of business development recalled: "*our product is mainly designed for cross-border online retailers whose transactions are usually a small amount of money, but the transactions take place very frequently. … After we integrated with several Japanese merchants, we found that they do not accept our digital receipts. Even [though] we have OOO's (supplier's fictional name) support, they still don't trust us and our digital receipts. … So, we have to hire more people in Japan just to print out the receipts! … We have to print out every single transaction on physical paper and then send them through by physical mails by the end of the day. A one-dollar transaction might cost us even two dollars printing them out and send through … our profit to cost can be even 1 to 10! … This one piece of work, unfortunately, stretched our cashflow. Our profits cannot cover our costs … Then, our investors first cut off their financial support. As a result, our New Zealand business was badly influenced. … We tried to sell our (Japan) office to OOO (the supplier's fictional name), but unfortunately …*" (interview, 4 December 2018).

Mercury's management had been seeking an acquisition from the supplier, but interviews with the director of business development recounted the request went nowhere. Mercury failed to complete any additional capital raising or trade sale (research note). Then, there was a management consensus that their head office in New Zealand should share the costs in Japan (interview with the director of business development, 4 December 2018). When Mercury could not make ends meet in New Zealand, its branch in Japan was shut down. Mercury thus quit Japan. As a result of supporting Japan, Mercury's head office in New Zealand had downsized to no more than a department of maintaining its business relationships under threat from competitors (research note). As competition became increasingly stiff, Mercury lost its home market (interview with the director of business development, 4 December 2018).

5.5 Case Report: Jupiter

Jupiter was founded in 2016, and it is a New Zealand based cross-border SaaS and mobile retailing and payment product/service provider. As justified at the beginning of this chapter, Jupiter was selected as a featured case because its multiplying episode in its international development was outstanding. Jupiter was the case in this study for which knowledge and network construction and development activities were the most advanced. Jupiter's international development process included five episodes – inception, siloing, bundling, multiplying, and international replicating. The end states of Jupiter's internationalization episodes and key resources desired by each episode are shown in Table 5.15. Like Saturn, Jupiter was dependent on developing its cross-border two-sided market from inception, and its competitors were necessary for its product/service innovation. The internationalization of Jupiter can be attributed to the retained certainties sought by the firm's product/service and network participants. As the previous three case reports have demonstrated the other five internationalization processes (i.e., inception, siloing, bundling, and international replicating, and withdrawal), this section mainly focuses on Jupiter's multiplying episode.

Table 5. 15. ***Key Episodes and Resources in Jupiter's Internationalization***

Internationalization Episodes		Episode No. 1: Inception	Episode No. 2: Siloing	Episode No. 3(1): Bundling	Episode No. 3(2): Bundling	Episode No. 4: Multiplying	Episode No. 5: International Replicating
The End State of Each Episode	**Buyer users**						
	Third-party platform						
	IIF						
	Communication channel						
	Seller users						
Key Resources	**Knowledge resources**	• Supplier's product logic • Seller user logic	• Supplier's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Seller user logic
	Network resources	• Seller users-to-be • Supplier-to-be • Buyer users-to-be	• Buyer users • Supplier • Seller users	• Buyer users • Suppliers • Seller users • Competitors	• Buyer users • Suppliers • Seller users • Competitors	• Buyer users • Suppliers • Seller users • Competitors	• Buyer users • Suppliers • Seller users • Seller's network with international sellers

Note. As IIFs integrate and orchestrate interfaces of different network players, to indicate the issue domain within which the internationalization event is associated, the horizontal band of internationalization is divided into buyer user, third-party platform, communication channel, and seller user. The dash line represents the organization-to-be's capability to cooperate with the platform and enable communication between the sellers and buyers, while the solid line means the organization has cooperated with the platform and siloed the communication between the sellers and buyers. The circle at the center represents the IIF's interface.

5.5.1 Episode No. 1: Inception (2016)

Jupiter was founded in 2016. It was divided from an IT department of a currency exchange company founded in 2012 in New Zealand. Table 5.16 shows the key events of Jupiter's inception, which begins with its parent company receiving a cooperation request from the supplier and ends with Jupiter being founded.

Table 5. 16. ***Event Chronology of Jupiter: Inception***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic -Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2010	N/A.	New Zealand	N/A.	N/A.	Financial service background.	Founder worked in a currency exchange firm in New Zealand.
2012	Jupiter's parent company was founded.	China and New Zealand	Inward	Governance	Experience in traditional currency exchange.	Educational support providers in mainland China.
2016	Achieved initial intent of cooperation with LMN (fictional name of supplier).	China and New Zealand	Inward	Intent of cross-border cooperation.	LMN's product logic; needs for currency exchange decreased between China and New Zealand.	Founder of Jupiter's parent company was referred to LMN's overseas business department.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

Jupiter, to some extent, had commercial activities before inception. Jupiter's origins lay in a collaborative project with AAA (fictional name of a PaaS supplier) for launching AAA's payment gateway in New Zealand. Jupiter attracted AAA's attention because of its merchant resources. For Anti Money Laundering (AML) consideration, Jupiter was

separated from its parent company. The fast speed of set-up could also be attributable to its learning before inception (interview with CTO, 16 December 2018).

5.5.2 Episode No. 2: Siloing (2016 ~ 2017)

With the supplier's technical support and its parent company's financial and networking support, Jupiter's siloing process was very effective and efficient. After Jupiter conducted second-tier integration and its product/service went-live at the first merchant's side, its siloing process finished (research note). Key events in Jupiter's siloing episode can be seen in Table 5.17 in the following.

Table 5. 17. ***Event Chronology of Jupiter: Siloing***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic -Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2016	On-line application for in-licensing LMN's global open platform and open source.	China and New Zealand	Inward	On-line application for in-licensing.	Financial service background, IT capacity, and FSP.	Achieved initial intent of cooperation with LMN (fictional name of supplier); parent company's merchant base.
2016	Jupiter was in-licensed by LMN.	China and New Zealand	Inward	PID, API document, and LMN's support for implementing first and second tier integration.	Financial service background, IT capacity, FSP, background system.	Achieved initial intent of cooperation with LMN (fictional name of supplier); parent company's merchant base.
2016	Second tier integration.	China and New Zealand	Inward and outward	Interconnectio n.	Product logic; Jupiter integrated its product/service into seller's system.	Parent company's sharing of merchant base and referral; door-to-door.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

5.5.3 Episode No. 3: Bundling (2017~2018)

Similar to Saturn, there were two bundling episodes in Jupiter's international development. Key events in Jupiter's bundling episode can be seen in Table 5.18. Given the level of competition, New Zealand-based RMB cross-border mobile payment companies bundled more and more third-party components to their products/services as a single integrated interface. In case its current merchant user base being snatched by competitors, Jupiter took a market follower strategy and imitated its competitors and integrated BBB's (fictional name of an international PaaS supplier) cross-border payment gateway into its current integrated system. Jupiter's management sought for asset-light. Jupiter benefited from its market follower strategy, and then it bundled with PPP (functional name of a local POS supplier) (interview with CTO, 16 December 2018). Through a series of bundling with third-party components as a single payment interface, Jupiter became one of the leading RMB cross-mobile payment companies in New Zealand. However, due to the market saturation and the price war, Jupiter was not profitable, but "*... many market players have acknowledged that payment is not profitable… To some extent, we are doing this for the future… RMB cross-border payment can be the first step of the Chinese hyper platform's international expansion. There must be some follow-up products/services that are profitable for us …*" (interview with CEO, 16 December 2018).

Table 5. 18. ***Event Chronology of Jupiter: Bundling***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic -Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2017	On-line application for in-licensing BBB's global open platform and open source.	China and New Zealand	Inward	On-line application for in-licensing.	Market knowledge, product logic, user logic, and business logic.	Chinese online buyers, supplier, New Zealand seller product/service users, and competitors.
2017	Jupiter was in-licensed by BBB.	China and New Zealand	Inward	PID, API document, and BBB's support for implementing first and second tier integration.	Product logic, user logic, IT capacity.	Particularly because of the scale of Jupiter's merchant base.
2017	Second tier integration.	China and New Zealand	Inward and outward	Multisided interconnection	Jupiter integrated its advanced product/servic e to seller users.	Broadened international buyer base, resulting in broadened domestic seller adopter base.
2017	On-line application for in-licensing PPP's (fictional name of supplier) global open platform and open source.	China and New Zealand	Inward and outward	On-line application for in-licensing.	Experience, market knowledge, product logic, user logic, and business logic.	Broadened supplier base, seller user base, resulting in broadened international buyer base.
2017	Jupiter was in-licensed by PPP.	China and New Zealand	Inward and outward	PID, API document, and PPP's support for implementing first and second tier integration.	Business logic, product logic, and user logic.	Jupiter's buyer, supplier, and seller bases.
2017	Second tier integration.	China and New Zealand	Inward and outward	Multisided interconnection	Jupiter integrated its advanced product/servic e to seller users.	Broadened transaction opportunities between international buyers and domestic sellers, resulting in more transactions between them.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

5.5.4 Episode No. 4: Multiplying (2018)

Under threat from competitors' price competition, Jupiter's management agreed that a differentiation strategy was urgently required. Then, Jupiter shifted to cloud-based SaaS products/services, which enabled Jupiter to multiply communications, interactions, and transactions between cross-border buyers and sellers to new scenarios. Key events in Jupiter's multiplying episode can be seen in Table 5.19.

Table 5. 19. ***Event Chronology of Jupiter: Multiplying***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2018	Learning from international market.	China and New Zealand	Inward	New market knowledge.	Searching and noticing, resulting in new market knowledge.	Jupiter's buyer, supplier, and seller bases; domestic competitors.
2018	Out-licensed SaaS in domestic market connecting international buyers and domestic sellers.	China and New Zealand.	Inward and outward	Multiplying	User logic, product logic, and in-house R&D.	Jupiter's buyer, supplier, and seller bases.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

Jupiter explored and exploited New Zealand to China cross-border retailing. According to Jupiter's market research, there were more than one million WeChat Mini Programs (also known as Instant Apps) in China's Online-to-Offline (O2O) market, involving one million developers, linking more than 2,000 third-party platforms, and covering more than 200 categories and 200 million daily users at that time. Moreover, WeChat pioneered

Mini Program initially, but several other apps stepped in, such as Alibaba, Baidu, and TikTok (interview with CFO, 16 December 2018).

As most of Jupiter's merchant users had been ready for social commerce within the WeChat platform and ecosystem, Jupiter's R&D team developed its own SaaS e-commerce platform based on the WeChat platform's open APIs. After four months of in-house R&D, Jupiter launched its SaaS products/services, mainly designed for merchants to transfer the hyper platforms' user traffic to their own (interview with CTO, December 2018). Jupiter's merchant users could use this SaaS e-commerce platform to build their own Mini Program/Instant App/Light Website, linking with thousands of third-party platforms within the WeChat ecosystem. It was very similar to Saturn's and Mercury's products/services, which were instant, no download apps, built in the WeChat platform, and integrated within the WeChat ecosystem (research note). It was mobile commerce ready, which handles web hosting, inventory control, payments, and marketing campaigns, and it automatically generates buyer data, product data, and export/import data (product website, 20 January 2019). The RMB cross-border mobile payment products/services were integrated into this new interface, and the payment step was more effortless (research note).

After this product/service was commercialized, it improved Jupiter's transaction volumes and financial performance (research note). Jupiter out-licensed its SaaS e-commerce platform to its existing merchant users. The revenue model included renting fees and transaction fees. After out-licensing, Jupiter's merchant users built up their own Mini Program on Jupiter's SaaS e-commerce platform by themselves. The merchant users

could interact with their private traffic in their preferable way, instead of strictly complying with the third-party platforms (research note).

5.5.5 Episode No. 5: International Replicating (2018)

Almost at the same time as multiplying, Jupiter replicated to Australia. Key events in Jupiter's international replicating episode are shown in Table 5.20. Jupiter's international replicating was very like Saturn's and Mercury's. It starts with its New Zealand merchant users referring its product/service to their Australian counterparts. It ends with Jupiter's payment and SaaS products/services going live at its Australian merchant users' sites. This full range has been classified into one event episode. They were all Jupiter's international activities when the firm replicated its successful businesses from New Zealand to China e-commerce retailing to international markets to China e-commerce retailing. This replication aimed at broadening the seller user base resulting in increasing cross-border transactions and better financial performance.

Table 5. 20. ***Event Chronology of Jupiter: International Replicating***

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2018	Export product/service to Australia.	China, New Zealand, and Australia.	Outward	Product/service.	Match of Jupiter's product logic and Australia seller users' needs.	New Zealand seller users' referral to Australia seller users.
2018	Product/service went live at Australia seller users' tier.	China, New Zealand, and Australia.	Inward and outward.	Product/service.	Technology capability.	Particularly Australia seller users.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

5.6 Cross-case Comparisons

The cross-case comparisons were conducted based on seven case studies conducted in this thesis. This research has traced how and why the case firms' internationalization processes are driven by the co-evolution of knowledge and network resources over time, even during periods of apparent international withdrawals. Collectively, the internationalization processes of the seven focal case firms were distinct. However, they were comparable in that they are modular, non-linear, and dependent on new knowledge and relationships, new ways of using and creating market information, and new ways of interconnecting cross-border buyers, suppliers, and sellers together.

The co-evolution of knowledge and network resources were purposeful and cumulative. Mutual selections and adaptations between knowledge and network resources dominated, despite in some situations achieving a vicious cycle of development in which disappointing results from one undermined the other. While there were periods when the level of purposeful and cumulative resource co-evolution was reduced, this did not disappear. A comparison across the seven case studies revealed that the case firms' focus of network effect nodes, internalization business approach, and externalization business approach are sources of cross-case variations. In the following section, these key cross-case findings across the seven cases will be discussed in comparison with existing literature where relevant. On this basis, an explanatory model will be developed in the next chapter.

5.6.1 The Internationalization Process of IIFs

This research found six types of internationalization episodes of the IIFs from the data: inception, siloing, bundling, multiplying, replicating, and international withdrawal (see descriptions in Table 4.7). The inception phase was long, ranging from one year for Neptune, Saturn, Mars, and Uranus to four years for Jupiter. The siloing episode lasted from one year for Neptune, Jupiter, Venus, and Mars to two years for Saturn, Mercury, and Uranus. The third episode varied for the focal firms. Saturn, Jupiter, Mars, and Uranus bundled payment channels to their integrated communication channels, but Mercury and Venus replicated their siloed communication channel to international markets. In the fourth episodes of the focal firms, Saturn and Mars replicated to international markets. Mercury withdrew from international markets. Jupiter multiplied its cross-border user traffic to a new scenario, and Venus bundled multiple payment channels to its interface. In the fifth episode, Mercury withdrew from its domestic market and moving headquarter to an international market, and Venus and Mars withdrew from one of their international markets. Uranus replicated to a new international market. These internationalization trajectories have not been described previously in IB process studies.

The internationalization episodes were found modular. Buyers, suppliers, focal IPIs (the case firms), and merchants located across national borders were the context in which the structures existed. Despite there being no firm-level international events in the inception episode, the modular architecture emerged when the two-sided market of cross-border buyers and sellers were identified. Then, it changed to an episode pattern when the intermediary firm interconnected the buyers and sellers through a siloed communication channel provided by a supplier. The change of the modular architecture would

subsequently become more divergent. A change might take place towards integrating third-party components into a single communication channel or replicating the communication channel to new international two-sided markets where there were existing buyers and sellers. A more advanced architecture could be, as in the case of Jupiter and Uranus, on the one hand, maintaining the user traffic in the existing channel and, on the other hand multiplying the traffic to a new communication channel to broaden the communication flow. These modular internationalization processes could also evolve reversely. This finding is consistent with that of C. Y. Baldwin and Clark (2000), who found that the computer technology industry was modularized from its beginning. However, it is specifically surprising that this thesis captured and visualized the modularized internationalization processes.

The focal seven cases also showed a lack of order in their internationalization episodes, though the episodes were linked and interrelated. The internationalization of seven case firms began with the inception and siloing episodes. Then, Saturn, Jupiter, Mars, and Uranus changed to the bundling episode, and Mercury and Venus developed to the replicating episode. After bundling, Saturn and Mars progressed to the replicating episode, but Jupiter and Uranus evolved to the multiplying episode. In the case of Mercury, Venus, and Mars at different international development stages, the unsuccessful replicating led to an exit from the international markets. This finding is consistent with the identified dynamic, ongoing, and path-dependent nature of firm internationalization (C. L. Welch & Paavilainen-Mäntymäki, 2014). Some scholars argued that such a process could be complicated, chaotic (e.g., Aldrich & Ruef, 2006), and unpredictable (Van de Ven, 2017). However, this research found that these internationalization episodes were predictable

under certain resource conditions, which will be discussed and explained in the following section.

5.6.2 The Co-evolution of Knowledge and Network Resources

This research specified two types of knowledge and three network resources (see definitions in Table 4.8). Based on the resource co-evolutionary framework the IIF internationalization (Figure 3.3), the cases showed that the founder's learning and the product-to-be's network effects shaped inception. However, it was also produced by the mutual selection and adaptation of the learning and network effects. Specifically, across the seven case firms, the inception episodes began with the founders' discovery of the business opportunity. They ended with the founder narrowing down to a product whose product logic matched the buyers' and sellers' user logic. Moreover, the scales of the buyers and sellers could enable the organization-to-be to achieve satisfying financial performance.

The match of the product logic and the user logic guided the case firms to explore and exploit the suppliers that could enable the firms' products/services to interconnect the buyer and seller users. This supplier exploration and exploitation took place in Neptune's, Mercury's, Jupiter's, Mars', and Uranus' inception episodes, but Neptune's and Saturn's siloing episodes. It can be seen that the internationalization of the firms and the co-evolution of the firms' knowledge and network resources tend to take place at a different pace. The differences in pace are known as process dis-synchronization in the literature (Garcia-Cabrera & Herrera, 2016; Madhok & Liu, 2006; Volberda & Lewin, 2003).

The choice and partnership with the supplier played a vital role in bringing buyers to the focal firms' two-sided markets. The large scale of buyers generated cross-side network effects on the sellers, increasing the number of sellers adopting the focal firms' products/services. Moreover, the seller users caused same-side network effects, resulting in more sellers adopting the products/services. This finding supports the evidence from the international network effects (Zhu & Iansiti, 2019). Moreover, it is consistent with Chen et al. (2019), who found that intermediary firms follow an externalization logic.

In the bundling episode, the cross-border network effects between international buyers and domestic sellers also allowed the focal firms to explore and exploit more open-source platforms and hinge on bundling third-party complementary components as integrated products/services to amplify the network effects. The focal firms would extend the open-source's modular design principles and leverage standardized interfaces to elaborate on their products/services. Compared to a single externalization logic proposed by Chen et al. (2019), this siloing process is more consistent with a mix of externalization and internalization logic of resource development – dependent on external partners (Katz & Shapiro, 1986; Boudreau, 2012), constructing a hub-and-spoke network to internalize partners' knowledge (Gulati, 1999; J. J. Li et al., 2015) and orchestrating globally dispersed value-adding activities along value chains (Kano, 2018).

In addition to bundling, the focal firms also replicated their successful business models to international markets to broaden the user bases. The cases showed that the international replicating episode was very similar to the siloing episode, but the former was triggered by the exploitation of the supplier while the latter was driven by the distribution of the product logic. For example, in Saturn, Mercury, Jupiter, and Uranus, the product logic

triggered the seller users to refer to the products/services to their international counterparts. It can be seen from the findings that the domestic same-side network effects among the sellers can be extended internationally. This finding is contrary to that of Zhu and Iansiti (2019), who found that rather than creating an integrated international network, a focal firm's network may be fragmented into local clusters that seldom interact with one another. Thus, it is likely that a winner-take-all system operates on a global scale.

In Mercury and Venus, the firms' product logic triggered the suppliers' technological support to expand to international markets, which then attracted the investors' further financial support. However, in part because of cultural distance (Lew et al., 2016), both Mercury and Venus failed to generate a large enough seller user base in international markets. This finding is consistent with previous research, which has shown that cultural value might moderate the platforms and ecosystems' role in internationalization efforts (Nambisan et al., 2019). Moreover, this finding again implies the need for a match between the product and user logic.

Likely due to the supplier's modular design principles, the focal firms' international withdrawals were also modularly structured. For example, the unmatched product logic and user logic led to Mercury's low penetration in Japan, which eroded investors' confidence. Consequently, the investors first withdrew investment. Then, due to the lack of solutions to match the product logic with the seller user logic in Japan, Mercury suffered from poor product/service performance, disappointing sales, and cost overruns, which then resulted in its exit from Japan, head office's cost overrun, and downsizing in New Zealand. Notably, the downsizing led to the low quality of customer maintenance, which resulted in merchant loss and subsequently exiting from the home market. As

Mercury's development was modular, its withdrawal from Japan and even its home market in New Zealand did not influence its commercial performance in Australia. After withdrawing from New Zealand, Mercury moved its head office to Australia. This concept of modular international withdrawal is a novel finding and is new to the IB literature.

Except for the strategies discussed above, multiplying the current users from one scenario to another would also increase the IIFs' and even the entire business ecosystem's financial performance. In Jupiter and Uranus, the existing buyer users were introduced to the seller users' SaaS applications. By doing so, the platform's public user traffic was transformed into the sellers' private user traffic. Jupiter and Uranus charged commission fees from transactions and lending hosting space of the SaaS applications. The SaaS applications also increased the transactions between the buyers and the sellers. Such multiplying operations were achieved as due to the IIFs noticing their international counterparts who were multiplying platforms' public user traffic to merchants' private user traffic. An implication of this finding is the possibility that public user traffic and private user traffic are separable and multipliable.

Based on cross-case comparisons, it can be seen that the focal firms' internationalization episodes are a result of the co-evolution of knowledge and network resources. As the focal firms became engaged in inception, siloing, bundling, international replicating, and multiplying episodes, their knowledge resources evolved from vicarious user logic and product logic to the combinations of the vicarious and direct experiential user logic and product logic. Moreover, their network resources developed from buyer users-to-be and seller users-to-be to the combinations of the buyer user base, seller user base, and supplier

base, then from a broadened supplier and buyer base or supplier and seller base to new transaction scenario-centric buyers, suppliers, and sellers. However, the unmatched user logic and product logic would lead to poor market performance, resulting in withdrawal.

The co-evolution process of knowledge and network resources unfolded as the vicarious user logic and product logic shaped the structure of the initial two-sided market of cross-border buyers and sellers and narrowed exploration and exploitation of suppliers. Partnering with suppliers brought in product and technological knowledge that enabled the focal firms to specialize in products/services, interconnecting the buyers and sellers and meeting their immediate needs. As the firm bundled with suppliers, knowledge acquisition occurred, and therefore, their buyer user base was broadened, and their products/services improved, resulting in more transactions between buyers and sellers. The firms' interaction with market players helped them understand the user logic and product logic better and triggered the development of products/services until changing communication in new scenarios. Alternatively, based on the commercialized products/services, the firms expanded to new international markets to increase transactions by broadening the seller user base.

5.6.3 Sources of Cross-episode Variations

While the unfolding of the case firms' internationalization depended on the co-evolution of knowledge and network resources, this research found variations in the case firms' target focal network effects, internalization business approach, and externalization business approach. These variations could drive dynamics in the co-evolution of knowledge and network resources, resulting in different internationalization patterns.

As a collective, in the seven cases, during the inception episode, the IIFs focused on their network effects between cloud providers and sellers, which promoted the IIFs to use their seller user base to attract cloud providers and select the cloud providers whose product logic could match the sellers' user logic. The IIFs' adoption of internalization drove them to in-license from the cloud provider(s). Their externalization triggered them to prepare for interconnecting the cloud provider(s) and sellers that might otherwise appear to be unrelated.

Moreover, in the siloing episode, the IIFs focused on the cloud providers' network effects between buyer-app-users and seller-app-users, which drove the IIFs to use the platforms' mass buyer-app-user base to attract sellers and consequently integrate into the sellers' sites. The IIFs' internalization drove them to integrate from the cloud provider(s). Their externalization promoted them to integrate to sellers and channel the cloud providers' buyer-app-users and open sources, the IIFs, and the sellers.

In Saturn's, Jupiter's, Venus', Mars', and Uranus' cases, the bundling episode focused on the sellers' network effects between cloud providers and IIFs. The network effects drove the IIFs to in-license and integrate from cloud providers to follow or differentiate from their competitors. The IIFs' internalization drove them to integrate from the cloud providers, and their externalization business approach triggered them to share new sets of components to network members.

Moreover, in the multiplying episode in Jupiter and Uranus, the firms focused on their international counterparts' network effects between cross-border buyers and sellers. The

firms' internalization approaches to business led the firms to bundle and develop in-house the selected international counterparts' products/services/transaction scenarios. Their externalization approach was to use these new components to increase their network effects between cross-border buyers and sellers.

In the international replicating episodes of Saturn, Mercury, Jupiter, Venus, Mars, and Uranus, the IIFs' network effects between cross-border buyers and sellers triggered the IIFs' network members (e.g., suppliers, investors, or sellers) to refer the IIFs' products/services to the IIFs' new second-degree merchant users. The IIFs' externalization business approach triggered them to expand overseas to channel the new merchant user base. However, extending to cultural distant international sellers would moderate the focal firm's network effects, as shown in Mercury's, Venus', and Mars' case.

5.7 Chapter Summary

This chapter presented the within- and cross-case analysis of this thesis. Among the seven case studies conducted in this thesis, four were selected to report the key within case findings, and seven cases were used to report the key cross-case research findings. Despite variations in the seven cases, the internationalization processes, critical knowledge and network resources, and resource co-evolutionary mechanisms could be traced back to comparable counterparts.

The cross-case findings showed that the internationalization process of the seven IIFs included six episodes – inception, siloing, bundling, multiplying, international replicating,

and international withdrawal. Critical knowledge and network resource included product logic, user logic, buyer, supplier, and seller. Particular combinations of knowledge and network resources provided necessary conditions for the firms to achieve their managerial goals. A particular combination of the knowledge and network resources might prevail for a while – an internationalization episode – in which a relatively stable pattern of activities was established.

Overall, seeking to achieve a virtuous circle of the number of cross-border users and transaction volume, the case firms' choice of focal network effects and business approaches drove the dynamic co-evolution of knowledge and network resources. Due to the IIFs' shift of focal network effects and business approaches, the co-evolution of knowledge and network resources shifted. As a result, internationalization during one episode might not necessarily lead to the next. In the following chapter, the main research findings will be discussed in light of the IB literature.

CHAPTER 6 - DISCUSSION

6.0 Overview

Based on the research findings, this thesis provides a resource co-evolutionary model for the internationalization of IIFs. In the following sections of this chapter, the process model is first introduced and discussed. The key findings of this research and the model's features are then discussed in line with the IB literature.

6.1 A Resource Co-evolutionary Model for IIF Internationalization

To understand the dynamics of the internationalization of IIFs, search for critical knowledge and network resources, and build a resource co-evolution model for the joint development of the knowledge and network resources in enabling the unfolding of the internationalization of IIFs, this thesis developed a process model that explains how the change of the IIFs' focus of network effects and business approaches drive the co-evolution of knowledge and network processes that lead to the non-linear modular internationalization patterns of IIFs (Figure 6.1). However, before proceeding, it is essential to specify the boundaries of the process model.

Development Episode (Level 1)	Inception	Siloing	Bundling	Multiplying	International Replicating	International Withdrawal
Buyer User						
Platform						
Scenario						
IIF and Platform						
Seller User						
Knowledge (Level 2)	Match of cloud provider's product and sellers' user logic	Match of cloud provider's product and sellers' user logic	Match IIF's product logic and sellers' user logic	Match of IIF's product logic and sellers' user logic	Match of IIF's product logic and sellers' user logic	Product logic and user logic not matching
Business Logic (Level 3)	Externalization	Internalization	Internalization and Externalization	Internalization and Externalization	Internalization and Externalization	Externalization
Node of Network Effect (Level 3)	IIF's network effects between cloud providers and sellers	Cloud provider's network effects between buyers and sellers	Scenario's network effects between cloud providers and IIFs	International counterparts' network effects between cross-border buyers and sellers	IIF's network effects between cross-border buyers and sellers	IIF's network effects between cross-border buyers and sellers
Network (Level 2)	Cross-border buyers and sellers can transact through a cloud provider's platform and an IIF's interface	Cross-border buyers and sellers transact through a cloud provider's platform and IIF's interface	Cross-border buyers and sellers transact through multiple cloud providers' platforms and IIF's interfaces	Cross-border buyers and sellers transact at multiple scenarios	Cross-border buyers and sellers in international markets transact through the IIF's interface	Cross-border buyers and sellers would not like to transact through IIF's channel
Time (t)	→		→	→	→	→

Figure 6. 1. **A Resource Co-Evolutionary Model for IIF Internationalization**

In the model, the nature of the co-evolution of knowledge and network resources that drive the internationalization of IIFs is outlined, providing evidence of why the cumulative reinforcing of knowledge and network resources posited by other internationalization process theories or models do not apply to the conditions that this thesis investigates. Additionally, the model is confined to explaining the internationalization of IIFs – the process of the co-evolution of knowledge and network resources is only included to the extent that they posit desired functions to the internationalization process. Last, this model is confined to the process of the co-evolution of knowledge and network resources. How knowledge and network resources reproduce is beyond the scope of this research. In the following section, each aspect of this conceptual process model will be discussed, in turn, in light of IB literature.

This research has identified six internationalization episodes of the case IIFs – inception, siloing, bundling, multiplying, international replicating, and international withdrawal. However, it is not suggested that they capture all possible variations. In this research, inception refers to the process in which an IIF conceives. This study has shown that IIFs' inception relies on their vicarious knowledge of cloud provider's product logic and end-users' user logic and network relationships with cloud providers' buyer-app-users, cloud providers, and end seller users. The IIFs' focus on the network effects between the cloud providers and sellers drive the IIFs to use their seller user base to attract cloud providers and select the cloud providers whose product logic can match the sellers' user logic. The IIFs' adoption of internalization drives them to in-license from the cloud providers, and their adoption of externalization drives them to prepare for interconnecting the cloud providers and sellers that might otherwise appear to be unrelated. As a result, the

interaction and transaction architecture emerge, interlinking buyers, cloud providers, IIFs, and sellers.

Siloing refers to the process in which an IIF connects cross-border two-sided market players through a paralleled communication channel or several paralleled communication channels. This study has shown that IIFs' siloing relies on their vicarious knowledge of cloud providers' product logic and sellers' user logic and network relationships with cloud providers' buyer-app-users, cloud providers, and seller users. The IIFs' focus on the cloud providers' network effects between buyer-app-users and seller-app-users drive IIFs to use the platform's mass buyer-app-user base to attract sellers and integrate into sellers' sites. The IIFs' adoption of internalization drives them to integrate from the cloud providers. Their externalization promotes them to integrate to sellers and channel the cloud provider's buyer-app-users and open sources, the IIFs, and the sellers. As a result, the cloud providers' international buyer-app-users are introduced to the sellers' sites.

Bundling refers to the process in which an IIF connects cross-border two-sided market players through integrating communication channel(s) into its current communication channel, leading to a unified and seamless shift between the communication channels. This study has shown that IIFs' bundling relies on their vicarious and experiential knowledge of cloud providers' product logic, their own product logic, their sellers' user logic, and network relationships with cloud providers, seller users, and competitors. The IIFs' focus on their sellers' network effects between cloud providers and IIFs drives the IIFs to in-license and integrate from cloud providers to assimilate to or differentiate from their competitors. The IIFs' adoption of internalization drives them to integrate from the cloud providers, and their externalization business approach triggers them to share new

sets of components with network members. At the end of IIFs cross-border bundling, buyers and sellers are channeled through multiple communication channels, and they can shift between the channels seamlessly and frictionlessly.

Multiplying in this research refers to the process in which an IIF multiplies transaction scenarios between cross-border buyers and sellers. This study has shown that IIFs' multiplying relies on their vicarious and experiential knowledge of the IIFs' product logic, the IIFs' international counterparts' product logic, and cross-border buyers and sellers' user logic, and network relationships with buyers, cloud providers, competitors, international peers, and sellers. At this stage of development, the IIFs focus on their international counterparts' network effects between cross-border buyers and sellers. Their internalization approach drives them to bundle or develop in-house the selected international counterparts' products/services/transaction scenarios. Their externalization through these new components increases their own network effects between cross-border buyers and sellers. At the end of IIFs multiplying, the transaction scenarios between the cross-border buyers and sellers are extended to be multiple.

International replicating in this research refers to how an IIF replicates its successful business model to a new international market. This study has shown that the IIFs' international replicating relies on their vicarious and experiential knowledge of their own product logic and international buyers' and sellers' user logic, and network relationships with buyers, cloud providers, and sellers. The IIFs' network effects between cross-border buyers and sellers trigger the IIFs' network members (e.g., suppliers, investors, or sellers) to refer the IIFs' products/services to the IIFs' second-degree network members. The IIFs' externalization business approach triggers them to expand internationally to channel the

new network members. As a result, the IIFs polish their products and business models and replicate them to new markets.

International withdrawal refers to the process in which an IIF changes to less resource-committing operations in one or more international markets. This study has shown that extending to cultural distant international sellers would moderate the focal firm's network effects, resulting in failures in creating and coordinating the cross-border network of complementors. In the following of this chapter, this process model's key features will be discussed in light of IB literature.

6.2 The New Patterns of Internationalization

This section mainly presents the discussion of the Level 1 process under investigation in this thesis – the internationalization process of the IIFs (see Figure 6.1). The findings show that the internationalization pattern of IIFs is modular and non-linear, which is new to the IB literature.

6.2.1 Modularity

As shown previously, this research identified six internationalization episodes, which are inception, siloing, bundling, multiplying, international replicating, and withdrawal. These episodes form a process understanding of the unfolding of the internationalization patterns of IIFs (see Figure 6.1). Overall, IIFs seek to maximize transaction volume through broadening user bases or increasing transaction scenarios. The modularity of the internationalization process of IIFs challenges the concept of ownership specific

advantages with implications for the Internalization Theory (Buckley & Casson, 1976; Hennart, 1982; Rugman, 1981) and Eclectic Paradigm (Dunning, 1980, 1988).

Specifically, from the perspective of Internalization Theory, MNEs use their governance to internalize business activities rather than investing in more costly market options (Buckley & Casson, 1976; Williamson, 1975). However, the findings of this study suggest that modularity transcends the boundaries of MNEs' governance. The modular structure as a tool (J. Li et al., 2019) allows for explicit interconnectivity (C. Y. Baldwin & Clark, 2000), collaboration (Schilling, 2000; Schilling & Phelps, 2007), coordination (J. Li et al., 2019), complementarity (Jacobides et al., 2018), intermediate products/services (Rugman & Verbeke, 2003), and shared sets of components (Gawer, 2014) to outsiders. As shown in Figure 6.1, IIFs locate key commercial activities closer to demand rather than relying on internalized control. These new ways of modular internationalization of IIFs have implications for Internationalization Theory such that international firms need to rethink internalization advantages. Nambisan et al., (2019) have suggested extending internalization specific advantages to ecosystem specific advantages. However, this research suggests that the internationalization processes of IIFs may be shaped by modular architecture-specific advantages, which is boundary explicit and stable rather than as fluid as general business ecosystems.

In addition to internalization advantages, the OLI paradigm (Dunning, 1977, 1979, 1988, 1995, 2001) also includes ownership-specific advantages and location-specific advantages as essential factors explaining firm internationalization. However, as shown in the findings, the IIFs lacking ownership-specific advantages can internationalize too. IIFs imply a shift in focus to their associate network participants' co-specialization as the

basis for offering value, and they transcend the ownership boundaries. IIFs also serve as a "springboard" for clicks-and-mortars to reach their global shoppers. Digital infrastructure has become a key "location-specific" advantage for IIFs and their associated co-specialization partners. These findings have implications for the OLI paradigm. For example, firms need to rethink new intermediation and orchestration strategies and locational determinants to integrate into less physical distance-reliant network participants.

6.2.2 Non-linearity

While the research findings show several modular patterns of the internationalization of IIFs, except for siloing taking place after inception, there is no universal sequential order found in the data. This finding is in accordance with what has been already known about the reality of firm internationalization – "non-linear internationalization is neither an irregular deviation nor an exceptional case of linear internationalization, but that linear internationalization is an exceptional case of non-linear internationalization" (Vissak, 2010a, p. 559). Therefore, this finding supports the previous studies of non-linear internationalization processes (e.g., Vissak & Francioni, 2013; Kriz & Welch, 2018). However, as modularity extends the boundaries of the focal IIFs' governance, this thesis argues that the non-linear internationalization outside a modular architecture is fluid (Nambisan, 2017) and unpredictable (e.g., Freeman & Soete, 1997; Kriz & Welch, 2018; Van de Ven, 2017), but the non-linear internationalization within a modular architecture is structurally predictable towards the end states of the architectures.

6.3 The New Foci of Knowledge and Network Relationships

This section mainly discusses the Level 2 process under investigation in this thesis – the key knowledge and network resources enabling the internationalization process of IIFs (see Figure 6.1). The findings show that particular combinations of IIFs' product logic, user logic, and their associated network members such as buyers, sellers, and suppliers determine IIFs' internationalization patterns. In the following sections, these findings are discussed in line with IB literature.

6.3.1 Product Logic

The findings show that product logic and user logic are the focal firms' most preferred knowledge resources underlying internationalization. In this research, product logic refers to "the development, production, distribution, and support of products" (Gandy & Edwards, 2017, p. 437). The findings show that product logic portrays a de-centralized product knowledge development process in which IIFs' knowledge acquisition, combination, and configuration occur in an expanded context and a more interconnective and interdependent manner. It emphasizes externalized and de-centralized co-specializing instead of monopolistic and zero-sum knowledge development. A possible explanation for IIFs' focus on product logic may be that IIFs' products/services are peripheral (e.g., Krishnan & Gupta, 2001; McGrath, 1995; M. H. Meyer & Lehnerd, 1997; Robertson & Ulrich, 1998). They constitute a shared set of technologies, components, digital infrastructure, products/services, and relationships that serve as a common foundation for diverse sets of actors to interactively create and deliver value (Gawer & Cusumano, 2002; Gawer, 2014).

Prior IB studies have noted the importance of knowledge development in enabling internationalization (e.g., Oviatt & McDougall, 1994; M. Fletcher & Harris, 2012; Pellegrino & McNaughton, 2015). Different types of knowledge have been identified as influencing firm internationalization. For example, unique product knowledge is transferrable across national borders and provides firm-specific advantages in global markets (Buckley & Casson, 1976; Hymer, 1976; Kogut & Zander, 1993). Market knowledge informs how to establish competitiveness in new territories, resulting in superior international market performance (Prashantham & Young, 2011), and internationalization knowledge provides international competitive advantage over domestic competitors (e.g., Knight & Liesch, 2002; Prashantham & Young, 2011; Roth et al., 2009). However, these dominant findings have long been based on assumptions of tangible flows of products/services, restricted access to open resources, co-specialization and complementarities of associated network players, and digitalized transactions across national borders (Nambisan et al., 2019).

The findings of IIFs' development of product logic hold important implications, particularly for the knowledge-based view (Kogut & Zander, 1992, 1993) and international entrepreneurship perspective (Knight & Cavusgil, 1996; Oviatt & McDougall, 1994, 1995). Specifically, the knowledge-based view (e.g., Kogut & Zander, 1992, 1993) portrays international firms primarily as a combiner and arbitrageur of knowledge derived from multiple sources, combining and reconfiguring this in centralized processes. User logic redefines the nature of intermediary firms' connectivity with their diverse international associated network partners, and therefore, the nature of such knowledge development. Moreover, from the perspective of international new

ventures (Knight & Cavusgil, 1996; Oviatt & McDougall, 1994, 1995), the accelerated internationalization process is mainly driven by internationally experienced and alerted entrepreneurs. However, the findings of this research indicate that international experience is not a prerequisite for entrepreneurs to start a business. Vicarious learning is recognized in IIF entrepreneurs during inception.

6.3.2 User Logic

Another essential knowledge resource found in this research is user logic, which refers to "in response to a specific usage scenario, the users' automatic habit of using the product (Duhigg, 2012)". According to the findings of this research, IIFs provide intermediating components to enable interactions between mass cross-border buyers and sellers. IIFs' knowledge development requires combining firm-specific and user-specific advantages at the collective level for all participants. Moreover, as open and interactive digital transaction infrastructure providers, IIFs adapt, integrate, and reconfigure its associate network participants' learning and learning outcomes to match the market members' dynamic needs. Thus, along with well-defined user logic, IIFs reduce design and development redundancies and minimize innovation time and costs.

Moreover, the match of the well-defined product logic and user logic leads to the end buyer and seller users adopting and locking-in the products/services in a frictionless manner, which shapes the IIFs' competition. Since the core offerings of the IIFs are, to a large extent, digital and are transferable through the Internet, they are instantly accessible from almost anywhere in the globe at a relatively low cost. Thus, the competitive

advantages of IIFs to create and capture value depends upon their building new networks and becoming an (invisible) insider in the established networks.

This finding of IIFs' internationalization, relying on user logic, posits important implications for the U-Model (J. Johanson & Vahlne, 2009). According to the U-Model (J. Johanson & Vahlne, 2009), IIFs could suffer from liabilities of outsidership if they establish new cross-border networks. Liabilities of outsidership can be created by unfamiliarity, relational hazards, and lack of legitimacy, and they can impact IIFs' ability to provide products/services to new users (Denk et al., 2012; Zaheer, 1995). The findings of this research suggest that IIFs should rethink market commitment rationality or compatibility. IIFs emphasize the vital role of architectural and collective network knowledge. Regarding the extent to which any given quality attributes afford product/service benefit and affect adoption decisions relies on product/service performance and user preference (Mitra & Golder, 2006), this research suggests that the match of product logic and user logic may help mitigate IIFs' liabilities of outsidership.

6.3.3 The Complementary Groups of Network Participants

The findings of this research also indicate that through the Internet and other ICT facilities, the IIFs connect cross-border buyers, cloud providers, themselves, and sellers who interact with each other and collectively shape transactions. The cloud providers are often international platforms that use the Internet to generate transaction scenarios and digital interfaces to capture buyers, mainly in the platform's home country. Through integrating from the platforms and integrating to the merchants, the focal IIFs enable the platforms' buyer-app-users to flow to seller-app-users' sites in real-time across national borders. In

such a multi-sided network, the role of the IIFs involves establishing its business network that constitutes different network parties and promoting intermediation and orchestration by channeling the network participants. According to the findings of this research, the primary function of the IIFs' associate network relationships is to interlink the activities of the market actors to transform resources between the actors and add value to production. This finding is consistent with the A-R-A Model (Håkansson & Johanson, 1992).

The findings of the IIFs' associate network participants suggest implications for the internationalization models from the network view. Specifically, J. Johanson and Mattsson's (1988) network model of internationalization proposes three international networking steps – international extension, penetration, and international integration. However, the findings of this research suggest that the international networking process of the IIFs, to some extent, reverses this order by first conducting international integration, and then penetration and international extension. Moreover, this research also implies for the model that IIFs as early starters can count on domestic network relationships and vicarious learning to orchestrate buyer traffic and cloud providers to inward internationalization and domestic seller traffic to outward internationalization to international buyers' sites. International experience appears to be no longer a prerequisite.

Moreover, according to Rugman and D'Cruz's (1997) Flagship Network Model, the focal flagship firm as a multinational enterprise takes its associated network's strategic leadership. The flagship firm directs and coordinates the vertically international business relationships to achieve its strategic objectives. However, the findings of this research show that the IIFs as the focal firms comprise vertical (with foreign suppliers and buyers), horizontal (with international rivals), and lateral (with supporting service providers)

complementary partners. The critical commercial activities between the IIFs' associate network participants are closer to decentralized demands rather than vertical supplies. Moreover, the IIFs intermediate and orchestrate their associate network members to match the requirements of cross-border transactions, meaning that the network members play a significant role in shaping the IIFs' international development strategies. The focal IIFs can structure, bundle and leverage cross-border resources garnered through network participants to fuel the IIFs and their networks' international survival and growth.

Halinen and Törnroos' (1998) Network Embeddedness Model explains that the business actors' representational role – what the actor presents in the eyes of other network members at a specific point of time – drives the evolution of the structure of the network in which the firm is embedded. However, this research has been unable to demonstrate, in Halinen and Törnroos' (1998) term, the representational role of the IIFs in other network participants' eyes. Instead, the findings of this research show that IIFs represent buyer traffics in the eyes of sellers and seller traffics in the eyes of cloud providers, which drives the evolution of the network structure that the IIFs are embedded in.

Finally, the research findings also hold implications for Andersen and Buvik's (2002) Business Relationship Model. The model suggests that cross-border networking involves identifying the potential business partners, connecting and negotiating with the identified partners, and choosing the partners for subsequent business exchanges. However, this research suggests that the IIFs' networking process involves identifying multi-sided market participants in a pairwise way. The connecting and negotiating with the identified participants depend on the size of the other side of the pair. The choice of the participants depends on the match of the pairwise participants.

6.4 The New Ways of Developing Knowledge and Network Resources

This section mainly presents the discussion of the Level 3 process under investigation in this thesis – the resource co-evolution mechanisms of change (see Figure 6.1). In this thesis, three mechanisms were identified - the IIFs' focus of network effects, internalization and externalization approach to business. In the following of this section, these mechanisms will be discussed in line with IB literature.

6.4.1 The Co-evolution of Knowledge and Network Resources

According to the findings of this study, IIFs' knowledge and network resources co-evolve. In co-evolutionary terms, the IIFs' knowledge of their product logic and user logic selected their associated network members, and the associated network members also fostered the IIFs' knowledge of product logic and user logic. The IIFs' knowledge adaptation to their network resources occurred when the IIFs' product logic matched user logic. The IIFs' network resources adapted to the knowledge resources when cross-border buyers and sellers interacted through the Internet infrastructure established by the IIFs.

The co-evolution of knowledge and network resources suggest that organizational resources are not "ready to be used and available to be exploited" as suggested in the Uppsala Model (J. Johanson & Vahlne, 1977, 2009; Vahlne & Johanson, 2017) and born-global literature (Knight & Cavusgil, 1996; Oviatt & McDougall, 1994, 1995; Coviello, 2015). Specifically, the latest revision of the Uppsala Model (Vahlne & Johanson, 2017) is developed to cater to modern firm internationalization – the process in which the firm's

disaggregated and geographically dispersed commercial activities are linked through managerial and technological channels (Buckley, 2009; Coviello et al., 2017; Mudambi, 2008). However, the crucial role of architectural, combinative, network knowledge, and the "plug-and-play" and vast built-in global multi-sided market participant base is not included as a defining feature (Nambisan et al., 2019). Moreover, Vahlne and Johanson (2017) identified the mechanism of change in the internationalizing firm as contingent on knowledge development processes, as that is "where the action takes place" (Vahlne & Johanson, 2017, p. 12). However, this research suggests that reciprocal knowledge and network development drives IIFs' internationalization because their cross-border co-specialization and network expansion together shape their international competition.

6.4.2 The "Motor" of Change

This research also found that the change of the IIFs' focal network effects and internalization or externalization approach to business drives the co-evolution of knowledge and network resources, leading to IIFs' non-linear modular internationalization. First, network effects refer to those in cross-border multi-side markets; more participants on one side of the market attract more complementors on the other side due to demand-side economies of scale, and vice versa (Armstrong, 2006; Katz & Shapiro, 1986). Internalization suggests that the very existence of MNEs follows an internalization logic, where transactions and value-adding activities take place within the firm (e.g., Buckley & Casson, 1976; Hennart, 1982; Rugman & Verbeke, 1992, 2003). On the contrary, externalization or de-internalization suggests that IIFs exploit advantages by hinging on the bundling of external, complementary assets owned and controlled by autonomous complementors (Nambisan, 2017; Parke et al., 2016).

The findings show that IIFs use various network effects to target their complementary partners and promote the internalization approach to bundling with the partners' components resulting in more efficient usage of the internal cross-border market. Alternatively, IIFs promote the externalization approach to share and even relinquish their components to partners to distribute their product logic and nurture user logic on which the IIFs are based. The internalization logic continues to be the cornerstone of firm internationalization, IIFs being no exception. However, the value proposition of IIFs is also based on their associated network players' participation. Therefore, their business logic was also found externalized from a unilateral, internal governance-led process to a community-led process where participants are dispersed online and offline across national borders. The participants' interactions draw new participants from global markets. This finding of externalization is contrary to what internalization theory predicts, but it is broadly consistent with more recent studies on the exploitation of competitive advantages by ibusiness firms (e.g., Chen et al., 2019; Nambisan, 2017; Parker et al., 2016). This finding is encouraging to move IB studies and operations from a centralized approach that MNEs use knowledge mostly originated internally towards a more decentralized perspective that MNEs incorporate into geographically and spatially dispersed knowledge sharing systems knowledge flows across participants in dense networks.

6.5 Chapter Summary

Based on the findings from the process data, this chapter introduced a resource co-evolutionary process model of the non-linear and modular internationalization process of IIFs. The model describes how the internationalization patterns of IIFs are achieved with

the support of the particular combinations of knowledge and network resources, and how the joint development of knowledge and network resources is fostered by the IIFs' focal network effects, internalization and externalization approach to business. The key findings were discussed in light of the IB literature. The final part of this thesis, Chapter 7, will conclude the present thesis.

CHAPTER 7 – CONCLUSION

7.0 Overview

This chapter provides a conclusion for the study. This chapter first reviews the research purpose and findings. Then, this chapter discusses the theoretical and methodological contributions and the practice implications of the research findings. After this, this chapter outlines the potential limitations of this thesis and recommends directions for future research.

7.1 Recapitulation of Research Purpose and Findings

There were two primary aims of this study to investigate (a) the internationalization processes of IIFs, and (b) mechanisms that drive these processes. IIFs are called on to help establish global Internet infrastructure. However, previous studies in the field of IB have not examined IIFs in much detail. To achieve these aims, this thesis developed a resource co-evolutionary framework as the basis for understanding and designing ways to investigate. Specifically, this research explored and explained: "*through a resource co-evolutionary lens, how and why is the internationalization process of the IIFs driven by the joint development of knowledge and network resources over time?*". The use of the resource co-evolutionary framework led this research to adopt a process study approach focusing on exploring and explaining:

1. the significant process patterns of IIF internationalization,
2. the co-evolving knowledge and network resources enabling the unfolding of the internationalization patterns of IIFs, and

3. the mechanisms driving the joint development of the knowledge and network resources.

Based on seven case studies, this research found that the IIFs potentially experienced six episodes in their international development – inception, siloing, bundling, multiplying, international replicating, and international withdrawal (see Figure 6.1). These internationalization episodes are mainly about interconnecting cross-border buyers, cloud providers, and sellers that might otherwise appear unrelated. They are modular and non-linear. Together, these findings address the first research aim of investigating the internationalization process of IIFs.

Moreover, it was also found that the IIFs' their product logic, user logic, cross-border buyers, cloud providers, and sellers are their critical resources that further their cross-border interconnection. These knowledge and network resources are in a reciprocal development relationship. In co-evolutionary terms, the IIFs' product logic and user logic select their associated network members. On the other hand, the associated network members also foster the IIFs' product logic and user logic. IIFs' knowledge adapts to network resources when the IIFs' product logic matches user logic. The IIFs' network resources adapt to knowledge resources when cross-border buyers and sellers interact through the Internet infrastructure established by the IIFs.

Furthermore, regarding the second research aim of exploring the mechanisms that drive IIF internationalization, it was found from the data that the "motor" of these changes derives from the IIFs' focal network effects, internalization business approach, or externalization business approach. Specifically, IIFs tend to focus on their own network

effects between cross-border suppliers/cloud providers and sellers and adopt an internalization business approach to conceive the business. Then, the IIFs tend to focus on the supplier/cloud provider/cloud platform's network effects between cross-border buyers and sellers and adopt an externalization business approach to silo the buyers and sellers. Following these operations, the IIFs tend to flexibly focus on the scenario's network effects between suppliers/cloud providers and sellers and adopt an internationalization business approach for bundling the network members and components and an externalization logic for commercialization. The IIFs may also focus on their international counterparts' network effects between cross-border buyers and sellers, and then adopt an internalization business approach for creating a new transaction scenario and an externalization business approach for multiplying the interactions of the current associated cross-border buyers and sellers to the new scenario. Alternatively, the IIFs may focus on their own network effects between cross-border buyers and sellers and rely on an externalization business approach to let their network members organically expand their service scope resulting in the IIFs' international replicating. The change of the IIFs' focal network effects and internalization or externalization business approach results in the purposeful and adaptive co-evolution of knowledge and network resources, leading to different internationalization patterns (see Figure 6.1). Together, these findings addressed the second research aim of investigating the mechanisms driving resource co-evolution of knowledge and network relationships, leading to IIFs' internationalization.

Based on the findings, a resource co-evolution model for the internationalization of IIFs was developed, which provides a data-grounded and empirical explanation of the particular combinations of the internationalization patterns, desired knowledge and network resources, and mechanisms of change (Figure 6.1). This model acknowledges

the internationalization patterns and resource co-evolution. Moreover, it illustrates they are subject to the same "motor" of change. There is also good evidence to suggest that the model is relevant to the extant literature and the practical world, as discussed in Section 7.2 and 7.3 below.

7.2 Contributions

7.2.1 Contributions to the Existing Body of Knowledge: Addressing a Knowledge Gap

This thesis has provided insights into the internationalization process from IIFs' perspective and uncovered the strategic resources as antecedents enabling the unfolding of the process. There are no studies that examine the internationalization process of the IIFs, which plays a critical role in establishing cross-border Internet infrastructures. This present research is the first study to address this crucial gap in contemporary IB literature by exploring the IIF internationalization processes. Moreover, the findings also provide a linkage between international IIFs and their business ecosystem participants. The linkages enabled by the IIFs can help their associated ecosystem participants interconnect and interact online and offline across national borders. The findings of this present thesis demonstrate that the internationalization process of IIFs is modular and non-linear. This study extends our current understanding of firm internationalization. Traditionally, the understanding of internationalization is between linear predictable (e.g., Vernon's 1966; J. Johanson & Vahlne, 1977, 2009; Kogut & Zander, 1992, 1993) and non-linear unpredictable (e.g., Freeman & Soete, 1997; Kriz & Welch, 2018; Van de Ven, 2017; Vissak, 2010a). However, the modular non-linear internationalization patterns found in

this present thesis suggests that firm internationalization as a process can be non-linear but structurally predictable.

7.2.2 Contributions to Theory: Developing a New Process Model

This thesis developed a novel process model that reveals the internationalization patterns of IIFs, critical knowledge and network resources underlying IIF internationalization, and the mechanisms of change (see Figure 6.1). The process model reflects the connections between internationalization, joint resource development, and resource co-evolutionary mechanisms. Recent accounts of the IB process have illustrated the need to consider internationalization as a complex process influenced by the interaction between several micro-foundations lower than the internationalization process itself (Chen et al., 2019; Pajunen & Maunula, 2008). This thesis responds to these recent calls for research and provides a process model connecting various IB processual phenomena. Developing a process model involving different processual foundations can be one of the most challenging tasks in IB studies, mainly because of the desynchronization and the cross-level interactions between the processes (Pajunen & Maunula, 2008).

The process model developed in this present thesis also highlights three process mechanisms, which are (a) the focal network effects, (b) the internalization business approach, and (c) the externalization business approach. The model's implications for mainstream IB process theories have been discussed in detail in Chapter 6. These three process mechanisms challenge the generalizability of the mainstream IB process theories to firms operating in today's information age. Most of the IB process theories were developed in the pre-digital age. They assume internationalization as a centralized process

following an internalization logic. Specifically, a firm's internationalization relies on its unique strategic resources, and its (international) expansion is mainly about acquiring and taking possession of the strategic resources in international markets and conducting value-adding activities and transactions within the firm's business scope across national borders (J. Li et al., 2019; Nambisan et al., 2019; Vissak, 2010a). However, the findings of this present thesis show that firm internationalization can also be a de-centralized process and follow an externalization approach. Specifically, rather than being monopolistic and zero-sum, internationalization can be achieved through empowering its business ecosystem external to the firm by interconnecting the ecosystem's participants and facilitating their interactions and transactions. The process explanations developed in this present thesis provide an insightful understanding of internationalization in today's digitalized sharing economy.

7.2.3 Contributions to Methodology: Advancing Process Research in International Business

This thesis also contributes toward advancing IB research methodology. This research extends a method of studying the unfolding of the internationalization process that has gained interest in recent years (McAuley, 2010; C. L. Welch & Paavilainen-Mäntymäki, 2014; K. E. Meyer et al., 2020). The analysis method can be characterized as a form of process approach using a case study method (Buttriss & Wilkinson, 2006; Van de Ven & Poole, 2005; Yin, 2003). Recent IB studies have illustrated the need to understand process research to account for the complex and dynamic nature of firms' internationalization process in meaningful ways (Pajunen & Maunula, 2008). Thus far, there has been limited multi-level process research conducted within the IB discipline because of practical

difficulties in obtaining and presenting process data over extended periods. However, this research has collected reliable process data and clearly shown the unfolding of these processes.

7.3 Implications

As discussed throughout this thesis, the emerging digitalization in the global marketplace has led to a large gap in our understanding of international business. Therefore, this study conveys several important messages to IIF practitioners, educators, and policymakers.

7.3.1 Implications for Practitioners

Questions, such as "How should I develop new strategic goals?", "How should I use the extant resources to achieve the goals?" "How should I develop new resources for the goals? Especially when I have limited access to resources?" and "What rules can I follow?" can be critical questions facing IIF decision-makers, and they need to learn more about these issues to run their organizations more effectively. This research guides decision-makers on how to solve these practical problems.

First, this study suggests that managers should consider organizational development from a processual view (Hernes, 2014) and make strategic decisions based on the process patterns. Once organizational development is seen from a processual view, it is a collection of related activities unfolding over time. In reality, the unfolding of the associated activities may not take place in a linear way. However, there are specific episode patterns of organizational development. Understanding these patterns can help

managers to develop a vision for the organization's subsequent development. To understand process patterns, one needs to conduct many observations and comparisons until a meaningful pattern(s) uncovered. Thus, though important, it is not an easy task.

This thesis identified six internationalization patterns of IIFs – inception, siloing, bundling, multiplying, international replicating, and international withdrawal (see Figure 6.1). Though these six patterns may not capture all possible variations, they can represent a comparatively regular flow within the modular internationalization of IIFs. This thesis suggests that IIF managers can use these process patterns critically. These patterns can help IIF managers think of their international development opportunities and risks, monitor internationalization process execution, and provide feedback on firm internationalization conformance and other aspects of their organizations' international development performance. However, managers are also encouraged to think beyond these internationalization patterns because operation conditions can be different in different markets (Cuervo-Cazurra et al., 2013).

This thesis also suggests that organizational development can be underpinned by its micro-level antecedents lower than the process itself (Foss & Pedersen, 2016). This thesis argues that searching for the micro-level antecedents through a processual approach and using them to expand or contract the possibilities of a path's development can be more constructive than searching for the antecedents through a static approach and using them to identify the best but discrete practices. The former allows managers to consider the morphogenesis of the complex organizational systems (Goh & Pentland, 2019), which is vital for managers to capture the interrelated organizational operations and processual

patterns. The latter may lead firms to suffer from more inconsistent development strategies resulting in trial-and-error.

Based on these points mentioned above, this thesis provides a resource co-evolutionary framework. Considering the strategic importance of knowledge and network resources in enabling the internationalization of IIFs, this research used the resource co-evolutionary framework and identified that product logic, user logic, and complementary groups of network participants are vital in enabling IIF internationalization. Moreover, these organizational resources evolved interactively. The joint development of these knowledge and network resources is driven by the IIFs' focal network effects and internationalization or externalization business approach (see Figure 6.1). This thesis suggests that IIF managers should be aware of these concepts and mechanisms in their internationalization. Therefore, it becomes necessary for IIF managers to consider them as critical components in their business models. Moreover, it is also suggested that managers can use the resource co-evolution framework in analyzing a broader scope of their strategic resource development, exploring and explaining more complex resource opportunities, coordination, and risks, and achieving efficient, superior, and sustainable organizational performance.

7.3.2 Implications for Educators

This present thesis suggests that for IIFs to be more competitive in international markets, their labor force's quality needs to be improved. For all of the firms studied in this research, their communication costs are comparatively high. The communication of product logic and user logic between salespersons and IT staff was difficult within the

firms. Moreover, selling product logic to merchant users was also not easy. In many cases, due to the lack of local IT talent who can understand and address the IIFs' technological needs, the IIFs had to seek solutions from overseas through the Internet or personal networks.

Regarding improving the labor force's quality, this thesis suggests tertiary business education highlight the practical value of technology disruption, the shift from supply-side to demand-side economies of scales, and the business approach of externalization. Moreover, this thesis also suggests higher education institutions give business school students training in cloud marketing, data science, and complex systems. In addition to the systematic training provided by institutions, approved by the Ministry of Education, this thesis also suggests that IIF practitioners participate in industry forums, government activities, international conferences to network, expand knowledge of the demand-side digital marketplace, and find solutions to cloud-based management and operation problems.

7.3.3 Implications for Policymakers

All of the IIFs studied in this thesis reveals that they have not received much constructive support from the government. IIFs are an emerging sector, and IIF managers have been watchfully waiting for government support. This thesis suggests that for encouraging and supporting the IIF sector, policymakers can devise measures to promote IIFs' image in broader society and reduce IIFs' costs of acquiring strategic resources, cooperation, and development opportunities. The government can provide newsfeeds for international market updates, industry information, reports and forums, and short-term training

programs. These resources can be public goods that require initial investments, but once they are ready, they can immensely benefit the IIF sector.

Finally, this thesis also suggests the government monitors the IIFs' data use. The IIFs' business model, pricing strategy, and commercial activities overwhelmingly depend on buyer traffics. To close, multiply, or manipulate the buyer's Internet loop, the cloud provider, IIFs, and merchant users may inappropriately use the buyers' personal related or sensitive data. For avoiding personal data or other kinds of data misuse, this thesis suggests the government develops regulation and restrictions over different types of data ownership, management, and commercialization.

7.4 Limitations of this Research and Recommendations for Future Research

Despite the theoretical framework and empirical methodology having been developed through careful consideration and justification, as with all research, this study contains certain limitations. First, although the number of selected cases was adequate for the exploratory purpose of this thesis and provided rich insights for the research field of IB, the transferability of findings from this study may be somewhat restricted beyond international IPIs from New Zealand. Care should be taken when extending this knowledge to other categories of IIFs and other countries since different IIF categories and IIFs from other countries were not included in the collected data. However, this thesis provides a foundation for future studies to enrich IB process research on IIFs from other national contexts. Moreover, comparative studies are also worthwhile investigating the internationalization patterns of IIFs from different sectors and economies. Lastly, this thesis' scope is focused on the co-evolution of knowledge and network resources in

explaining IIF internationalization, future research could consider other levels of processes underlying internationalization and their relations to internationalization. Research that addresses these issues would be constructive in developing knowledge and explanations of modern internationalization, thereby further advancing the IB field.

7.5 Chapter Summary

This chapter recapped the research purpose and findings. This chapter first recapped the purpose and findings of this thesis. Following this, this chapter discussed the contributions of this thesis. The main contributions of this thesis include:

1. extending our current understanding of the internationalization of IIFs by addressing a crucial gap within the field;
2. developing a novel resource co-evolutionary model displaying the internationalization episode patterns of IIFs, the critical knowledge and network resources enabling the persistence of the internationalization episode patterns, and the resource co-evolutionary mechanisms that drive the unfolding of the resource development and internationalization; and
3. extending IB methodology by applying a process approach to multiple qualitative case studies to IB research.

Then, this chapter discussed the implications of the findings of this thesis, which suggest that

1. managers should consider organizational development from a processual view;
2. the internationalization episode patterns identified in this thesis can be used by IIF managers critically in their cross-border development;

3. managers should pay attention to the micro-level antecedents lower than the organization's development as these antecedents allow managers to see the morphogenesis of the complex organizational systems;
4. IIF managers should be aware of the concepts of product logic, user logic, and the complementarity of the organization's associated network members; and
5. managers can use the resource co-evolutionary framework developed in this thesis to analyze their strategic resource development, explore more complex resource opportunities, joint development, and risks, and achieve superior and sustainable organizational performance.

In addition to these implications for managers, this chapter provided implications for professional education and training and suggested tertiary business education, government, and industry, to develop more professional training to improve the labor force's quality for the current and future digital disruption.

This chapter also presented implications for policymakers to provide support and regulation around the development of IIFs, such as

1. creating newsfeed for international market updates,
2. producing industry information,
3. providing reports and forums,
4. organizing short-term training programs, and
5. regulating and monitoring domestic and cross-border private and sensitive data use.

Lastly, this chapter discussed the main limitations of this thesis and recommended directions for future research. Recommendations for future research include

1. to enrich IB process research on IIFs from categorial frames other than IPIs and national boundaries other than New Zealand;
2. to conduct comparative studies on the internationalization patterns of similarity and differences between the IIFs from different categories and economies; and
3. to explore micro-levels of processes underlying IIF internationalization other than knowledge and network resources, their relations to each other, and their relations to internationalization.

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APPENDICES

Appendix 1: Research Information Sheet

School of Management

Massey Business School

Private Bag 102904, North Shore, Auckland 0745, New Zealand

A Co-evolutionary Model for the Internationalization Process of the Internet Intermediary Firms: Evidence from New Zealand

INFORMATION SHEET

Study Description and Invitation

My name is Mian Wu, and I am a doctoral researcher at Massey Business School. I am currently studying the non-linear internationalization of New Zealand Internet Payment Intermediaries (IPIs), and I am quite interested in exploring why and how the non-linear international development of IPIs is driven by the co-evolutionary interactions between organizational knowledge and network resources. My research will contribute to the

literature on behavioral internationalization theories by shedding light on the phenomenon of Internet Intermediary Firms (IIFs) and IPIs and the non-linearity of firm internationalization. Besides, my research will also provide a useful source of information for policy makers and practitioners by illustrating the status quo of New Zealand IIFs and IPIs, and the mechanisms underlying their international development. I hope my research will contribute to the development of international IIFs and IPIs, and I would therefore appreciate your contribution toward this.

Seeking firms that meet the following criteria:

- The company is established in New Zealand;
- The company belongs to IPI sector;
- The company is currently active in at least two countries worldwide;
- The company has at least one employee, one manager, and one entrepreneur that have participated in the firm's international events and is capable of understanding and willing to provide voluntary informed consent before any protocol specific procedures are performed.

Benefits to you and your team:

This is a unique opportunity to participate in a significant study. In additional to the final case study report, this research can provide you with your company's individual data compared against other companies. The researcher can also provide you feedbacks and observations of your practice. Information provided by this research will help you with reflective analysis of your own process and can also improve your current and future international operations as well as those of the industry at large.

Interested?

If your company meets the criteria listed above, and your company is interested in being considered for inclusion in this study, please provide a point person that the researcher can contact for follow up. Direct contact information or questions to Mian Wu at m.wu1@massey.ac.nz or +64273640006.

Participant Rights and Confidentiality

Participation in this study is voluntary, and confidentiality is guaranteed. No identifying information will be presented in the final report. You will also have the right to omit or refuse to respond to any interview question and can terminate the interview at any point without explanation. A summary of findings will be made available, upon request.

Expectations of Selected Case Study Participants

This project will need the case firms to participate and support in various limited ways between May 2018 and November 2019. If selected, your company may expect to be asked to:

- Participate in interviews. This research would like to interview the representative from founders and the middle level professionals who were responsible for the international development of the case company, such as general managers, business development managers/specialists, project managers/specialists, IT staffs, salespersons. Interviews may be face to face or via phone. It is anticipated that each interview will be between 1 to 1.5 hours in length.
- Provide documents. This project will be requesting documents to understand the pattern of the internationalization of the firm and the pattern of the co-evolutionary interactions between knowledge and network resources of the firm.

For Further Information

Should you have any further questions about the study itself, or as a result of participating in this study, you may contact Mian Wu at m.wu1@massey.ac.nz or +64273640006.

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director, Research Ethics, telephone 06 356 9099 x 86015, email humanethics@massey.ac.nz."

Appendix 2: Interview Participant Consent Form

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

School of Management

Massey Business School

Private Bag 102904, North Shore, Auckland 0745, New Zealand

A Co-evolutionary Model for the Non-linear Internationalization Process of the Internet Intermediary Firms: Evidence from New Zealand

PARTICIPANT CONSENT FORM – INDIVIDUAL

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to the interview being sound recorded.

I wish/do not wish to have my recordings returned to me.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: ..... **Date:** .....

Full Name - printed .....

Appendix 3: Confidentiality Agreement

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

School of Management

Massey Business School

Private Bag 102904, North Shore, Auckland 0745, New Zealand

A Co-evolutionary Model for the Non-linear Internationalization Process of FinTech Firms: Evidence from New Zealand

CONFIDENTIALITY AGREEMENT

I_____Mian Wu_____(Full Name)

agree to keep confidential all information concerning the project A Co-evolutionary Model for the Non-linear Internationalization Process of the Internet Intermediary Firms: Evidence from New Zealand..... (Title of Project).

I will not retain or copy any information involving the project.

Signature: **Date:**

....

Appendix 4: Interview Questions

Interview Record

Firm: _____

Name of interviewee: _____

Role & Year(s) of Experience: _____

Date of interview: _____

Introduction

- Starting-up
- Research objectives:
    - The overall international development of NZ Fintech firms
    - Interactions between organizational learning, knowledge, networking, and networks in the international development of NZ Fintech firms will also be explored
- Interview objectives:
    - The interview will be a conversation that chronologically covers different aspects regarding the case firm's international development. Key interview questions are framed around changes in terms of the firm's time and stage of internationalization, inward and outward direction of internationalization, geographic scope, international operation modes, and the subject-domain of the firm's internationalization.
- Use of the information obtained
    - Confidentiality issues: Participation in this study is voluntary, and confidentiality is guaranteed. No identifying information will be presented in

the final report. You will also have the right to omit or refuse to respond to any interview question and can terminate the interview at any point without explanation. A summary of findings will be made available, upon request.

  - Transcribing/translation: All the interviews will be digitally recorded and fully transcribed by the researcher, upon receiving consent from participants. If in Mandarin, the interview will be transcribed and coded in Mandarin first, which is time and cost effective and efficient. Only the findings will be translated into English through the back-translation method – the researcher will translate the findings into English, then two bilingual colleagues will be asked to re-translate the findings back into Chinese to ensure the accuracy of the translation. These two colleagues will sign the transcriber confidentiality forms for this research.

- Tape recording request: The interviewer should ask permission to record the interview. The interviewee should be acknowledged that he/she can switch recorder off at any time if not comfortable. Participants can withdraw their data with 2 days.
- Any other concerns of the interviewee?

Interview Questions

Building Rapport

- Can you briefly introduce your role in the case firm's international development?
- How long have you been in this position?
- Since when did you involve in the case firm's international development?

General Business Development

- When was the company founded?

- ◆ The start of the company's timeline
- What does your business do?
  - ◆ Background information of the company
- How did the initial business idea of the company come up?
- Was there any critical issue(s)/event(s) influencing its establishment?
- Before you set up your business, did you have any relevant knowledge and/or experience in terms of financial technologies?
  - ➢ If you did, can you tell me how did you make use of your prior knowledge and/or experiences setting up this new business?
  - ➢ If you didn't, how did you set up everything at the very beginning?
- Did you have any network resources that can help your start-up?
  - ➢ If you did, can you please tell me how did you make use your business network relationships in setting up your current business?
  - ➢ If you didn't, how did you build up connections within the field at the very beginning? And how did these connections help you set up your business?
  - ◆ International business orientation
  - ◆ Influence of the co-evolution between knowledge and network
- Were there any major problem(s) in kick-starting and surviving the start-up stage?
- Was the problem(s) fully addressed, and how?
- Did you have any prior knowledge and/or experience in dealing with such problem(s)?
  - ➢ If you did, can you tell me how did you make use of your prior knowledge and/or experiences dealing with the problem(s)?
  - ➢ If you didn't, how did you overcome the problem(s)?
- Did you have any network resources that can help you dealing with the problem(s)?

- ➢ If you did, can you please tell me how did you make use your business network relationships in addressing the problem(s)?
- ➢ If you didn't, how did you build up connections to people who are helpful in addressing the problem(s)? And how did these connections help you solving the problem(s)?
- ◆ Co-evolutionary interactions between learning, knowledge, networking, and networks

- Before your company involves in international market, had there been any critical change(s) in the business direction in the course of development? What were these changes? In what ways and how has the change(s) impacted the subsequent development?
  - ◆ Change in business orientation, particularly domestic vs. international business focus.
  - ◆ Any triggers, particularly as the consequence(s) of the co-evolution between knowledge and network

International Business Development

International Expansion

- Can you please tell me how many countries is the firm involved in, and which are they?
  - ◆ Geographic scope
- When, how, and why did the firm build up its business with its first, second, third … international market(s)?

- What product(s) and/or service(s) do you sell or provide in your first, second, third…overseas market(s)? What else did you incorporate from your first, second, third … overseas market(s)?
  - ◆ Time and stage
  - ◆ Inward and outward direction(s)
  - ◆ International operation mode(s)
  - ◆ Subject domain(s)

- Did you have any prior knowledge and/or experience that relevant to your company's international expansion?
  - ➢ If you did, can you tell me how did you make use of your prior knowledge and/or experiences in your company's expansion to its first, second, third … international market(s)?
  - ➢ If you didn't, how did you manage your company's overseas expansion to its first, second, third … international market(s)?
- Did you have any network resources that can help your company expand overseas?
  - ➢ If you did, can you please tell me how did you make use your business network relationships in your company's expansion to its first, second, third … international market(s)?
  - ➢ If you didn't, how did you build up your network connections in the company's first, second, third … overseas market(s)? And how did these connections help your company expand to its first, second, third … overseas market(s)?
  - ◆ Co-evolutionary interactions between learning, knowledge, networking, and networks

- Was there any problem(s) or critical event(s) in the course? Was it fully addressed? How was it addressed?
- Did you have any prior knowledge and/or experience in dealing with such problem(s)?
  - ➢ If you did, can you tell me how did you make use of your prior knowledge and/or experiences dealing with the problem(s)?
  - ➢ If you didn't, how did you overcome the problem(s)?
- Did you have any network resources that can help you dealing with the problem(s)?
  - ➢ If you did, can you please tell me how did you make use your business network relationships in addressing the problem(s)?
  - ➢ If you didn't, how did you build up connections to people who are helpful in addressing the problem(s)? And how did these connections help you dealing with the issue(s)?
  - ◆ Co-evolutionary interactions between learning, knowledge, networking, and networks

De-internationalization

- Has the firm ever exited or experienced any decrease(s) in any of its international market(s) temporarily or permanently?
- When, what, how, and why did the firm withdraw from its international market(s)?
  - ◆ Time and stage
  - ◆ Inward and outward direction(s)
  - ◆ International operation mode(s)
  - ◆ Subject domain(s)
  - ◆ Role and effects of knowledge and/or network relationship(s)

- Was there any problem(s) or critical event(s) in the course? Was it fully addressed? How was it addressed?
- Did you have any prior knowledge and/or experience in dealing with such problem(s)?
  - ➢ If you did, can you tell me how did you make use of your prior knowledge and/or experiences dealing with the problem(s)?
  - ➢ If you didn't, how did you overcome the problem(s)?
- Did you have any network resources that can help you dealing with the problem(s)?
  - ➢ If you did, can you please tell me how did you make use your business network relationships in addressing the problem(s)?
  - ➢ If you didn't, how did you build up connections to people who are helpful in addressing the problem(s)? And how did these connections help you dealing with the issue(s)?
  - ◆ Co-evolutionary interactions between learning, knowledge, networking, and networks

Re-internationalization

- Has the firm re-entered or experiences any re-increase(s) in any international market(s)?
- When, how, and why did the company resume its international business?
- What product(s) and/or service(s) did you sell or provide to the re-entered market? Was it new to the re-entered market, or not? Why?
- What else did you incorporate from the re-entered overseas market(s)? Was it new to the firm or not? Why?
  - ◆ Time and stage
  - ◆ Inward and outward direction(s)

- ◆ International operation mode(s)
- ◆ Subject domain(s)
- ◆ Role and effects of knowledge and/or network relationship(s)

- Was there any problem(s) or critical event(s) in the course? Was it fully addressed? How was it addressed?
- Did you have any prior knowledge and/or experience in dealing with such problem(s)?
  - ➢ If you did, can you tell me how did you make use of your prior knowledge and/or experiences dealing with the problem(s)?
  - ➢ If you didn't, how did you overcome the problem(s)?
- Did you have any network resources that can help you dealing with the problem(s)?
  - ➢ If you did, can you please tell me how did you make use your business network relationships in addressing the problem(s)?
  - ➢ If you didn't, how did you build up connections to people who are helpful in addressing the problem(s)? And how did these connections help you dealing with the issue(s)?
  - ◆ Co-evolutionary interactions between learning, knowledge, networking, and networks

Self-reported Performance

- To what extent has the firm achieved its foreign business objective up-to-date? How do you perceive the role of organizational learning, knowledge, networking, and networks, as well as their interactions in your company's international development?
  - ◆ Potential problems and limitations of development
  - ◆ Perceived role of the co-evolution between knowledge and networks

Business Vision

- How will you see the firm's international development in the future, in terms of internationalization? Why?
- Do you see any potential de-internationalization and/or re-internationalization in your firm's future? Why?

Key Note:

  - Business vision.
  - Potential change(s) - rationale behind.

Exiting Interview

- Is there anything else I might have missed that might be important on the subject of this research? Is there anything you would like to add?
- Do you mind if I can contact you for any further questions and/or information?
- Could you please kindly recommend several individuals either within or outside your firm that might be able to talk about your company's international development?
- Many thanks for your time and help.

Firm: _____

Name of interviewee: _____

Position of interviewee: _____

Email/Tel of interview: _____

Firm: _____

Name of interviewee: _____

Position of interviewee: _____

Email/Tel of interview: _____

Firm: _____

Name of interviewee: _____

Position of interviewee: _____

Email/Tel of interview: _____

Firm: _____

Name of interviewee: _____

Position of interviewee: _____

Email/Tel of interview: _____

Appendix 5: Event Chronologies of the Other Three Case Firms

Appendix 5. 1. *Event Chronology of Venus*

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2009	Founder moved from China to New Zealand.	China and New Zealand	Inward	Founder	Founder majored in computer science for bachelor's study in China.	Founder had a friend in overseas business department of EFG (fictional name).
2015	Received informal cooperation request from the friend in EFG.	China and New Zealand	Inward	Received informal cooperation request from the friend in EFG.	EFG's product logic.	Founder had a friend in overseas business department of EFG (fictional name).
2015	N/A.	New Zealand (Venus was founded in New Zealand)	N/A.	N/A.	EFG's product logic.	Achieved initial intent of cooperation with EFG.
2015	N/A.	New Zealand	N/A.	N/A.	Registered Financial Service Provider (FSP) in New Zealand.	Achieved initial intent of cooperation with EFG.
2016	Venus (China) Technology Ltd was founded.	China and New Zealand	Outward	Venus (China) Technology Ltd was founded.	Talent costs were cheaper in China.	Talent costs were cheaper in China.
2016	In-licensed from EFG.	China and New Zealand	Inward	(1) Partner Identity (PID); (2) Application Program Interface (API) integration document; and (3) EFG's support to integrate to seller users' APIs.	(1) FSP, (2) background system, and (3) IT capacity.	The founder's friend in EFG.
2016	Implemented EFG's API into Venus' background system.	China and New Zealand	Inward	Communication and interaction channel between Venus and EFG.	(1) FSP, (2) background system, and (3) IT capacity.	EFG as supplier.

2016	Out-licensed Venus' product/service to New Zealand merchants.	China and New Zealand	Inward and outward	The right to use Venus' product/service for a period of time.	Product logic and (merchant) user logic.	EFG's Chinese shopper users.
2017	Investment.	China, New Zealand, and Australia	Inward	Investment.	Product logic.	Scale of New Zealand merchant users and potential in Australia.
2017	Venus Australia PTY was founded.	China, New Zealand, and Australia	Outward	Venus Australia PTY was founded.	The market environment of Australia and New Zealand are similar.	(1) Investors' expectation; (2) investors' network; (3) New Zealand seller users' network in Australia; (4) founder's network in Australia.
2017	Authorized by an Australian Financial Service License (AFSL) holder.	Australia	Outward	Compliance qualification in international market.	Authorized by an AFSL holder.	EFG opportunity in Australia.
2017	In-licensed from EFG China to Venus Australia and integrated to merchants in Australia.	China, New Zealand, and Australia	Inward and outward	1) PID in Australia; 2) API integration document; 3) EFG's support to integrate to seller users' APIs.	Venus' business experiences in China and New Zealand country pair.	1) EFG as supplier; 2) investors' network in Australia; (3) New Zealand seller users' network in Australia; and (4) founder's network in Australia.
2017	In-licensed from ABC	China, New Zealand and Australia	Inward	(1) PID; (2) API integration document; and (3) ABC's support to integrate to seller users' APIs.	(1) FSP in New Zealand, (2) AFSL in Australia, and (3) IT capacity.	Scale of merchant users in New Zealand and Australia.
2017	Integrated EFG's and ABC's APIs into a convergent product/service and out-licensed to merchants.	China, New Zealand, and Australia	Inward and outward	The right to use Venus' integrated payment product/service for a period of time.	(1) International counterparts' product logic based on suppliers', and (2) Venus (China) Technology Ltd.	(1) International counterparts, (2) supplier, (3) cloud providers' Chinese shopper users, (4) New Zealand and Australia merchant users, and (5) Venus (China) Technology Ltd.
2018	In-licensed from QRS.	China, New Zealand,	Inward	(1) PID; (2) API integration	(1) FSP in New Zealand, (2) AFSL in	Scale of merchant users in New

		and Australia.		document; and (3) QRS's support to integrate to seller users' APIs.	Australia, (3) successful experience and (4) Venus' product logic.	Zealand and Australia.
2018	Integrated QRS's product/service to Venus' existing integrated product/service and out-licensed to merchants.	China, New Zealand, and Australia	Inward and outward	The right to use Venus' integrated payment product/service for a period of time.	(1) Experience, (2) Venus' product logic, and (3) Venus (China) Technology Ltd.	(1) Suppliers; (2) suppliers' Chinse app users; (3) New Zealand and Australia merchant users; and (4) Venus (China) Technology Ltd.
2018	In-licensed from UVW.	China, New Zealand, and Australia	Inward	(1) PID; (2) API integration document; and (3) UVW's support to integrate to seller users' APIs.	(1) FSP in New Zealand, (2) AFSL in Australia, (3) successful experience and (4) Venus' product logic.	Scale of merchant users in New Zealand and Australia.
2018	Integrate UVW's product/service to Venus' existing integrated product/service and out-licensed to merchants.	China, New Zealand, and Australia	Inward and outward	The right to use Venus' integrated payment product/service for a period of time.	(1) Experience, (2) Venus' product logic, and (3) Venus (China) Technology Ltd.	(1) Suppliers; (2) suppliers' Chinse app users; (3) New Zealand and Australia merchant users; and (4) Venus (China) Technology Ltd.
2018	Exported integrated product/service to a next-tier Japanese agent.	China, New Zealand, Australia, and Japan	Outward	The right to user Venus' integrated payment product/service for a period of time.	(1) Venus' integrated product/service, and (2) Venus (China) Technology Ltd.	Referred by the friend worked in EFG.
2018	Exported integrated product/service to a next-tier Thai agent.	China, New Zealand, Australia, Japan, and Thailand.	Outward	The right to user Venus' integrated payment product/service for a period of time.	(1) Venus' integrated product/service, and (2) Venus (China) Technology Ltd.	Referred by a friend of the founder's.
2018	Withdrew from Australia.	China and New Zealand	N/A.	PIDs were indefinite terminated by ABC and EFG in Australia.	Venus Australia PTY failed to qualify the Anti-Money Laundering (AML) Law of the People's	Venus provided product/service to non-core merchants users in Australia. These non-core merchants led Venus failed to

					Republic of China (PRC).	qualify the AML law of the PRC.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

Appendix 5. 2. *Event Chronology of Mars*

Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2005	Founder moved to Australia.	N/A.	N/A.	Founder.	Founder had IT, banking and financial services background.	Founder had guanxi with ABC, China.
2005-2015	Founder lived and worked in Australia.	N/A.	N/A.	N/A.	Founder worked in a currency exchange company.	Founder worked in a currency exchange company.
2015	Mars New Zealand was founded.	New Zealand	Inward	Head office.	New Zealand's business environment was similar to Australia.	(1) Guanxi with ABC, (2) initial cooperation intention with ABC, and (3) a competitive rival in Australia.
2015	N/A.	New Zealand	N/A.	N/A.	Registered Financial Service Provider (FSP) in New Zealand.	Achieved initial intent of cooperation with ABC.
2015	In-licensed from ABC.	China and New Zealand	Inward	(1) Partner Identity (PID); (2) Application Program Interface (API) integration document; and (3) ABC's support to integrate to seller users' APIs.	(1) FSP, (2) background system, and (3) IT capacity.	Guanxi with ABC.
2015	Implemented ABC's API into Mars' background system.	China and New Zealand	Inward	Interaction channel and transaction interface.	(1) Mars' IT capacity and (2) ABC's support.	ABC as supplier.
2015	Out-licensed to New Zealand merchants.	China and New Zealand	Inward and outward	The right to use Mars' product/services for a certain period of time.	ABC's product logic and merchants' user logic.	ABC's app shopper users.
2016	Mars Australia PTY was founded.	China, New Zealand, and Australia	Outward	Geographic presence.	N/A.	Founder lived in Australia.

2017	Inward foreign direct investment from China.	China, New Zealand, and Australia	Inward	Investment.	Product logic.	(1) The scale of the company's New Zealand merchant users; (2) the scale of ABC's Chinese shopper users; and (3) potential in Australia.
2017	Elaboratin g functions to the company's product/ser vice.	China and New Zealand	Inward and outward	Functions.	Feedbacks from merchant users.	Merchant users.
2017	Inward foreign direct investment from China.	China, New Zealand, and Australia	Inward	Investment.	Mars' product.	This investor was the first investor's friend.
2017	In-licensed from EFG.	China and New Zealand	Inward	(1) PID; (2) API integration document; and (3) EFG's support to integrate to seller users' APIs.	(1) FSP, (2) background system, and (3) IT capacity.	(1) Mars' scale of merchant users; and (2) the emergence of ABC and EFG integrated mobile payment in New Zealand.
2017	Integrated ABC's and EFG's APIs into one product/ser vice	China and New Zealand	Inward	Interaction channel and transaction interface.	(1) Mars' IT capacity; (2) ABC's support; and (3) EFG's support.	ABC and EFG as suppliers.
2017	Out-licensed the integrated mobile payment product/ser vice to merchant users.	China and New Zealand	Inward and outward	The right to use Mars' integrated payment product/serv ices for a certain period of time.	Mar's product logic and user logic.	ABC and EFG's shopper users.
2018	Inward foreign direct investment from Singapore.	China, New Zealand, Australia, and Singapore	Inward	Investment.	Mars' product, business model, and team.	(1) This investor was the second investor's friend; and (2) Mars' business scale.
2018	Integrated to POS.	China and New Zealand	Inward	Business operations.	Successful operations in international markets.	International counterparts.
2018	Authorized by an	Australia	Outward	Compliance qualification	Authorized by an AFSL holder.	The second investor's network in Australia.

	Australian Financial Service License (AFSL) holder.			in international market		
2018	Copied to Australia.	China, New Zealand, and Australia	Multi-directional	(1) PIDs in Australia; (2) API integration document; (3) supplier's support to integrate to Australia seller users' APIs; and (4) managemen t and operations.	Successful experience in New Zealand and China country pair.	(1) Investor's network in Australia, and (2) supplier's support in Australia.
2018	Copied to Singapore.	China, New Zealand, Australia, and Singapore	Multi-directional	(1) PIDs in Singapore; (2) API integration document; (3) supplier's support to integrate to Singaporean seller users' APIs; and (4) managemen t and operations.	Successful experience in New Zealand and China country pair.	(1) The third investor's network in Singapore, and (2) supplier's support in Singapore.
2018	Withdrew from Australia.	China, New Zealand and Singapore.	Multi-directional	PIDs were indefinite terminated by ABC.	Mars Australia PTY failed to meet ABC's compliance requirements.	(1) Non-core merchant users; (2) the loss of ABC's cooperation in Australia.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

Appendix 5. 3. *Event Chronology of Uranus*

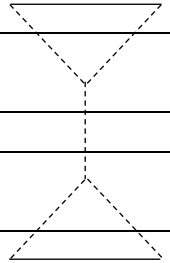
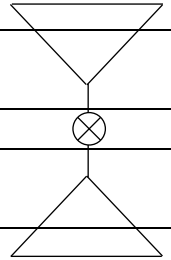
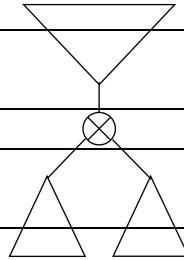
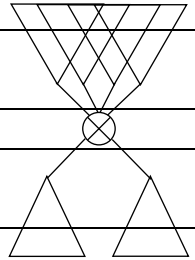
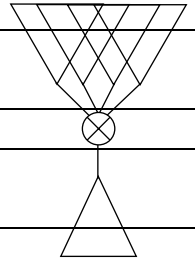
Internationalization					Fundamental Resources	
Time	**Cross-border Event**	**Geographic-Territorial Scope**	**Direction**	**Subject Domain**	**Knowledge**	**Network**
2001	Founder moved to New Zealand.	N/A.	N/A.	Founder.	Founder had IT background.	Founder had guanxi with ABC, China.
2009	Founder's first business in New Zealand was founded.	New Zealand and China	Outward	Consulting services and IT solutions.	Market needs for New Zealand to China cross-border digital retailing and transaction solutions.	New Zealand to China cross-border retailers.
2015	Uranus was founded for ABC's product in New Zealand.	New Zealand	N/A.	N/A.	1) FSP; (2) experience; (3) IT capacity; (4) ABC's opportunity in New Zealand.	(1) Founder was referred to ABC; (2) Uranus' merchant user scale; (3) initial intent of cooperation between ABC and Uranus.
2015	In-licensed from ABC.	China and New Zealand	Inward	(1) Partner Identity (PID); (2) Application Program Interface (API) integration document; and (3) ABC's support to integrate to seller users' APIs.	1) FSP; (2) experience; (3) IT capacity; (4) ABC's opportunity in New Zealand; (5) background system for API implementation.	Initial intent of cooperation between ABC and Uranus.
2015	Implemented API.	China and New Zealand	Inward	Interaction channel and transaction interface.	(1) Background system; (2) Uranus' IT capacity; and (3) ABC's support.	ABC as a supplier.
2015	Out-licensed ABC product to New Zealand sellers.	China and New Zealand	Inward and outward	The right to use Uranus' product/services for a certain period of time.	(1) ABC's product logic and (2) merchants' user logic.	(1) ABC's app shopper users; (2) ABC as the supplier to provide support; and (3) Uranus' merchant user pool.
2017	In-licensed from EFG.	China and New Zealand	Inward	(1) PID; (2) API integration document; and (3) EFG's support to integrate to	1) FSP; (2) experience; (3) IT capacity; (4) competitors' operations; (5) background system	(1) Domestic competitors; (2) seller users' needs; (3) Uranus'

				seller users' APIs.	for API implementation.	
2017	Integrated ABC's and EFG's APIs into one product/service	China and New Zealand	Inward	Interaction channel and transaction interface.	(1) Uranus' IT capacity; (2) ABC's support; and (3) EFG's support.	ABC and EFG as suppliers.
2017	Out-licensed the integrated mobile payment product/service to merchant users.	China and New Zealand	Inward and outward	The right to use Mars' integrated payment product/services for a certain period of time.	Mar's product logic and user logic.	ABC and EFG's shopper users.
2017	New SaaS transaction product/service and scenario.	China and New Zealand	Inward and outward	Interaction channel and transaction interface.	(1) Searching and noticing; (2) in-house R&D; (3) merchant users' needs; and (4) suppliers' supports.	(1) Uranus' suppliers; (2) domestic competitors; (3) international counterparts; and (4) merchant users.
2017	Out-licensed the new product/service for new scenario to merchants	China and New Zealand.	Inward and outward	Multiplying	(1) User logic; (2) product logic; (3) IT capacity; and (4) supports from suppliers.	(1) Domestic competitors; (2) merchants; (3) suppliers; and (4) buyers.
2018	Copied to Australia.	China, New Zealand, and Australia.	Outward	Product/service.	Match of Uranus' product logic; and user logic.	Founder's intension to expand to Australia.

Note. In this table, the cross-border events were first mapped out, and then the compelling account of the resource events desired by the identified cross-border events, were produced. Different events were categorized and elaborated in to as many event categories as possible to maximize "allowing the best fit, the most workable ones, and the core relevancies to emerge on their own" (Glaser, 1978, p. 56).

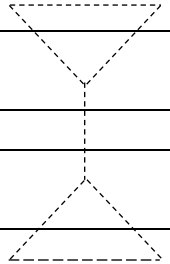
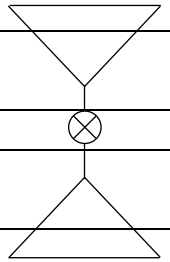
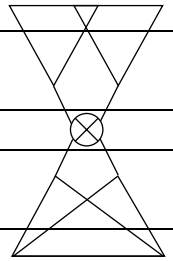
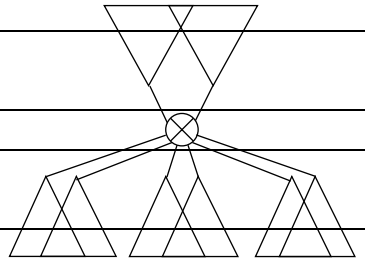
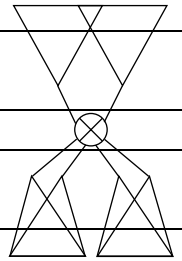
Appendix 6: An Overview of Research Findings from the Other Three Case Firms

Appendix 6. 1. *An Overview of Research Findings from Venus*

Internationalization Episodes		Episode No. 1: Inception	Episode No. 2: Siloing	Episode No. 3: International Replicating	Episode No. 4: Bundling	Episode No. 5: International Withdrawal
The End State of Each Episode	**Buyer users**					
	Third-party platform					
	IIF					
	Communication channel					
	Seller users					
Key Resources	**Knowledge resources**	• Supplier's product logic • Seller user logic	• Supplier's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Non-core seller user logic
	Network resources	• Seller users-to-be • Supplier-to-be • Buyer users-to-be	• Buyer users • Supplier • Seller users	• Buyer users • Suppliers • Seller users • Investors	• Buyer users • Suppliers • Seller users • Competitors	• Non-core buyer users • Suppliers • Non-core seller users

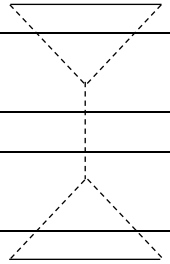
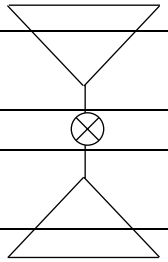
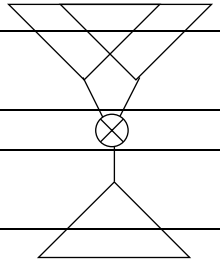
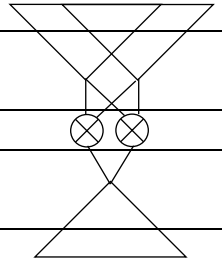
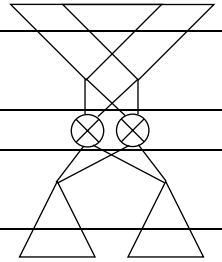
Note. As IIFs integrate and orchestrate interfaces of different network players, to indicate the issue domain within which the internationalization event is associated, the horizontal band of internationalization is divided into buyer user, third-party platform, communication channel, and seller user. The dash line represents the organization-to-be's capability to cooperate with the platform and enable communication between the sellers and buyers, while the solid line means the organization has cooperated with the platform and siloed the communication between the sellers and buyers. The circle at the center represents the IIF's interface.

Appendix 6. 2. ***An Overview of Research Findings from Mars***

Internationalization Episodes		Episode No. 1: Inception	Episode No. 2: Siloing	Episode No. 3: Bundling	Episode No. 4: International Replicating	Episode No. 5: International Withdrawal
The End State of Each Episode	**Buyer users**					
	Third-party platform					
	IIF					
	Communication channel					
	Seller users					
Key Resources	**Knowledge resources**	• Supplier's product logic • Seller user logic	• Supplier's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Non-core seller user logic
	Network resources	• Seller users-to-be • Supplier-to-be	• Buyer users • Supplier • Seller users	• Buyer users • Supplier • Seller users • Competitors	• Buyer users • Supplier • Seller users • Investors	• Non-core buyer users • Non-core seller users • Suppliers

Note. As IIFs integrate and orchestrate interfaces of different network players, to indicate the issue domain within which the internationalization event is associated, the horizontal band of internationalization is divided into buyer user, third-party platform, communication channel, and seller user. The dash line represents the organization-to-be's capability to cooperate with the platform and enable communication between the sellers and buyers, while the solid line means the organization has cooperated with the platform and siloed the communication between the sellers and buyers. The circle at the center represents the IIF's interface.

Appendix 6. 3. ***An Overview of Research Findings from Uranus***

Internationalization Episodes		Episode No. 1: Inception	Episode No. 2: Siloing	Episode No. 3: Bundling	Episode No. 4: Multiplying	Episode No. 5: International Replicating
The End State of Each Episode	**Buyer users**					
	Third-party platform					
	IIF					
	Communication channel					
	Seller users					
Key Resources	**Knowledge resources**	• Supplier's product logic • Seller user logic	• Supplier's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Seller user logic	• IIF's product logic • Seller user logic
	Network resources	• Seller users-to-be • Supplier-to-be • Buyer users-to-be	• Buyer users • Supplier • Seller users	• Buyer users • Suppliers • Seller users • Competitors	• Buyer users • Suppliers • Seller users • International counterpart • Competitors	• Buyer users • Suppliers • Seller users • Competitors

Note. As IIFs integrate and orchestrate interfaces of different network players, to indicate the issue domain within which the internationalization event is associated, the horizontal band of internationalization is divided into buyer user, third-party platform, communication channel, and seller user. The dash line represents the organization-to-be's capability to cooperate with the platform and enable communication between the sellers and buyers, while the solid line means the organization has cooperated with the platform and siloed the communication between the sellers and buyers. The circle at the center represents the IIF's interface.

GLOSSARY

Born globals: "Business organization that, from inception, seeks to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries" (Knight & Cavusgil, 2004, p. 124).

Business network: Connectedness between multiple firms into a form of structure with peculiar properties (Snehota & Hakansson, 1995).

Business-to-Business (B2B): On the internet, business-to-business, which is often short for B2B, refers to the exchange between business organizations, rather than the exchange between business organizations and customers. The business organizations are also named as B-end users.

Business-to-Customer (B2C): On the internet, business-to-customer, which is often short for B2C, refers to the exchange between business organizations and consumers. In B2C mode, the business organizations are labelled as B-end users, and the customers C-end users.

Cloud services: A cloud service is any service made available to users on demand via the Internet from a cloud computing provider's server as opposed to being provided from a company's own on-premises services. Cloud services are designed to provide easy, scalable access to applications, resources and services, and are fully managed by a cloud service provider (Beal, n.d.).

Co-evolution: The influence of closely associated agents on each other in their evolution.

Country: geographic-territorial boundaries.

Cross-side network effects: Cross-side network effects arise when the benefits to members belong to one side (or group) of the multi-sided market are dependent on the size of the other side (number of members in another group) and could be unidirectional or bidirectional (Hagiu & Wright, 2011).

De-internationalization: The process in which a firm exits, or switches to less resource-committed operations in one or more international markets.

Domestic market/home market: The country where firms were founded.

Externalization: An approach to business through which organizations' transactions and value-adding activities are performed external to the firm (Chandra & Coviello, 2010; Chen et al., 2019).

Foreign market/host market: A country that a firm sells into that is different from where the firm was founded.

Infrastructure as a Service (IaaS): Cloud services that provide high-level Application Programming Interfaces (APIs) to dereference various low-level details of underlying network infrastructure.

Internalization: A business approach through which organizations user their own governance to internalize business activities rather than investing in more costly market options (Buckley & Casson, 1976; Williamson, 1975).

International New Ventures (INVs): "Business organizations that from inception, seek to derive significant competitive advantage from the user of resources and the sale of outputs in multiple countries" (Oviatt & McDougall, 1994, p. 49).

Internationalization: From a dynamic perspective, internationalization at a firm level refers to an evolutionary process through which a firm involves in international activities, but at a certain point of time becomes inverted and results in de-internationalization and re-internationalization.

Internationalization direction: A firm's internationalization process may take place in two directions: outward and inward. Outward internationalization in refers to a flow of international operations from the focal firm's domestic market towards its foreign markets, while inward internationalization refers to a set of international operations that take place in the domestic market. Outward and inward internationalization are like mirror images of each other.

Internationalization subject domain: The term refers to what is being internationalized, which is observable within the organizational realm.

Internet Intermediary Firms (IIFs): Firms that establish the basic infrastructure of the Internet by enabling connections, communications, and transactions between third-party firms as well as services and applications.

Knowledge: A resource which is available to the firm and which the firm can use to make a difference to its actions (Kakabadse et al., 2003).

Learning: A capacity of exploiting current knowledge and exploring new knowledge (Knight & Cavusgil, 2004; Weerawardena et al., 2007).

Mode of international operation: The arrangements that a firm uses to conduct international business activities, including export/import, contractual modes (licensing, franchising, and outsourcing), and investment modes (sole venture and joint venture) in accordance with shared characteristics.

Multichannel retail: Multichannel blends the retailing channels and gives consumers choice to engage on the channel they prefer. Retailers need to behave in the confines of the channel.

Multi-sided market: A marketplace that produces value primarily by enabling direct interactions between two or more distinct sides or groups of affiliated members (Hagiu & Wright, 2011).

Network effects: Network effects, also known as network externalities or demand-side economies of scale, refer to the effects that in multi-sided markets one side's benefits from participating in the market depends on the size of the other side (Armstrong, 2006).

Networking: The development, maintenance, and development of network relationships.

Network relationships: Connections between different firms with resource exchange.

Omni-channel retail: Omnichannel is a cross-channel online retailing mode. Rather than working in parallel, communication channels and their supporting resources are integrated and orchestrated to cooperate.

Online-to-Offline (O2O): A new-type business mode that entices consumers to purchase and pay online, and then consume offline.

Platform as a Service (PaaS): Cloud services that provides a platform allowing next-tier users to develop, run, and manage applications without the complexity of building and maintaining the application (Chang et al., 2010).

Processes: "… sequences of events that explain how things change overtime" (Van de Ven, 1992, p. 169).

Product logic: "The development, production, distribution, and support of products" (Gandy & Edwards, 2016, p. 437).

Re-internationalization: The process in which a firm re-enters or renews operations in one or more of its international markets that the firm has de-internationalized.

Resource: At firm level, resource refers to all assets, capabilities, information, knowledge, organizational processes, firm attributes etc. controlled by a firm (Barney, 1991, p. 101).

Same-side network effects: Same-side network effects arise when the benefits to a member participating in a multi-sided market is based on the number of other members on the same side (Parker & Van Alstyne, 2005; Rochet & Tirole, 2003).

Software as a Service (SaaS): Cloud services through software licensing and delivery model in which software is licensed on a subscription basis and is centrally hosted.

Third-party payment firms: Non-bank institutions operating on the Internet that are only indirectly associated with a bank account.

Time: In the chronological perspective, time is absolutely quantitative, measurable, linear and uniform. It exists independently of objects and events, and it is usually understood in relation to a 'clock'. Alternatively, through the social perspective, time can be socially-experienced and constructed, and therefore has a social meaning.

Two-sided market: A two-sided market is an intermediary market having two distinct groups of members that provide each other with network benefits (Hagiu & Wright, 2011).

User logic: In response to a specific usage scenario, the users' automatic habit to use the product (Duhigg, 2012).