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制定興業 IT 能動性：

金融科技產業之多重個案

Enacting Entrepreneurial IT Agency:

The Multiple Cases of FinTech Industry

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制度興業 (Institutional Entrepreneurship) 是指行動者意圖重構特定的制度，並且透過既有的資源來形塑制度。不同於傳統的制度興業聚焦於人類能動性 (Human Agecny)的作用，越來越多的制度興業家(Institutional Entrepreneurs) 透過數位科技創造新的能動性，即透過整合人類與物質的能動性 (Human and Material Agencies)降低制度轉型的障礙。本研究認為此種能動性的結構受到制度興業者與其手邊科技的互動不斷變化，並且根據此種結構的特徵將其稱之"興業 IT" (Entrepreneurial IT)。然而，新的能動性於制度變革中的作用尚未得到完善地研究。儘管社會物質觀點 (Socio-Material) 提供了一個調查人類與物質能動性融合的方法，興業 IT 呈現一種更加動態與複雜的互動，不僅止於固定的融合。考量制度興業文獻受到數位化發展不斷地改變，本研究提出一套混合方法 (Mixed-Methods) - 主路徑分析式個案方法 (MPA-based Case Method)，從既有文獻與探索型個案研究中揭示重要觀點。為了追蹤結構化 (Structuration)與能動性 (Agency)文獻的發展軌跡，本研究首先採用一個系統性回顧方法 - 主路徑分析方法 (Main Path Analysis)形塑一個理論藍圖 (Theoretical Blueprint)，引領本研究蒐集並且分析金融科技產業個案中的興業 IT 現象。本研究藉由主路徑分析的結果以及四個個案的實證提出了一個整合模型，即制度興業家發展興業 IT 的三個維度，包括配置興業資源 (Configuring Entrepreneurial Resources)、混合

能動性(Hybridizing Agencies)和生成科技表演性 (Engendering Technological Performativity)。總體而言，通過討論能動性的相互作用以促進興業 IT 的發展，本研究為以數位為基礎的制度興業以及社會物質性的文獻做出了重要貢獻。

關鍵字：制度興業、興業 IT 能動性、金融科技、混合方法、主路徑分析式個案方法

ABSTRACT

Institutional entrepreneurship refers to actors who intend to restructure specific institutions and leverage resources to build new ones. Unlike traditional institutional entrepreneurship, which mainly focuses on the role of human agency, there is an increasing number of institutional entrepreneurs who adopt digital technologies to produce new agencies, which integrate the human and material agencies and thus lower the barriers to institutional change. This study found that the structure of these new agencies constantly change with the dynamic interaction between institutional entrepreneurs and the technologies at hand and follows their characteristics to term it "Entrepreneurial IT". However, the roles of the new agency on institutional change have not yet been convincingly demonstrated. Despite socio-material perspective offering a way of examining the convergence of human and material agencies, Entrepreneurial IT presents a more dynamic and complex interaction, rather than merely the fixed convergence. Considering the institutional entrepreneurship literature is changing with the development of digitalization, this study proposes mixed-methods - MPA-based Case Method - to identify important aspects of entrepreneurial IT from both existing literature and exploratory case studies. To trace the development trajectory of structuration and agency, this study first conducts a systematic review approach - Main Path Analysis - to form a theoretical blueprint, which guides this study in collecting and analyzing the entrepreneurial IT phenomenon within the FinTech industry cases. Based on the evidence from the MPA results and four cases, this paper proposes an integrated model, including the three mechanisms of enacting entrepreneurial IT, namely configuring entrepreneurial resources, hybridizing agencies, and engendering technological performativity. Overall, by discussing the interaction of socio-material, this study furthers the development of entrepreneurial IT and examines how social and material agencies enact each other, thereby

offering an important contribution to the literature on digital-based institutional entrepreneurship and socio-material.

Keywords: Institutional Entrepreneurship, Entrepreneurial IT Agency, FinTech, Mixed-Methods, MPA-based Case Method

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As British-American writer Simon Van Booy notes, "Coincidences mean you're on the right path." Is pursuing a Ph.D. degree the right decision? When I was an undergraduate student, I invested the money I earned from the projects outsourced to me in a small e-commerce business. But, rather than focusing on the profits, I was more curious about human behavior, which pushed me to pursue life as a graduate student. Yes, I embarked on a road of no return but a road with possibilities of a brighter tomorrow- case study research.

First and foremost, I would pay my deepest thanks to my Ph.D. supervisor and mentor Professor Tzu-Chuan Chou. Thank you for giving me all the opportunities and education necessary to pursue many of my dreams and professional goals. As you told me at the beginning of my academic journey, "*There are 10 buns in your Ph.D. journey, and you need to eat one after another, rather than eat the 10th directly.*" Even today, I still have no idea as to which in the sequence I am eating now, but I know you have guided me to develop solid practices and habits of mind. Your patience and constant support have brought me to where I am today - thank you for guiding me to be a better person.

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Taipei, August 29th, 2021

Chen-Hao Huang

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Institutional entrepreneurship refers to actors who intend to restructure specific institutions and leverage resources to build new institutions (Garud et al., 2007; Maguire et al., 2004). With the development of digitization, humans have adopted IT to perform a new agency for institutional change. For example, Airbnb is an online marketplace for lodging, which can be regard as a platform, providing illegal, at least in the initial stages, rental listings, yet, gradually gaining legitimacy, and thus achieving institutional change (Tseng & Chan, 2019). This study follows the characteristics of digital-based institutional entrepreneurship and names this as "entrepreneurial IT".

1.1 Research Background and Motivation

Entrepreneurial IT inherits the concept of institutional entrepreneurship, which introduces the agency concepts to interpret how actors can transform existing institutional structures. Moreover, entrepreneurial IT is becoming increasingly complex with the growing interaction between humans and technologies. Despite existing research indicating the convergence relationship between them, the approaches regarding how these two agents interact with each other are scant. Considering the intensive interaction, this study urgently needs to develop a more comprehensive understanding to deal with the rapid changes in this novel and dynamic structure.

1.1.1 Entrepreneurial IT as a New Structure

Digitalization has changed the uncertainty of the institutional entrepreneurial process, which implies that both entrepreneurial intention and IT play significant roles

in this changing process, thereby creating new economic value (Hinings et al., 2018; Nambisan et al., 2017). Take Uber as an example: institutional entrepreneurs developed a platform to introduce institutional changes in the institutional field of taxi services, which formed a new agency by leveraging capacities from drivers and algorithms. More precisely, unlike traditional taxi services, Uber drivers could integrate their own experiences and algorithm suggestions to provide passengers with a new car-hailing service. As stated above, entrepreneurial IT is a complex context that involves disruption at an institutional level, and this might lead to the contradiction between humans and technologies, which reveals the needs of exploring the new structure of entrepreneurial IT.

To advance the understanding of this novel structure, this study replaces the agency with "socio-material", because adopting socio-material could offset the dilemma of the traditional agency regarding overlooking the performativity of material by analyzing the convergence of human and material agencies. As existing studies have concluded, neither technology nor human activity should be allowed to be placed in a privileged position in developing a continuing practice because the interaction between these two objects is the most crucial one (Beath et al., 2013; Sarker et al., 2019). Accordingly, this article adopts socio-material to extend institutional entrepreneurship, thus examining how the two agencies' interaction transforms the existing institutional structure.

1.1.2 A Socio-material View of Entrepreneurial IT

Socio-material, proposed by Orlikowski and Scott (2008), suggested taking the connectivity between the technology and social into consideration, and encouraged scholars to pay more attention to the convergence between social and material agencies. This perspective not merely points out the performativity of technological

agencies (Barad, 2003; Cecez-Kecmanovic et al., 2014) but also indicates the importance of the interaction between human and material agencies. As Leonardi (2011) described, human and material agencies imbricate over time, thereby forming a novel structure. Similarly, entrepreneurial IT involves entrepreneurial intentions of humans and emerging technologies of materials; therefore, this article defines entrepreneurial IT as an emerging structure. Yet, the comprehensive implication of using an agency indicates a lack of knowledge of how agencies can support the institutional entrepreneurship. Accordingly, this study digs into the interaction among socio-material to further examine the dynamic nature of entrepreneurial IT.

1.1.3 Ignore the dynamic interaction between human and material agencies

Furthermore, the growing capacity of technological material facilitates the convergence interaction processes and leads the structure to become more dynamic and complex. However, such intensive interaction, not merely the fixed convergence, is highly dynamic. As the previous section mentioned, traditional drivers rely on their experience to discover a popular location for passengers, while Uber drivers gain the precise location of potential passengers by accessing the optimized route from the algorithm. During the service, Uber drivers constantly align their experience and algorithmic information to deliver a more efficient service. By introducing the Uber app, drivers could improve the service quality with a new type of agency, which includes drivers and Uber algorithm agencies. Besides the case of Uber, an increasing number of entrepreneurial IT cases present a more intensive interaction between human and material agencies that could help institutional entrepreneurs change the existing institutional environment.

To investigate the dynamic nature of entrepreneurial IT, this study first reviews structuration, agency, and institutional entrepreneurship literature. Secondly, this

article follows the literature, and constructs an entrepreneurial IT socio-material view. Thirdly, the research focus transforms to the hybrid form of material and human agencies. Finally, this study uses practical cases to examine the entrepreneurial IT agency enactment practices. The research focus of this study is depicted in the figure below (Figure 1-1).

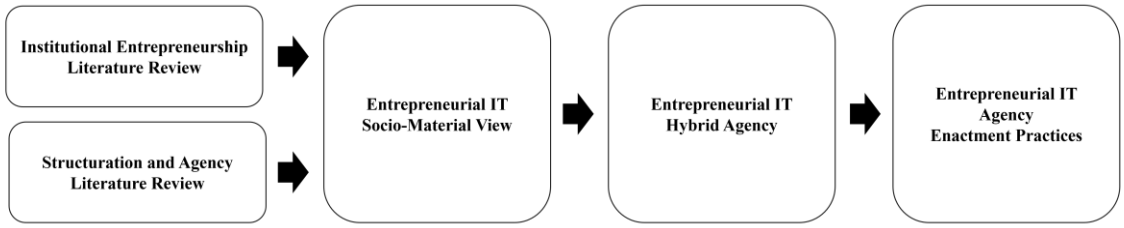

Figure 1-1 Research Focus of This Study

1.2 **Research Questions and Purposes**

To put it briefly, new agency plays a significant role in the entrepreneurial IT, yet there still remain some challenges in dealing with the changing structure, which are as follows: 1) a contradiction between IT and entrepreneurial intention, and 2) the question of how to develop a new agency in dealing with intertwined structures of technological and social processes.

As a result, through mix-methods, this dissertation aims to further the understanding of new agency in entrepreneurial IT. Therefore, this study chooses the FinTech industry as the contextual background to explore the role of new agency within institutional entrepreneurship for the following reasons. Firstly, institutional entrepreneurs have transformed the financial industry through technological innovations (Fu et al., 2021). In more detail, the FinTech context involves a new agency that disrupts existing financial institutions via the interplay between IT and

entrepreneurial agencies, rather than from a single aspect of them. For example, insurers take the vehicle usage data from drivers and provide a reduced insurance premium (Puschmann, 2017), which applies risk evaluation algorithms and insurance staff experience, rather than merely depending on the human experience. This intensive interaction allows us to further examine the dynamic fabric of socio-material in entrepreneurial IT. Secondly, despite FinTech playing a critical role in the business revolution (Abbasi et al., 2021), the FinTech relevant literature is scarce (Hua et al., 2019), especially regarding the practical processes and mechanisms of FinTech service formation. Against this backdrop, this study adopts a socio-material perspective to study entrepreneurial IT with the following research questions:

1) *How the role of IT agency enabled mechanisms in achieving institutional entrepreneurship?*

2) *How these agencies enabled mechanisms interact dynamically?*

1.3 **Research Scope and Process**

Considering the socio-material involves an evolution of IS literature on structuration, this study through a systematic review approach - main path analysis - extracts the highly impactful literature and grounds the result data as a theoretical blueprint. This blueprint, then, guides this study in conducting four interviews with companies that have developed entrepreneurial IT to disrupt the financial industry. By iterating between literature and collected data, this thesis have adjusted and organized the final model.

(1) Research Subjects and Orientation Establishment

This step confirms the fit between research orientation and case companies.

(2) Research Topic Establishment

Through a structuration view of entrepreneurial IT construction, this step explores the role of IT agency enabled mechanisms in achieving institutional entrepreneurship, and explore how these agencies enabled these mechanisms interact dynamically.

(3) Related Data Collection

Data collection can be divided into two parts. On the one hand, this study gathers the literature regarding structuration, agency, socio-material, and institutional entrepreneurship. On the other hand, this research through semi-interviews collects the data of case organizations.

(4) Main Path Analysis

This stage develops the query strategy of structuration and agency and collects academic articles from the Web of Science (WOS) service. Through the key-route main path analysis (MPA), this study extracts the most crucial literature on this domain. Finally, this study conducts grounded analysis on MPA results and initiate a theoretical framework of entrepreneurial IT agency. The research process of this study is presented in the figure below (Figure 1-2).

(5) Case Analysis

Through the case organizations, this step explores the role of agency in entrepreneurial IT, then validate and adjust the initial theoretical model.

(6) Research Results Presented

This step summarizes the finding from the development of entrepreneurial IT agency and envision the future research trends and challenges of institutional entrepreneurship.

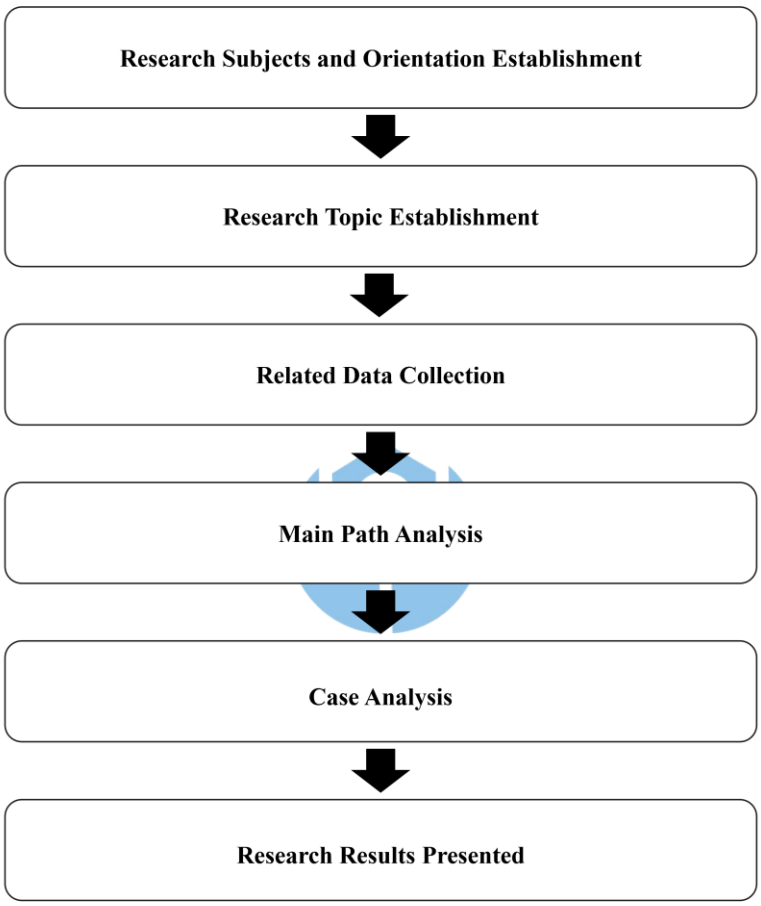

Figure 1-2 Research Process of This Study

1.4 Dissertation Structure

The dissertation is divided into six chapters, the details of which are described as follows.

Chapter 1. Introduction

The first chapter illustrates the research background and motivation, research questions and purposes, research scope and process, and dissertation structure.

Chapter 2. Literature Review

Through the research questions and purposes, this study further discusses relevant literature, including the IT disrupting financial industry and structuration and agency. The first section introduces digital entrepreneurship in finance and institutional entrepreneurship for the financial industry. The second part discusses IS literature on structuration, imbrication of human and material agency, and socio-material agency.

Chapter 3. Methodology

This chapter first introduces the setting of this study, and then discusses the mix-methods, which were designed in this dissertation, and describes the process of this approach, including conceptualizing the phenomenon, tracing the main path in the literature, attaching initial labels, guiding data collection and analysis, refining the initial labels, and identifying the related instances.

Chapter 4. Analysis

This chapter is divided into two parts. On the one hand, this thesis conducts grounded analysis on the result of MPA; on the other hand, this article conducts grounded analysis on the interview data and secondary data.

Chapter 5. Discussion

By going back and forth between the data and the literature, this chapter first explains how the enacted entrepreneurial IT agency model extends the extant socio-material and institutional entrepreneurship literature, and then discuss the details of our analysis approach, which compares the difference between the MPA-based Case Method and qualitative case analysis,

Chapter 6. Conclusion

This chapter introduces the lessons regarding research questions and the limitation and future research, and then explains the theoretical and practical contribution of this dissertation. Eventually, this chapter introduces how this study contributes to methodology.

CHAPTER 2

LITERATURE REVIEW

Digitalization offers a series of opportunities for entrepreneurs to develop new business models in the financial sector. While FinTech services are becoming mature due to greater experience regarding digitalization, their changes at the institutional level are not yet well researched. Therefore, this chapter will first introduce digital entrepreneurship in finance to offer a foundation for recognizing FinTech and later illustrate the institutional entrepreneurship for financial innovation to discuss the formation of a new institution.

2.1 IT Disrupting the Financial Industry

In order to realize the role of the new agency during the process of institutional entrepreneurship and the interaction between social and material agencies, this chapter first articulates how IT disrupts the financial industry, and afterwards discusses the structuration and agency.

2.1.1 Digital Entrepreneurship in Finance

Digital entrepreneurship, which refers to an emerging economic activity formation embodied in or enabled by digital technology (von Briel et al., 2021), is the intersection of digital technologies and entrepreneurship. Some examples of this include stimulating entrepreneurial endeavors that have crossed the industry boundaries (Autio et al., 2018), reshaping the form of the existing entrepreneurial network (Du et al., 2018), accelerating the evolutionary speed of new ventures (Huang et al., 2017). Despite IT overcoming information barriers to provide digital entrepreneurs with new opportunities, they still have to take the risk of operating

within an uncertain environment, which is similar to conventional entrepreneurship (Leong et al., 2020).

Among various industries where digital entrepreneurship is found, the FinTech arouses a significant interest since this industry plays a significant role in global economics, which has undergone a dramatic change through the employment of numerous digital technologies (Buchak et al., 2018; Gomber et al., 2018; Gozman et al., 2018). Digitalization allows entrepreneurs the opportunities to create an ever-increasing set of market niches with innovative approaches to meet customer preferences (Kolokas et al., 2020; Thakor, 2020). More specifically, FinTech entrepreneurs leverage technological capabilities to re-imagine the traditional financial products, services, and capabilities, and thus reduce barriers to entry into the financial market (Gozman et al., 2018). For example, a start-up, Wealthfront, developed a Robo-advisory platform to service those who cannot invest the minimum investment required by traditional wealth managers, and reached its first $1 billion in assets in less than two and half years after its market entry (Jung et al., 2018). However, the tension between traditional banking and FinTech reveals a more complicated aspect due to the hybrid structure of banking (Leong et al., 2017; Ravishankar, 2021). Such structures are premised on notions of digitalization and institutionalization and embed the non-banking background actors in the banking "institutional" field, thereby restructuring the existing cognition of those in the banking field and legitimizing the innovative ideas from the non-traditional "outsiders."

2.1.2 Institutional Entrepreneurship for Financial Innovation

As a matter of fact, FinTech service creation involves institutional entrepreneurship, which disrupts the existing business models in the financial field,

rather than merely digital entrepreneurship because institutional entrepreneurship is an approach that combines aspects of established institutional logics, a new organizational form has been developed from it (Tracey et al., 2011). According to DiMaggio (1988) definition, Institutional entrepreneurs refer to actors who disrupt extant logics by deploying new institutions, and thus to further the particular interests which have been suppressed before. Similarly, FinTech entrepreneurs create values for specific targets by leveraging new technologies to deliver novel services that are unable or not allowed in traditional institutions. Take crowdfunding as an example: entrepreneurs create a platform to raise funding from the crowds who are willing to invest in future products or services (Bruton et al., 2015), without the involvement of traditional financial institutions.

The concept of institutional entrepreneur start with the introduction of Eisenstadt (1980), which interpreted how actors make a contribution to changing institutions, and appropriated agency perspective to analyze the process of institutional change (DiMaggio, 1988). Yet, introducing agency into institutional theory involves a paradox regarding a tension between institutional determinism and agency. Because, traditionally, institutional theory emphasizes the actors' behavior affected by institutional pressures while the introduction of human agency in institutional theory could lead to the institutional pressures being ignored (Seo & Creed, 2002). To avoid breaking the essence of institutional theory, agency-focused theories have become an alternative option in organizational analysis.

More recently, the research by Battilana et al. (2009) acknowledged the risk of this dilemma, and argued that the concept of institutional entrepreneurship can locate a core point of institutional theory development because this concept allows researchers to explore the character of human agency in institutional transformation.

Likewise, York et al. (2016) bridged the connection between field-level change and agency, and indicated that an organization's decision-making and its continuing and cumulative actions enable it to manage the institutional complexity.

Since the financial crisis, the challenge of reshaping traditional institutions has assumed greater importance (Battilana et al., 2009). Subsequently, an increasing number of entrepreneurs have used digitalization to reform existing financial institutions. However, such change might encounter a series of institutional challenges that pose organizational, technological, and legal difficulties. To examine how the different types of forces and actors initiate a response, this study adopts institutional entrepreneurship as a contextual background for this study, and thus furthers our understanding of the role of agency in combating the institutional power.

2.2 Structuration and Agency

This section introduces IS literature on structuration to start with, and then discusses imbrication of humans and materials. Ultimately, this study examines socio-material and its agency.

2.2.1 IS literature on Structuration

Giddens (1979) proposed the concept of structuration, which refers to actors, through three modalities of facilities (e.g., land, buildings, technology), norms (e.g., conventions of accepted behavior), and interpretive schemes (e.g., accumulated knowledge), adjusting the social action, thereby enacting rules and resources (Giddens, 1990). And afterwards, Orlikowski (2000) proposed “practice lens”, introducing this recursive constitution in IS discipline to discuss another structure – technology-in-practice (See Figure 2-1). Specifically, people draw on the properties comprising technological artifacts, the usage approach specified by designers or users,

and their accumulated experience, skill, as well as technology relevant knowledge and the use (Orlikowski & Gash, 1994). In doing so, people enact a series of particular rules and resources, and this serves to rebuild a structure of technology use iteratively. By interacting with the structures embedded within technology, humans can generate a capacity - human agency, which empowers decision rights to use the technology in different approaches (Boudreau & Robey, 2005), thereby helping people in achieving their goals.

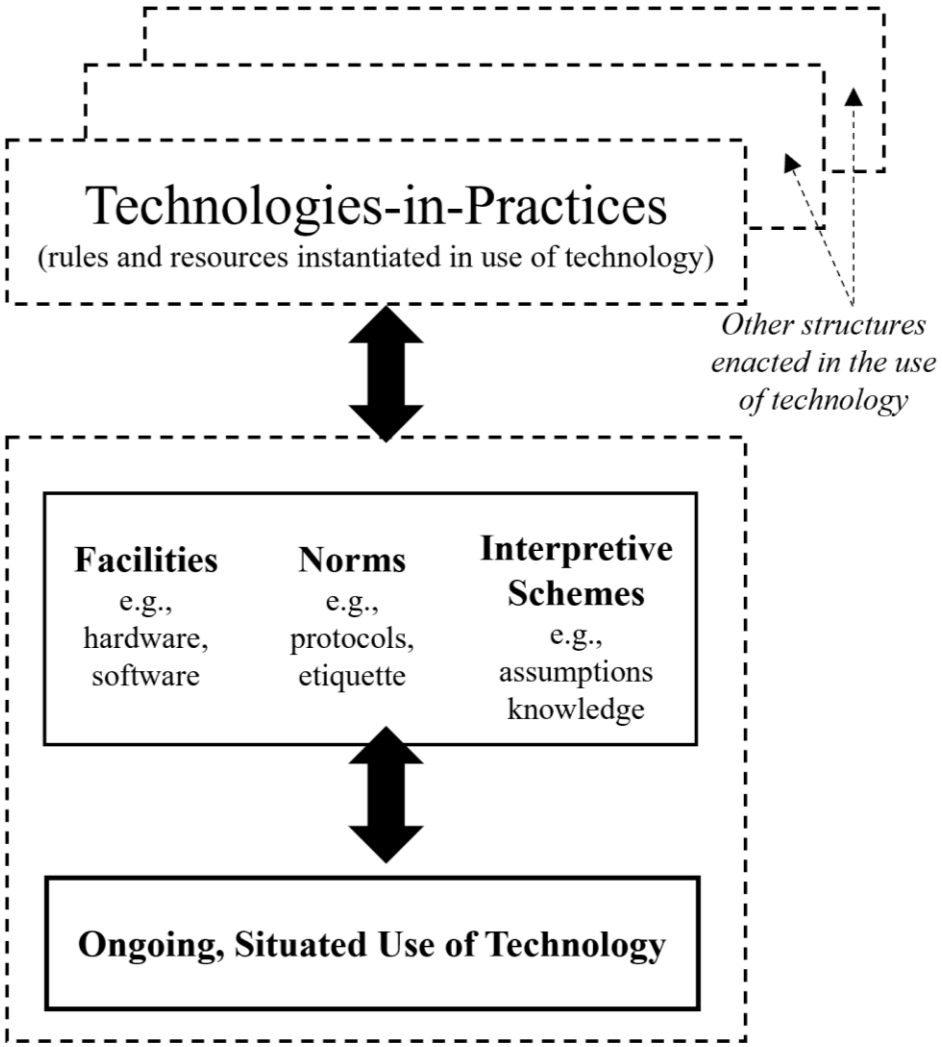

Figure 2-1Enactment of Technologies-in-Practices

Adapted from Orlikowski (2000)

As Giddens (1990) suggested, “structure and agency are a mutually constitutive duality”, and be viewed social phenomenon as a product of their interplay. More concretely, human agents employ social structures (rules and recourses) in their activities, and meanwhile, these activitites reconstitute another social structure (rules and resources) (Jones & Karsten, 2008). Moreover, Orlikowski (2000) conceptualized technology use as a fundamental characte of structuration, which locates technology in a central point of an organizational field. Based on this perspective, this study views entrepreneurial IT as a structure, and that structuring by the recurrent practices between IT and entrepreneurs, in turn, enacts the different methods of IT usage.

2.2.2 Imbrication of Human and Material Agency

The enactment of digitalization does not rely on any single aspect of IT and humans. On the one hand, human agency has either resisted or reinvented IT, which has reduced the role of IT in an organization (Boudreau & Robey, 2005; Chu & Robey, 2008; Wilkin et al., 2013); On the other hand, an institutional logic has been embedded in IT, and it then guides and constrains human behavior (Gosain, 2004; Jensen et al., 2009), which can be termed as “material agency”. This agency refers to nonhuman entities employing their capacity to act upon the given information, without any human intervention.

In light of the importance of the interaction between human and material agencies, extant studies suggest characterizing this interaction as a process of imbrication (Ciborra, 2006; Taylor, 2007). Acknowledging this characteristic, Leonardi (2011) considers that the imbrication of human and material agencies could generate an infrastructure for routines and technologies. Despite the fact that both routines and technologies are generated by the combination of human and material agencies, the different configurations could constitute different outputs. As Figure 2-2

shows, the routine is depicted as a circle constituting of material agency (M1) and human agency (H1), while the same human agency (H1) could integrate with another material agency (M2) to generate technology, which can be illustrated as a square. To illustrate this figure, this thesis takes an example as follows. When deploying an ICT into an organization, humans could decide how to use this ICT to collaborate in the work environment or sustain a traditional communication approach. Although ICT could help humans to send and receive text messages, and form a new organizational routine, the text format is not an efficient way to describe an urgent situation of work, which leads humans to perceive the constraints on such technology. Therefore, humans add an image transfer function into ICT to form innovative technology. By introducing the imbrication concept, researchers could pay more attention to material agency, such as the constraints of technologies or their affordance, thereby improving the explanations of institutional change.

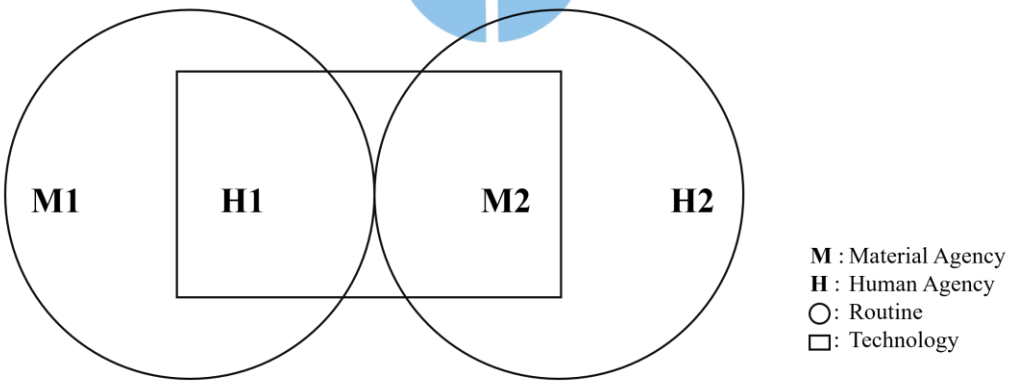

Figure 2-2 Imbrication of Human and Material Agencies Produces Routines and Technologies

Adapted from Leonardi (2011)

The concept of imbrication offers a way for researchers to observe the hybrid fabric of human and material agencies, yet the practice related to the role of agency in institutional change is scant. More concretely, this study agrees that the imbrication

perspective could further the understanding of the structure between technologies and humans and its potential outcomes. Most importantly, to make this view more practical, this article suggests developing a comprehensive understanding of how social and material agencies facilitate the process of institutional entrepreneurship.

2.2.3 Socio-Material Agency

Despite practice lens providing a way of observing how technologies change existing institutions and arouse increasing attention in the organizational field (Baptista, 2009), the lens encounter critiques of the overly socialized view of technology (Leonardi, 2013). In this view, technology is only a peripheral player around the users. To counter the critique, Orlikowski (2007) follows the inextricable characteristic of social and material, and proposes "socio-material" as a native IS theory, and then notes, "*There is no social that is not also material, and no material that is not also social.*" After that, the research by Leonardi and Barley (2010) interprets social as human agency (e.g., individuals, groups, organizations), and elucidates material agency, which can be divided into visible artifacts (e.g., chairs, computers) or invisible ones (e.g., networks, algorithms). The interaction among them forms a set of socio-material practices covering every action and interaction that occur inside organizations (Bouncken et al., 2021).

While materials can perform the agency by themselves, human practices widen the scope of social structure by materials and social interaction(Leonardi, 2013). Or rather, the technologies are formed by institutions, and in turn, enable humans to develop institutional reform (De Vaujany et al., 2019; Pascucci et al., 2021). Adopting a socio-material perspective encourages both social and material entities to be treated equally and thus allows researchers to dig into how the socio-material agency has driven the formation of institutional work. However, with the development of digital

technologies, the convergence concept is not enough to present the dynamic interaction between social and technological materials. For example, unlike as in the past, the algorithms not only guide humans to conduct the decision-making but also refine their suggestions upon the changing environment. More precisely, considering the ambiguous mechanisms regarding how these two agents interact with each other, this study, therefore, aims to further the knowledge regarding the agencies interaction.

CHAPTER 3
RESEARCH METHOD

3.1 **Setting**

Our research setting is digital entrepreneurship and agency that was in the digital innovation process of emergence around a new industry called “FinTech” (e.g., predicting and identifying potential insurance claim frauds in a more precise way). This setting is attractive to our research for following reasons. First, FinTech is different from traditional institutional entrepreneurship because the growing capacity of IT allows institutional entrepreneurs to complete tasks which they were unable to conduct before. Second, despite existing literature providing a plentiful description of the structure of humans and technologies, the interaction between institutional entrepreneurs and digital technologies presents a different illustration, which is a more dynamic and hybrid form of agency. Therefore, this study employs the FinTech case studies to dig into the entrepreneurial IT agency.

To examine the research question regarding how the role of IT agency enabled mechanisms in achieving institutional entrepreneurship, and how the agencies enabled mechanisms to interact dynamically this study choose the mixed-methods. In addition, there two other reasons for that decision First of all, this study attempts to appropriate case study to answer a ‘how’ question (Walsham, 1995), yet the question involves a conceptual discussion. This study, thus, suggests first conducting a systematic review approach to deeper the understanding of structuration and agency literature before analyzing the cases. Second, the concept of institutional entrepreneurship is changing with the development of digitalization, which reveals complex phenomena that are within an institutional context. This research background makes it more suitable to

trace the development trajectory of literature, which provides researchers with hints to investigate a particular research focus, and through relevant stakeholders' interpretations, to distinguish the difference between institutional entrepreneurship that they developed and extant studies.

3.2 **The Mix-Methods Design**

Considering the changing nature of the context within IS field, this study proposes a mixed-methods - MPA-based Case Method to identify important aspects of entrepreneurial IT from both existing literature and exploratory case studies. Mixed-methods refer to a research design that uses more than one research method or worldview, such as adopting quantitative and qualitative research approaches jointly in a single research inquiry (Tashakkori & Teddlie, 2003; Tashakkori et al., 1998). As the study by Venkatesh et al. (2013) suggested, mix-method designs could be a useful approach when researchers have encountered a dilemma in extracting major insights from existing theories and perspectives.

In reality, adopting two research methods in a single research inquiry is a major challenge, especially when the combination between subjectivism and objectivism is involved. Regarded superficially, the differences between both philosophical strands of thought are fundamental (Huizing, 2007). In objectivism, human behavior is seen as the result of forces acting out in the external world, which is difficult for people to control or comprehend. Compared to the objective of objectivism, subjectivism provides an alternative account of human experience and understanding (Lakoff & Johnson, 1980). Such subjectivist thinking not only helps scholars unfold the imaginative rationality but also strikes a balance between the world of objects and subjects (Huizing, 2007). More specifically, subjectivism presents a role of complementation in worldview by furthering the understanding regarding the internal

aspect. In this view, the combination of subjectivism and objectivism could enrich each element, and reflect a comprehensive view in understanding of the world alone.

Despite the literature indicating that mixed-methods research can present novel insights into IS phenomena that a single method may not be able to provide, it suggests IS scholars evaluate the appropriateness of mixed-methods in their research setting, such as research question, objectives, and context, and then capitalize on their strengths (Venkatesh et al., 2013). For example, existing literature recognized mixed methods as a way of dealing with the fragmented, inconclusive, and equivocal research field (Wunderlich et al., 2019) because this approach could offer a holistic understanding of a phenomenon (Venkatesh et al., 2016). In other words, the context of a phenomenon is the predominant driver of mixed-methods selection.

Considering our research questions regarding the increasingly dynamic relationship between human and digital material agencies, this study chooses the mixed-methods as our research methodology and the reasons are as following. Firstly, existing theory indicates the dynamic characteristics between human and IT, yet provides extremely limited explanation for the rich interaction between institutional entrepreneurs and algorithms. More specifically, the interaction between human agency and material agency is changing with the development of algorithms because the growing capacity of the algorithms has transcended the understanding of material agency in society by bounding the action space of individuals and diminishing their discretion (Faraj et al., 2018). For example, Uber drivers are watched and scrutinized by the algorithms, and even may be instructed to drive to the rider's pickup location and theirs requested destination (Möhlmann & Henfridsson, 2019), rather than depending on drivers' experience. Accordingly, due to the limitation of agency theory, this study aims to modify and extend it to explain the emerging phenomenon. More

specifically, this limitation makes iteratively aligning literature with the emerging context become more crucial. Hence, this study conducts MPA to extract the critical literature and organize an initial framework, and then through interpretive perspective, use the interview data to validate and modify the framework. See Figure 3-1 for the different phases of our study.

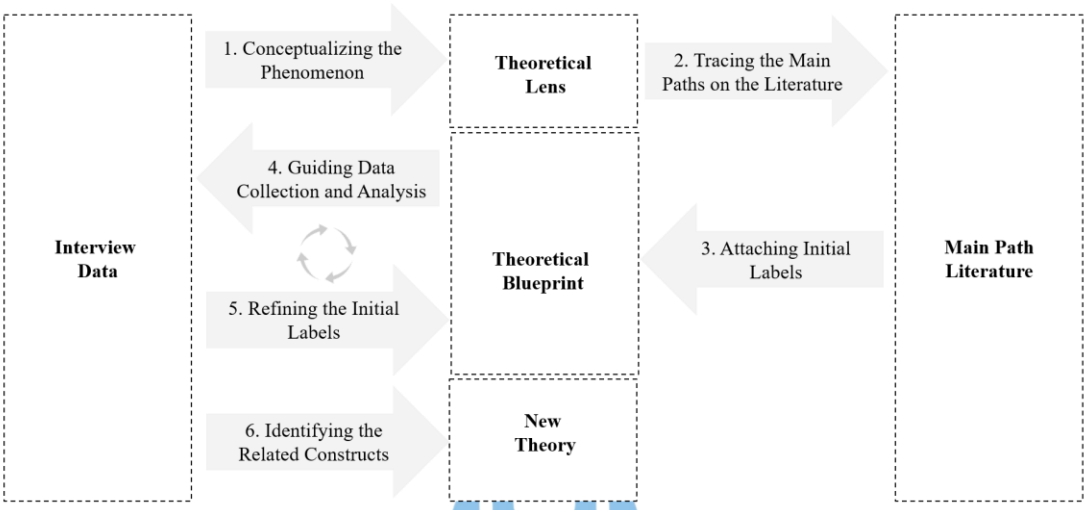

Figure 3-1 The process of MPA-based Case Method

3.2.1 Conceptualizing the Phenomenon

To identify a number of candidate theories, pertinent to the issues of the phenomenon under study, researchers are encouraged to constantly evaluate whether theoretical preconceptions are simply taken for granted and misleading to research (Strauss & Corbin, 1998), or inhibit the acceptance of emergent data (Walsham, 1995). Most importantly, based on a foundation with a wider range of theories, researchers are able to keenly sense the potential theoretical lens and propositions of interest (Pan & Tan, 2011). By iterating among the relevant theoretical objects, an explicit and appropriate theoretical orientation of the phenomenon under study is obtained.

3.2.2 Tracing the Main Paths in the Literature

Traditionally, researchers have followed the theoretical orientation to review existing literature on the theoretical object. Yet, such a process may encounter

difficulties such as those that follow. Firstly, research beginners may be unfamiliar with the literature; they might be unaware of what has not been studied, for example (Pan & Tan, 2011). Secondly, the theoretical constructs highly depend on the subjectivity of a researcher. For example, a researcher may select the framework from high-prestige journals or publishers (Starbuck, 2005), rather than critical ones. Therefore, this study through the main path analysis extracts the most impactful studies from the literature on a particular theory, and then through grounded analysis derives an integrated theoretical blueprint.

Main path analysis (MPA) was first introduced by Hummon and Doreian (1989), and since then, has been recognized as a way of uncovering the knowledge diffusion trajectory of a target field (Ho & Liu, 2021; Huang et al., 2021; Liu et al., 2017; Liu et al., 2019, 2020). Considering the purpose of this step is to extract the most crucial knowledge from literature, this study follows key-route search, which was proposed by Liu and Lu (2012), to extract the knowledge diffusion of this theoretical background. This study adopts key-route search because this approach delivers more than one main path, thus including the most important citation links.

Main paths in a citation can be identified in two stages. The first stage assigns a traversal count to each citation link in a citation network, which transforms a non-weighted citation network into a weighted one (Cho et al., 2021). In this study, this article follows the suggestion by Liu et al. (2019), using the SPLC algorithm to measure the significance of a citation link. The second stage searches for the main paths based on the adjusted traversal counts between any two articles.

In MPA, the citation network is direction sensitive and includes four categories of nodes: sources, sinks, intermediates, and isolates. A source represents a node that is cited by other nodes but cites no others while a sink is a node that cites other nodes

but is not cited by others. An intermediate node cites other nodes and is also cited by others; an isolated node has no referencing relationship with others.

3.2.3 Attaching Initial Labels

Next, this thesis adopts grounded theory as an analysis method to systematize the literature reviewing process for more newly integrated ideas that contribute to theoretical development (Wolfswinkel et al., 2013). As extent studies have described, forming a qualitative understanding of the context of the study plays a significant role in exploring the key concepts within the phenomenon of interest (Hernes, 2007; Langley, 1999; Levina & Vaast, 2015). Therefore, the open coding technique of grounded theory (Strauss & Corbin, 1998) was adopted to analyze the MPA results and to identify the novel qualitative understanding and properties emerging from existing literature without any preconceptions (Charmaz, 2006). To reduce overlap in the number of descriptive concepts, this article reviewed and abstracted as many as possible, thereby formulating three preliminary dimensions.

3.2.4 Guiding Data Collection and Analysis

As the extant literature have stated, the researcher who collects data without first studying the literature is a pervasive misconception (Andrew, 2006; McCallin, 2003). As a matter of fact, the grounded analysis relies on rigorous analytical procedures and theoretical sensitivity, which originates from the understanding of existing studies (Urquhart & Fernández, 2016), rather than ignorance of the existing research. Considering the importance of theoretical foundation, this study uses the blueprint, which generates from the results of key-route MPA, to help researchers have a basic understanding of relevant theoretical objects. The blueprint plays a critical role in data collection and analysis. Regarding data collection, the blueprint guides researchers in conducting interviews with companies that have built entrepreneurial IT to reform the financial industry. In terms of data analysis, the blueprint guides researchers to

analyze the critical elements of the case studies by providing a series of key terms in this domain.

3.2.5 Refining the Initial Labels

The theoretical blueprint integrates a relatively comprehensive understanding of the social phenomenon from the very beginning. Yet, some parts of the theoretical blueprint may change with the rapid evolution of society and advance of technology. Therefore, further interviewing becomes a critical approach to discovering groundbreaking ideas (Eisenhardt, 1989; Ye et al., 2021) and better explaining the novel elements from the changes in the phenomenon. In this step, this study spends considerable effort iterating between theoretical blueprints and the descriptive concepts, generated from the cases.

3.2.6 Identifying the Related Instances

Finally, this study further analyzes the interaction between institutional entrepreneurs and emerging technologies. More precisely, this study adopts open coding to analyze the development trajectory and the concrete outcome behind introducing emerging technologies into another institutional environment (Henfridsson & Yoo, 2014). Then, this thesis uses the action formation mechanism (Hedström et al., 1998), to identity the three potential mechanisms (second-order themes), which involves configuring entrepreneurial resources, hybridizing agencies, and engendering technological performativity. Eventually, this study follows a coherent logic to aggregate the second-order themes into an aggregated dimension – entrepreneurial IT agency.

3.3 **Data Collection**

3.3.1 Case Study

This thesis chooses the FinTech industry as our research setting because the interaction between institutional entrepreneurs and digital technologies presents a more dynamic and hybrid form of agency. First, the FinTech industry has transformed the structure of the banking industry and provides an opportunity to further discuss the novel agency during this change. Second, financial entrepreneurs who have been recognized as institutional entrepreneurs draw on digital technologies to disrupt a series of traditional banking services.

This study uses theoretical sampling to select cases, which involves the cases selection for building theory (Eisenhardt & Graebner, 2007; Tidhar & Eisenhardt, 2020). In more detail, this article uses patterns from MPA to analyze four business categories. This study first selected a P2P lending company because this category is the largest market segment in the worldwide online alternative finance. Then, this article selects an intelligent insurance company and intelligent investment company separately because these two innovative financing solutions have different market segments; one leverages open data to help insurers cut their operating costs, another customizes the user interface of stock apps, which improves the investing knowledge of investors. Finally, this study selects a pet insurance platform, which facilitates the claim process by digitally managing pet insurance.

To increase the validity of the study, this study complied information from multiple data sources, including semi-structured interviews, and public sources. The data was collected between April 2021 and June 2021. In total, this study conducted eleven semi-interviews with a total of eight respondents. All respondents were CEOs

and IT teams who have participated in the development of FinTech services. A summary of data collection is depicted in the table below (Table 3-1).

Table 3-1 Summary of the four cases in data collection

Company	Data Sources	Establish Reliability & Validity
Company A	● 1 Semi-Structured Interview (length: 95 minutes) with 1 Respondent (CEO) ● Public Sources: Websites, and Online Articles	● This study used the triangulation of evidence, which is cross-checking data from multiple sources for increased credibility and validity (Denzin & Lincoln, 1994). ● Theory generalization by recursively validating with both the context of case data and the relevant theoretical concepts (Klein & Myers, 1999; Pan & Tan, 2011).
Company B	● 1 Semi-Structured Interview (length: 72 minutes) with 1 Respondent (CEO) ● Public Sources: Websites, and Online Articles	
Company C	● 3 Semi-Structured Interview (length: 83 minutes) with 2 Respondent (CEO and User) ● Public Sources: Websites, and Online Articles	
Company D	● 6 Semi-Structured Interviews (length: 208 minutes) with 4 Respondents (CEO, CFO, Director, and Engineer) ● Internal Archival Materials: Project Sliders ● Public Sources: Websites, and Online Articles	

3.3.2 Literature Search

This article collects scholarly studies and related citation data by utilizing the SSCI and SCIE databases of the Web of Science service. Due to the research focus on the interaction between technology and humans, this study draws on the structuration and agency-related concepts, and then trace the highly cited studies to list the relevant keywords, such as "human agency", "materially agency", "socio-material", and so on. Moreover, this article also excludes the keywords that are of low relevance to our topic. For example, agency theory could be used in corporate governance, or agency problems inherent in franchising. Therefore, this study eliminates the keywords "franchis*" or "compensation" or "incentive*". The search strategy is presented in Table 3-2.

Considering the most significant paper appeared in 1992, this study sets the query period from January 1, 1991, to July 24, 2021, with results in a total of 1,146 papers. this study further gathers the citation information of these papers from the WOS database and use it to build the citation network that has become the foundation for MPA.

Table 3-2 Search strategy and key words used

Database	Web of Science
Search Strategy	TS=(("technological artifact*" or "IT artifact*" or "IS Artifact*" or "IT Research" or "IS Research" or "technolog*" or "information system*") and ("human agency" or "social agency" or "material agency" or "technological agency" or "technical agency " or "socio-technical agency " or "structuration" or "structurational" or "sociomaterial*" or "socio-material*")) NOT TS = ("franchis*" or "compensation" or "incentive*")
Document Type	Article OR Early Access OR Review
Time Span	From January 1st 1991 to July 24th 2021

3.4 **Data Analysis Approach**

This study first familiarized four fintech companies by surveying the public sources and observing the social media regarding how to introduce their innovative service. This "netnography" strategy provides a basic understanding of novel financial business regarding the institutional change and allowed researchers to trace the critical topics (Kozinets, 1998; Perkmann & Spicer, 2014), such as how entrepreneurs change the existing institution and the role of technologies in such FinTech business development, thereby delivering potential theoretical objects: structuration, agency, and socio-materials. To unravel the complexity of the evolution of the agency and structuration literature, this study adopted a systematic review approach - Main Path Analysis (MPA) to trace the knowledge diffusion of this field (Liu & Lu, 2012). This

study then identified the key activities of social and material agencies from the results of MPA, and gained a blueprint with three dimensions, namely, recombination (human agency), structuring (structure), and performing (material agency). And afterward, the blueprint guided this study in conducting interviews with companies that have built entrepreneurial IT to reform the financial industry. In this process, the study reexamined the data sources (interviews, observations, and public sources) summarizing similarities and differences, and then identified initial concepts and conducted open coding to classify them into first-order categories (Perkmann & Spicer, 2014). Afterward, this research operated coding technique again aimed at inductively establishing how agencies interact with others, and classfied the first-order concepts into higher-level (more abstract) second-order themes by iterating data, emerging patterns, and the literature (Eisenhardt, 1989). The second-order themes included configuring entrepreneurial resources, hybridizing agency, and engendering technological performativity, which came to represent an aggregated dimension - enacting entrepreneurial IT agency. The coding structure is depicted in Figure 3-2.

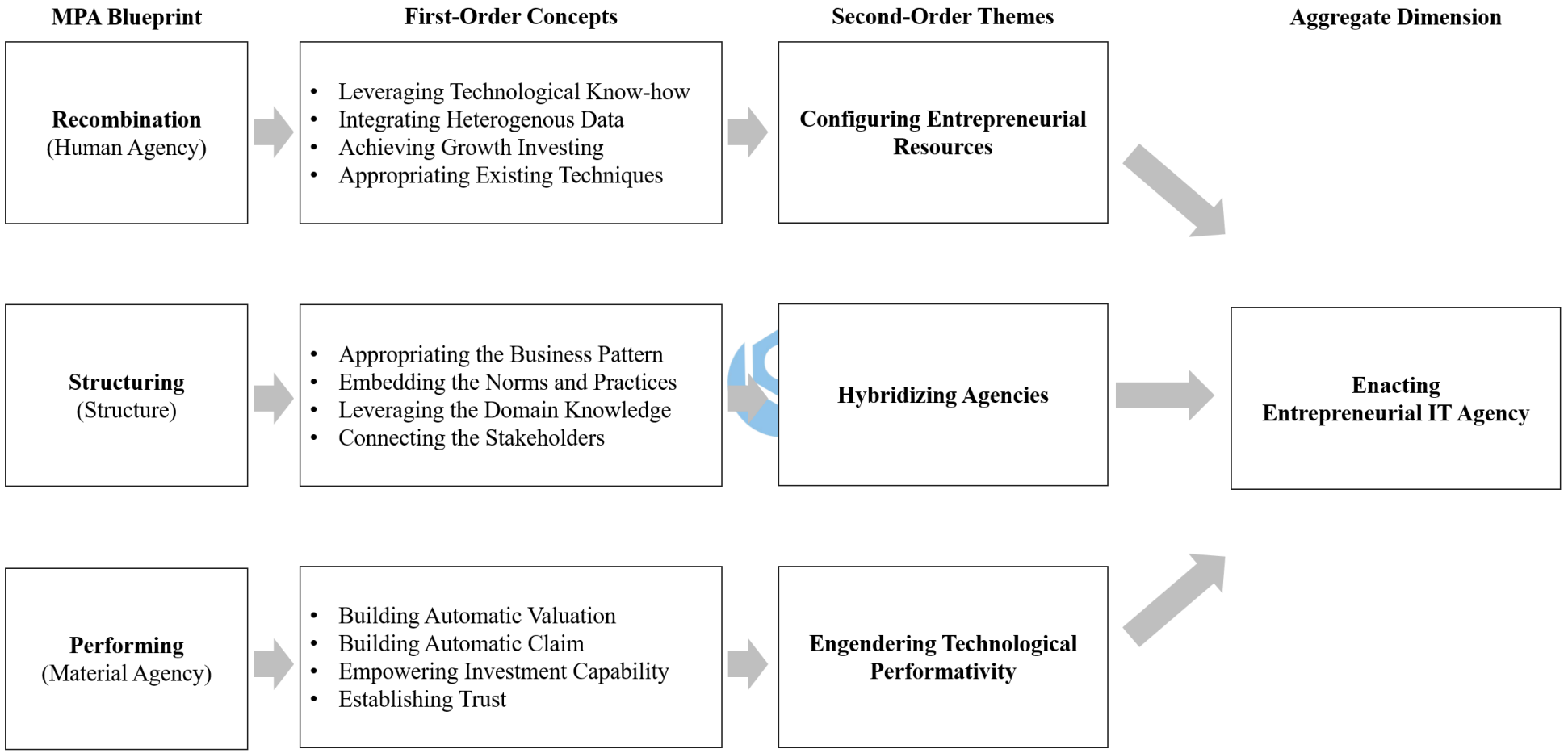

Figure 3-2 Data Analysis Approach

CHAPTER 4

ANALYSIS

4.1 Grounded Main Path Analysis: Enacted Socio-material Agency

Figure 4-1 presents the main path at key-route 15 consists of 20 papers. In the figure, arrows demonstrate the direction of knowledge diffusion, from the cited documents to the citing ones. A label is assigned to each paper, which initials with the first author's name, continues with the first letter of the other co-author's name, as well as the publishing year. The thickness of a link and arrow are according to the SPLC value. The Table 4-1 presents articles included in the key-route main path.

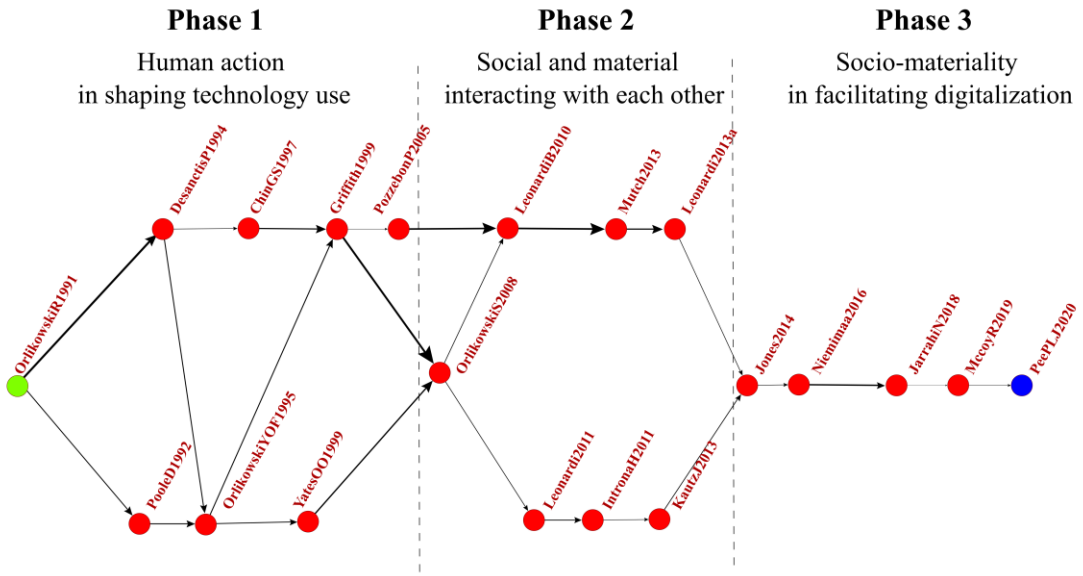

Figure 4-1 The MPA of Socio-material Agency

Key-route MPA provides an indicator for researchers to trace knowledge diffusion in a target field. According to the analysis of the key-route MPA results, this study finds that the attention on the agency changes from a human aspect to a socio-material

aspect because the performativity of technological material is growing. To specify this change, this study examines the literature on our main path and divides the main research focus into three phases:

4.1.1 Phase 1. Human action in shaping technology use: Recombination

This study names this phase "recombination" because the first phase studies discuss various ways to apply technologies to do things they could not do before, and the technology will be recombined at the point of use, generating different values. Orlikowski and Robey (1991) indicated that information technology holds a central position in the process of structuration, which is constituted by human action within specific structural and cultural contexts. Based on extant structuration and IT literature, there are two research themes in the following phase.

On the one hand, Scott Poole and DeSanctis (1992) suggested information technology is not only created by human action but also enables and constrains future action. Moreover, the study considered that the primary users of technology bring about the junctural structuring events, which decide how to appropriate and whether and how to use the technology. In contrast to the primary users of technology, the study by Orlikowski et al. (1995) considered the mediator as the most critical player, one who creates policies, procedures, guidelines, and mechanisms , as well as acting more proactively and reflectively. Subsequently, Yates et al. (1999) found two patterns of genre structuring within technology - explicit and implicit structuring. Explicit structuring refers to the action created by a few mediators, while implicit structuring is shaped by the R&D team members.

In contrast, DeSanctis and Poole (1994) posed adaptive structuration theory (AST) to emphasize that technologies and institutions provide social structures, rules, and resources, as the foundation for human action. Significantly, AST not only

provided a theoretical foundation for researchers to explore the use of advanced information technologies (Chin et al., 1997) but also offered a greater anticipation of user understanding (Griffith, 1999).

To sum up, both these two research streams point out the important role of human action to actualizes the value of technology by recombining its use. More specifically, the study illustrated that technology is no longer defined by itself but underlines how value is constituted in use by human agency.

4.1.2 Phase 2. Human and material interacting with each other: Structure

To avoid ignorance of the role of technology, Orlikowski and Scott (2008) introduced a new concept - "socio-material" - paying more attention to how the entanglement between human and material agencies are intrinsic to the daily routine. Since such a balanced view emerged, the socio-material has aroused increasing interest in its "dynamic fabric" regarding the interaction between human and material agencies. Considering the researchers in this phase pay major attention to the constitution of socio-material, this study names this phase "structure". As Orlikowski and Scott (2008) stated, the notion of socio-material emphasizes that humans and technologies are interdependent entities with distinctness because they acquire form, features, and capabilities through their interpenetration, rather than intrinsic properties. Then, there emerged two research streams regarding this phase.

One research stream gives attention to the nature and implications of socio-material. In technology implementation studies, the constructivist researchers believe organizational change is created by a series of social actions in which people deal with the constraints and affordances of technology. Even so, Leonardi and Barley (2010) claimed that there is a significant difference in the meaning between researchers' understanding of technology affected by social action. To specify the

ambiguous meaning, their study suggested tackling the core problem of organizational theory by clustering the action of socio-material into five coherent aspects, namely perception, interpretation, appropriation, enactment, and alignment. Then, Mutch (2013) initiated a theoretical debate about whether socio-material studies should according to the agential or critical realism to generate the judgment, thus changing a philosophical statement into a practical theory. Last, Leonardi (2013) extended the argument by Mutch (2013), and through agential realism established a theoretical foundation for socio-material because this genre provided an efficient way to present the difference between philosophical discussion and practical theory.

Another research stream concentrates on this entanglement structure. Initially, Leonardi (2011) claimed the co-constitutive interaction was a process of imbrication, which could be seen as an infrastructure for routines and technologies. The concept of imbrication explains how imbrication produces new routines and new technologies that enable and constraint new forms of action. Likewise, later studies adopted this concept to analyze the continual interplay and further examined its implication (Introna & Hayes, 2011; Kautz & Jensen, 2013).

Those two research streams regarding socio-material have gained in popularity in the IS domain since the 2010s for progressing the theorizing of human-material imbrication. In summary, by exploring the structure of socio-material, researchers could through viewing the enactment of IS as a socio-material structure deepen the understanding of the digitalization phenomenon.

4.1.3 Phase 3. Socio-material in facilitating digitalization: Performing

With the increasingly important role of digitalization in every field, the concept of socio-material has been adopted in a wider range of digital-based contexts. In this phase, the studies mainly concentrate on the role of socio-material in the digitalization

process. More precisely, how IT performs its role in a specific domain becomes the major challenge in this phase. Therefore, this article termed this phase “Performing”, which refers to the potential of an artifact, while achieving an immediate concrete outcome, without human intervention. At the beginning of this phase, Jones (2014) was aware that the ambiguousness of some concepts within socio-material, namely material, inseparability, relationality, performativity, and practices, may limit the research potentials. Jones’ study employs case study to advance the explanation regarding the difference between these sub-concepts, thereby improving the practice value of socio-material. Following this, later studies built on the socio-material perspective, and put forward concepts to materialize both human and technological agencies by discussing the interaction of IT and work practices enacted by humans (Jarrahi & Nelson, 2018). Moreover, later studies were devoted to specifying the notion of socio-material by conducting a case study approach, such as system development in the education domain (McCoy & Rosenbaum, 2019), and information value cocreation of the online user community (Pee et al., 2020).

Given these points, the studies in this phase illustrate the important role of affordance in socio-material. These studies not only demonstrate various case studies, but also present how to use the concept of socio-material for interpreting the interaction between IT and practice work within the digitalization context. In analyzing these three phrases, this study follows three dimensions, namely recombination, structure, and performing, building a blueprint to illustrate the interaction between human-material agencies, as Figure 4-2 shows.

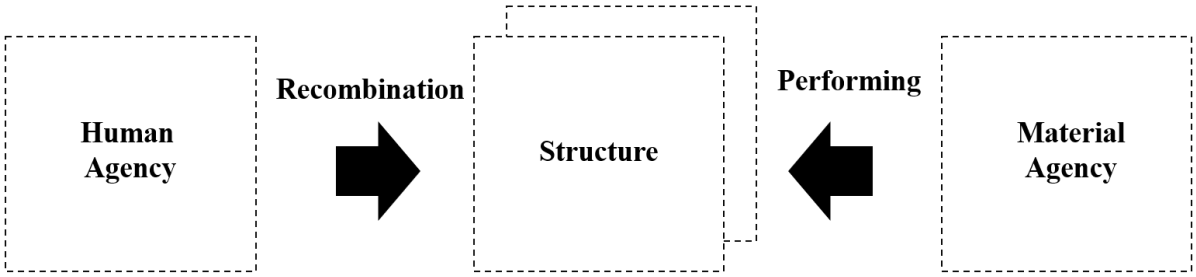

Figure 4-2 Blueprint of human-material agencies interplay

Table 4-1 Articles included in the key-route main path

Label	Title	Reference
OrlikowskiR1991	Information Technology and the Structuring of Organizations	(Orlikowski & Robey, 1991)
PooleD1992	Microlevel Structuration in Computer-Supported Group Decision Making	(Scott Poole & DeSanctis, 1992)
DesanctisP1994	Capturing the Complexity in Advanced Technology Use: Adaptive Structuration Theory	(DeSanctis & Poole, 1994)
OrlikowskiYOF1995	Shaping Electronic Communication: The Metastructuring of Technology in the Context of Use	(Orlikowski et al., 1995)
ChinGS1997	Advancing the theory of adaptive structuration: The development of a scale to measure faithfulness of appropriation	(Chin et al., 1997)
Griffith1999	Technology features as triggers for sensemaking	(Griffith, 1999)
YatesOO1999	Explicit and implicit structuring of genres in electronic communication: Reinforcement and change of social interaction	(Yates et al., 1999)
PozzebonP2005	Challenges in conducting empirical work using structuration theory: Learning from IT research	(Pozzebon & Pinsonneault, 2005)
OrlikowskiS2008	Sociomaterial: Challenging the Separation of Technology, Work and Organization	(Orlikowski & Scott, 2008)
LeonardiB2010	What's Under Construction Here? Social Action, Material, and Power in Constructivist Studies of Technology and Organizing	(Leonardi & Barley, 2010)

Leonardi2011	When Flexible Routines Meet Flexible Technologies: Affordance, Constraint, and the Imbrication of Human and Material Agencies	(Leonardi, 2011)
IntronaH2011	On sociomaterial imbrications: What plagiarism detection systems reveal and why it matters	(Introna & Hayes, 2011)
Leonardi2013a	Theoretical foundations for the study of sociomaterial	(Leonardi, 2013)
Mutch2013	Sociomaterial - Taking the wrong turning?	(Mutch, 2013)
KautzJ2013	Sociomaterial at the royal court of IS A jester's monologue	(Kautz & Jensen, 2013)
Jones2014	Matter of Life and Death: Exploring Conceptualizations of Sociomaterial in the Context of Critical Care.	(Jones, 2014)
Niemimaa2016	Sociomaterial and Information Systems Research: Quantum Radicals and Cartesian Conservatives	(Niemimaa, 2016)
JarrahiN2018	Agency, sociomaterial, and configuration work	(Jarrahi & Nelson, 2018)
MccoyR2019	Uncovering Unintended and Shadow Practices of Users of Decision Support System Dashboards in Higher Education Institutions	(McCoy & Rosenbaum, 2019)
PeePLJ2020	Social informatics of information value cocreation: A case study of xiaomi's online user community	(Pee et al., 2020)

4.2 Grounded Case Analysis: Enacted Entrepreneurial IT Agency

The theoretical blueprint guides the data collection and analysis, which allows this study to further concentrate on three dimensions of entrepreneurial IT development, including recombination, structure, and performing, thereby generating multi-dimensional understandings from multiple cases.

4.2.1 Recombination: Configuring Entrepreneurial Resources

This section focuses on recombination regarding the human action in the

development of entrepreneurial IT. Recombination in use and in design play an increasing role in the digital age (Henfridsson et al., 2018), which also significantly impacts on the institutional entrepreneurship cases of FinTech entrepreneurs because the characteristics of digital resources, such as editable (Kallinikos et al., 2013) and re-programmable (Yoo et al., 2010), allow them to be aggregate as a new whole. This dimension helps us direct attention to how entrepreneurs create and capture value from digital recombination. In this section, this study first describes the four cases regarding the recombination dimension, and then further analyze the practices. The analysis of this theme is shown in Table 4-2.

First, Company A is dedicated to P2P lending service, which provides an efficient way of lending money to individuals or businesses by matching the borrowers and the lenders on the internet. The founder of Company A originally served in a management role in a high-tech company, and he found that there were many small and medium-sized enterprises owners that encountered the dilemma of lack of cash flow because banks generally saw the business owners as high-risk, which indicates the difficulties that business owners face when borrowing money from banks. In light of the need for sufficient cash flow for operations, the CEO of Company A rethought the usage and purpose of the technology. Therefore, Company A appropriated a concept of e-commerce for the lending business by selling the property rights of real estate via a platform.

Second, Company B is a technology company, applying emerging technologies to help insurers screen insurance applications and handling insurance claim settlements. After taking the potential of AI into consideration, Company B concentrated on reconfiguring the data resources from heterogeneous systems, such as government websites, insurance systems, and other historical data. Finally, the

management team discovered the importance of picking the appropriate sums to be assured and tenures, and thus, developed an automatic non-life claim settlement solution to help insurers make precise decisions.

Third, Company C, which focus on the domain of intelligent investment, not only uses AI to analyze the specific stock data, but also to leverage the resource from securities companies to provide stock trading services. Unlike other traditional securities companies, Company C is dedicated to improving the investment capability of investors by customizing investment strategies.

Finally, Company D is a pet insurance platform. Before establishing this company, the entrepreneur operated a second-generation family business in an IT outsourcing industry. In order to transform the original business model, the management team of Company D decided to extract more value from their original techniques. More precisely, the entrepreneur tended to provide a service, rather than a tool. The founder afterward found that they could facilitate the speed of insurance claims by adopting their learning AI algorithm to identify the characteristics of pet dogs, and the claim related document.

Table 4-2 Data analysis for recombination theme

Aggregated Mechanism	Recombination	Quotes
Configuring Entrepreneurial Resources	Leveraging Technological Know-how	"*We found that many owners of small and medium-sized enterprises have cash flow problems, but their line of credit is generally limited…… We think this is an opportunity. What I mean is that we could through our technique establish a platform in selling the lenders' real estate holdings, thereby gaining the money from*

		borrowers." - the CEO of Company A
	Integrating Heterogenous Data	"*The insurers do not treat their amassed comprehensive customer and use historical data well, yet the data could help them improve the underwriting and claims. Therefore, we tend to use deep learning to facilitate the underwriting and claim process. Most importantly, we could make it more precise.* " - the CEO of Company B
	Achieving Growth Investing	"*Traditional stock investment analysis service relies on human beings, but the labor cost is high, thereby allowing for the provision of only a limited number of services to investors. Hence, we tried to establish a digital service to customize the investment plan for investors. More precisely, we build algorithms for training specific data, such as the net buy/sell of three institutional investors, rather than all of the indicators. This could provide customers with a clearer status of their stock portfolio asset allocation, and growth investing strategies!* " - the CEO of Company C
	Appropriating Existing Techniques	"*We noticed the rising demand of pet insurance, but its compensate pays rate is high, because we have limited pet health data. Most importantly, our existing techniques could help us to establish a pet insurance platform. This platform is not only for pet insurance, but also for the pet business ecosystem.*" - the CEO of Company D.

To conclude, this study traces the four cases regarding their recombination

dimension, and this article finds that these cases present a way of configuring entrepreneurial resources. This action can be divided into two types. One is digital resources, which be recombined at the point of use. These heterogeneous resources, namely, technical skill, algorithmic knowledge, and open data, combine as a novel way to generate new value. Also, non-digital resources are another crucial factor for entrepreneurs, because they may make do with the non-digital resources at hand to explore the potential value, behind the existing technology they have. Take Company C as an example, the entrepreneurs seek help from securities companies to help them conduct the stock trading directly. As mentioned above, humans enact entrepreneurial IT by configuring entrepreneurial resources, such as digital and non-digital resources, and thus extract the value of IT. Therefore, this study follows the result of analyzing and deriving an aggregated mechanism "configuring entrepreneurial resources".

4.2.2 Structure: Hybridizing Agencies

"Structure" implies an ongoing process, and it refers to an interaction between social agency and the material agency. As Leonardi (2011) advocated, social agency presents the goals and intentions of humans, while material agency indicates that technology can perform by itself without any intervention by human beings; these two elements imbricate over time, thereby forming a structure. This study utilizes this dimension to further discuss the interaction between humans and material. The analysis of this theme is illustrated in Table 4-3.

The interaction between humans and material refers to how two institutional logics are combined. The technology, with an original purpose from the designer, is appropriate for other institutional environments. This means the technology will be given a new role. Therefore, how to make the technology fit with the institutional environment will be the major challenge for each institutional entrepreneur. Firstly, to

deploy new IT into an institutional environment, the CEO of Company A suggests appropriating the business pattern from e-commerce to legitimize the business model. Because the legitimacy of FinTech service is most crucial for entrepreneurs and can help the technology in conforming to the institutional environment (Cojoianu et al., 2020), it leads to the success of its commercialization. Secondly, the development team of Company B embedded the financial norms and practices into their algorithms, rather than requiring the other insurance specialists fit this novel technology.

Thirdly, to enter the financial domain, limited understanding and resources would be barriers for entrepreneurs. Therefore, the management team of Company C established the collaboration with securities, and accordingly, they could establish a tight connection with their customers by supporting stock trading directly. Lastly, the CEO of Company D noted that trust was a critical factor in the financial domain; therefore, Company D developed a third-party platform to connect the pet insurance-related stakeholders, such as insurers, the insured, and veterinarians.

In analyzing the structure dimension of the four cases, this study found that the nature of FinTech service is “hybrid”, which refers to embedding the financing institutional logic into a technology, and producing a hybrid institutional logic: therefore, this study names this mechanism as “hybrid agency”.

Aggregated Mechanisms	Structures	Quotes
Hybridizing agencies	Appropriating the Business Pattern	*"As with e-commerce, we transfer the property rights of real estate to investors by online selling. Benefiting from characteristics of e-commerce, we can aggregate investors, and credit the borrowers within the shortest time.*" - the CEO of P2P Lending
	Embedding the Norms and Practices	"*Adopting computing vision, natural language processing, and artificial intelligence technologies to translate the paragraphs of medical orders into the coding systems of surgery and international classification of diseases, we handle insurance claim settlements automatically.* " - the CEO of Company B
	Leveraging the Domain Knowledge	*"In the beginning, we were just an investment research website, and then, we planned to provide investors with a comprehensive approach. Therefore, we collaborated with dealers in securities.*" - the CEO of Company C.
	Connecting the Stakeholders	"*We digitalized the process of pet insurance claims, including establishing the communication between the insurer and insured, fulfilling the claim forms, checking with the veterinarian and so on, and thus, shortening the lifecycle of insurance claims.* " - the CEO of Company D.

Table 4-3 Data analysis for structure theme

4.2.3 Performing: Engendering Technological Performativity

Due to the maturity of digital technologies, a growing literature has discussed the performing characteristics of material (Cecez-Kecmanovic et al., 2010). This section employs the performing dimension to examine how technology objects empower individual behavior (Majchrzak & Markus, 2012). Most importantly, this dimension helps researchers explore the role and intrinsic nature of digital technology. The analysis of this theme shows in

Table 4-4.

In analyzing the performance aspect of the materials from the four cases, this study found that the technology can perform the roles by themselves, and go even beyond the imagination of developers, thereby actualizing a certain affordance in a particular financial environment. Hence, this article labels the quotations from the four cases and generate an aggregated dimension - "Engendering Technological Performativity".

Firstly, Company A created an automated valuation system to replace human workers to perform work that evaluates the value of real estate automatically. Similarly, Company B also uses algorithms to achieve claim automation. In addition to conducting tasks independently, Company C also shows that their system is able to empower investors in their investment decision-making capabilities by providing accurate investment information. Finally, the CEO of Company D claimed that trust is the key, which is engendered by their platform, which digitalizes the process of pet insurance claims. Overall, this study further analyzes these cases regarding the performance activity of materials and organizes an aggregated mechanism as “engender technological performativity”. Our cases show that although performativity can generate intended consequences, it might also result in unintended ones that are beyond the imagination of entrepreneurs.

Table 4-4 Data analysis for performing theme

Aggregated Mechanisms	Performing	Quotes
Engendering Technological Performativity	Building Automatic Valuation	“ *Our platform helps borrowers directly connect to lenders, and the technology helps us to deal with the things that traditional banks cannot achieve! Digital technology plays a critical role in our business. For example, we set up an automated valuation system to evaluate the value of real estate automatically.*” - the CEO of Company A.
	Building Automatic Claim	"*Our algorithms can learn from human experience and achieve claim automation. More precisely, we help insurers make accurate decisions in the shortest time possible by utilizing AI to process documents and property insurance pictures.*" - the CEO of Company B.
	Empowering Investment Capability	"*We believe that different investment sectors will require different index data. Moreover, the users can organize their interfaces and acquire related infographics. On the other hand, the interface allows us to observe what data they really care about.*" - the CEO of Company C.
	Establishing Trust	"*This platform is not merely about procedure improvement ... It is about a trust establishment.*" - the CEO of Company D.

By following the different dimensions of socio-material across the recombination, structure and the performing dimension, this study further grounds the interview data. Ultimately, this study inductively derives three aggregate mechanisms of the entrepreneurial IT, namely, configuring entrepreneurial resources, hybridizing agencies, and engendering technological performativity, to establish a new agency for entrepreneurial IT (refer toTable 4-5).

Table 4-5 Data structure of this study

Case	Recombination	Structure	Performing
Company A	Leveraging Technological Know-how	Appropriating the Business Pattern	Building Automatic Valuation
Company B	Integrating Heterogenous Data	Embedding the Norms and Practices	Building Automatic Claims
Company C	Achieving Growth Investing	Leveraging the Domain Knowledge	Empowering Investment Capability
Company D	Leveraging Technological Know-how	Connecting the Stakeholders	Establishing Trust
Aggregate Mechanisms	**Configuring Entrepreneurial Resources**	**Hybridizing Agencies**	**Engendering Technological Performativity**

CHAPTER 5

DISCUSSION

This chapter will first introduce entrepreneurial IT agency model to explain the interaction among socio-material and later illustrate the research method of MPA-based Case Method, including the hybrid paradigm of the subjective and objective approach, and the benefits of adopting this.

5.1 **Enacting Entrepreneurial IT Agency**

This study aims to extend our understanding of the role of agency in entrepreneurial IT by employing the concept of socio-material. Based on the review of pertinent studies, Figure 5-1 highlights a guideline for agency interaction within socio-material-driven entrepreneurial IT construction. This notion helps researchers to know the dynamic fabric of digital-based business practices within the context of how entrepreneurial and technological agencies enact with each other.

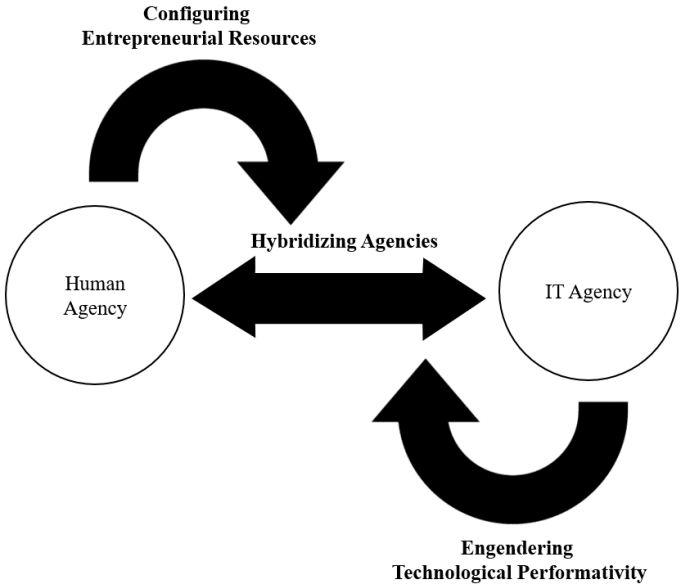

Figure 5-1 Entrepreneurial IT Agency Enactment Model

5.1.1 Configuring Entrepreneurial Resources

In regard to the human agency of entrepreneurial IT, this study follows our Company Analysis, and thus derive a mechanism - configuring entrepreneurial resources (shown in Figure 5-2), which involves digital and non-digital resources. Similar to the extant literature, the study indicates the importance of the agency to institutional entrepreneurs who utilize resources for accomplishing innovation within an institutional setting (Lee & Hung, 2014). In contrast, this article divides entrepreneurial resources into two types because the role of digital resources plays a relatively important role in the process of institutional entrepreneurship. In our cases, this thesis find the digital resources are generally controlled by those institutional entrepreneurs, who through these digital resources acquire trust from the community, and thus gain non-digital resources.

Figure 5-2 Configuring Entrepreneurial Resources Mechanism

Moreover, the configuration of these entrepreneurial resources is also a critical factor in changing institutions. Take Company B as an example: the company adopted the data, which other companies treated as " unnecessary", to extract the value by handling insurance claim settlements through algorithms. More concretely, by configuring those “unnecessaries” as entrepreneurial resources, institutional entrepreneurs can change the game with existing institutions. Given these points, this article suggests configuring entrepreneurial resources to help institutional

entrepreneurs enact entrepreneurial IT.

5.1.2 Hybridizing Agencies

This study sees FinTech entrepreneurship as an entrepreneurial IT, which refers to institutional entrepreneurs employing IT to disrupt existing financial institutions. In this study, entrepreneurial IT is a structure involving an intensive interaction between entrepreneurial and technological agencies. By hybridizing these agencies, institutional entrepreneurs can utilize IT to complete tasks which they were unable to conduct before. As well, IT can through institutional embeddedness interact with the actors within existing institutions. Therefore, this study suggests hybridizing agencies to integrate two institutional logics, depicted as Figure 5-3.

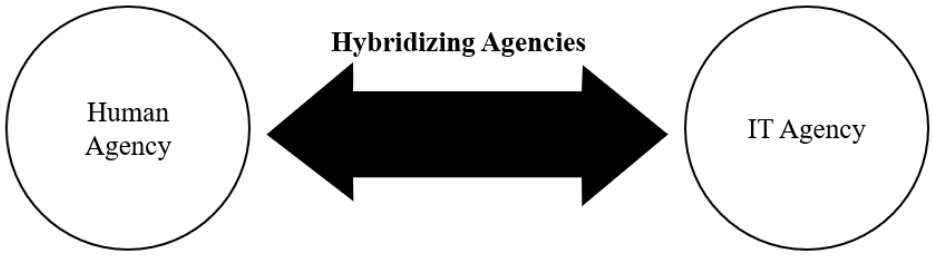

Figure 5-3 Hybridizing Agencies

5.1.3 Engendering Technological Performativity

Based on our analysis of the performing aspect of these four case studies, this study find that the "performativity" of material agency plays a critical role in enacting institutional entrepreneurship because it helps entrepreneurs deal with routines automatically. Performativity, which is the root of knowledgeability (Orlikowski, 2006), is a relationship between humans and materials, and it is always in a changeable status, or a state of "becoming" (Chia, 2003). More precisely, performativity changes with the practice (Marabelli & Newell, 2012). As Company D explained, the pet insurance platform performs a “trust” role in facilitating the

insurance company's claiming process, yet this characteristic might not be actualized when this study deploys it in other sectors. As a result, this study names this mechanism as “engendering technological performativity” (shown in Figure 5-4) because the technology can engender the capacity by itself, namely, by generating some characteristics while interacting with other elements.

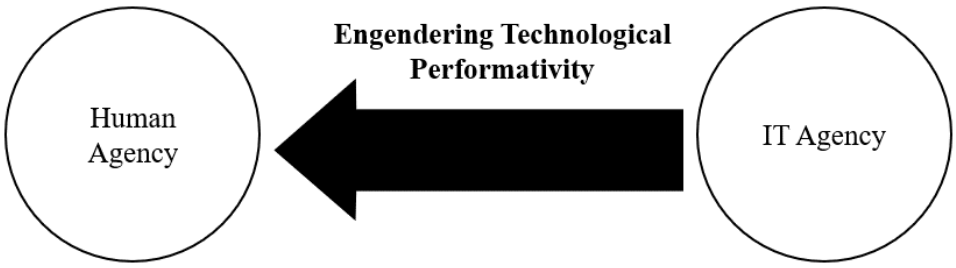

Figure 5-4 Engendering Technological Performativity

5.1.4 Enacting Entrepreneurial IT Agency

Considering the dynamic interaction between human and material agencies, this study suggests adopting the "enactment" concept to aggregate these three mechanisms and names this, "Enacting Entrepreneurial IT Agency".

This study introduces the “enactment” concept from Weick (1988), which refers to “the ongoing adjustment of an organization’s actions and cognitions through its interaction with its environment” (Danneels, 2003). Furthermore, this study agrees with the enactment concept, which divides a specific process into cognition and action to make human and material agencies more specific and thus help organizations deal with the burden of uncertainty and doubt. Yet, considering the intrinsic nature of socio-material, which advocates both social and material entities, should be treated equally, this study suggests extending enactment to include both social and material aspects.

By introducing the enactment concept into the interaction between human and

material agencies, this article can further examine the cognition and action of human and material agencies. Take Company C as an example: regarding the human aspect, the management team was aware of the demand of the growth investors, and so they built algorithms to customize investment strategies; in turn, the algorithms needed to decide how to process the data within limited computing resources. Therefore, certain financial concepts and rules have been embedded in the algorithms to focus on specific data. Consequently, this study considers the enactment concept to be crucial for entrepreneurial IT development.

5.2 **A Hybrid Approach of Subjectivism and Objectivism**

This study develops a new analysis approach – MPA-based Case Method. To further examine the details of this analysis approach, this subsection compares the difference between this approach, MPA, and qualitative case analysis, and derives a table, shown in Table 5-1.

MPA-based Case Method, is a case analysis approach of integrating main path and qualitative case analysis. As its name implies, this approach replaces the method of literature selection by inheriting the characteristics from MPA, and thus provides the development trajectory of literature for researchers. Most importantly, this approach can be seen as a way to balance subjectivism and objectivism. In the case research, the selection of a theoretical object is essentially subjective because the researcher's own experience, background, and interests are the critical factors in empowering the meaning of a particular theory for researchers (Walsham, 2006) and allow them to gain a relatively good understanding of a case. Despite this study considering this subjectivity being able to help researchers dig into the nature of a case context, there is still a huge amount of literature within any single theory. Therefore, how to examine critical studies from a particular theoretical object became

a critical task for case researchers. Unlike traditional qualitative case analysis, which treats each piece of data as equal, by taking SPLC algorithm to measure the significance of a citation link, MPA can gain different weights of the data. This approach applied MPA to trace the development trajectory of specific literature objectively and thus to facilitate researchers' understanding of the theory. On the contrary, an equal weight of each piece of data may lead to a challenge for beginner qualitative case researchers. As the study by Wolfswinkel et al. (2013) stated, studying plentiful pertinent studies is significant in each scholarly community, yet extant literature does not offer clarity about its selection criteria and the standards of final selected samples. This study, accordingly, follows the suggestion by MPA (Hummon & Doreian, 1989), which adopted the SPLC algorithm to evaluate the importance of a citation link because this approach is closer to the knowledge diffusion in reality (Liu et al., 2016).

Next, this study discusses the theoretical sampling of MPA-based Case Method. Theoretical sampling refers to an iteration process between data collection and analysis that researchers use to collect, code, and analyze the data, and then guide the next data collection strategy until the emergence of theory (Glaser, 1978; Urquhart et al., 2010; Wiesche et al., 2017). Sampling the data generally depends on the theoretical sensitivity of a researcher, which refers to a capacity of conceptualizing data, collecting insights, and clarifying a core concept (Glaser, 1978). However, there are some aspects of theoretical sensitivity that take much experience to realize the relationship between literature and interview data, which can be challenging to research beginners undertaking this process. To deal with this problem, our method uses MPA to conduct a citation-based theoretical sampling, thus allowing researchers to understand which key terms to search for in large. Following this, these papers

through providing a series of key terms (such as co-constitutive, imbrication, entanglement, and performativity) guide an observation focus on our research phenomenon.

Table 5-1 A Comparison of the Different Analysis Approaches

Analysis Approach	MPA-based Case Method	Traditional Case Analysis
Literature Search Strategy	Systematic	May or may not be systematic
Literature Weight	Citation-based Weight	Equal Weight
Literature Selection	Objective Selection	Subjective Selection
Theoretical Sampling	Theoretical Sensitivity	Theoretical Sensitivity
Data analysis	Grounded Analysis	Grounded Analysis

Finally, in terms of data analysis, this study extends the scope of grounded analysis, which conducts grounded analysis to obtain a comprehensive and theoretically relevant analysis of a topic (Wolfswinkel et al., 2013). More specifically, this article uses grounded analysis to analyze the results of MPA and interview data separately. The former is used for obtaining the qualitative understanding of theoretical concepts within the phenomenon, and thus establishing a notion of the key concepts regarding the contextual background (Charmaz & Belgrave, 2012). The latter is used for leveraging the practical data to contribute to the development of theories.

In conclusion, MPA-based Case Method is not only an approach of hybridizing MPA and grounded analysis but also a showcase of the convergence of subjectivism and objectivism. This approach employs MPA to objectively screen the literature and uses grounded analysis to include a more qualitative understanding of literature and interview data.

CHAPTER 6

CONCLUSION

This chapter is subdivided into four parts; the first section first recaps the response regarding research questions and organizes the responses as two lessons. Then, the second section introduces the limitation and further research directions, while the last two present implications for both theory and practice, and methodology.

6.1 Lessons Regarding Research Questions

This study aims to discuss the issues regarding digital-based institutional entrepreneurship, namely, entrepreneurial IT. Traditional studies focus on the role of human agency in institutional entrepreneurship, yet the development of information technologies facilitates the convergence interaction processes and leads the structure to become more dynamic and complex. To further our understanding of the intensive interaction within this novel structure, this study proposes entrepreneurial IT agency, which extends the notion of institutional entrepreneurship by replacing the traditional agency with socio-material agencies. The research questions of this study are mainly focused on the digital-based institutional entrepreneurship, and the first research question is related to how the role of IT agency enabled mechanisms in achieving institutional entrepreneurship. The second research question concerns how these agency mechanisms in achieving institutional entrepreneurship. This section will introduce our responses to the research questions as follows.

6.1.1 Lesson 1: The role of Entrepreneurial IT Agency Mechanisms in Achieving Institutional Entrepreneurship

This study first conducts MPA and grounds its result to form a theoretical blueprint, which allows this article to further focus on critical dimensions of entrepreneurial IT, including recombination, structure, and performing. And afterward, the blueprint guides us in conducting interviews with companies that have built entrepreneurial IT to reform the

financial industry. Finally, this study follows the evidence from cross-company data to develop an entrepreneurial IT enactment model, whereby the institutional entrepreneurs deploy three mechanisms, including configuring entrepreneurial resources, hybridizing agency, and engendering technological performativity.

This model introduces how the two different agencies interact with each other. Regarding configuring entrepreneurial resources, this study emphasizes the importance of leveraging resources to disrupt original institutions. More precisely, institutional entrepreneurs meet the demand of new institutions by configuring the entrepreneurial resources from themselves and their stakeholders. In regard to engendering technological performativity, our data show the technological material can engender technological performativity by itself. More concretely, the performativity of materials is affected by the behavior regarding how humans use the material and where they use it. For example, a pet insurance platform, which was built by Company D, engenders technological performativity of "trust". Lastly, this study suggests balancing the social and material agencies among entrepreneurial IT by introducing the dynamic concept into the two agencies from an enactment perspective.

6.1.2 Lesson 2: Human and Material Agencies interact dynamically by enacting with each other

This study suggests incorporating an enactment perspective to balance the interaction between human and material agencies because materials can perform the agency by themselves (Leonardi, 2013). As extant studies have stated, neither humans nor materials should be allowed to be given a privileged position in interacting with others (Beath et al., 2013; Sarker et al., 2019). Therefore, this study follows the socio-material view to further examine how the two agencies interact with each other. Similar to the socio-material implication, our case shows the performativity of materials can generate intended consequences, yet it might also bring about unintended ones. Considering this ambiguous

status of material agency, this study adds enactment theory to extend the existing socio-material literature, thereby exploring the interaction between human and material agencies and achieving dynamic interaction.

6.2 Limitation and Future Research

This article is not without its limitations, which this thesis believes remain the research opportunities for future studies. Firstly, this article uses the results of key-route MPA as the foundation to conceptualize the critical idea from the trajectory development of literature, and thus to gain a solid understanding of relevant theoretical concepts. Such a citation-based strategy may lead to this approach including fewer recent studies. Despite recent studies not changing the theoretical blueprint, this thesis could in the future conduct a multiple global MPA, which could examine the various contemporary popular research areas (Liu & Lu, 2012), to include more new literature, and thus provide more novel concepts for researchers to enable a comprehensive observation of the emerging phenomenon.

Secondly, this study was conducted in the FinTech entrepreneurship in Taipei only. Despite Taipei providing plentiful cases regarding institutional entrepreneurship that allows researchers to explore intensive interaction between entrepreneurial and technological agencies, the cultural and regional differences might influence particular dimensions (Wunderlich et al., 2019). To validate the model of this study, this study would suggests future research should take these differences into consideration.

6.3 Theoretical and Practical Contribution

The major contribution of this study is achieved through the integrated model of enacting entrepreneurial IT agency to build the connections between socio-material and institutional entrepreneurship. In terms of theoretical contributions, our research contributes to institutional entrepreneurship and socio-material literature.

First, our efforts help to further the institutional entrepreneurship literature by viewing the IT-enabled digital disruption as a novel structure - entrepreneurial IT. An increasing number of institutional entrepreneurs are pursuing institutional change while only a few realize the fabric of entrepreneurial IT is changing with the interaction between human and material agencies. Most importantly, considering the growing performativity of technological agencies, this study pays equal attention to both human and technological sides. More precisely, by introducing the concept of material agency, this study extracts the hybrid agency within entrepreneurial IT.

Second, our study contributes to the socio-material literature by introducing the dynamic concept into both social and material agencies from an enactment perspective. On the one hand, this study proposes socio-material enactment to deal with the unpredictable characteristic of entrepreneurial IT. On the other hand, by incorporating the enactment perspective, the formation of socio-material becomes clearer and easier to understand.

Our study has important managerial contributions as well. This article develops an enactment model of entrepreneurial IT agency by designing three mechanisms, including entrepreneurial IT, namely configuring entrepreneurial resources, hybridizing agencies, and engendering technological performativity. This model helps institutional entrepreneurs make sense of the environment to act upon a specific enactment approach.

6.4 **Methodological Contribution**

The case-main path grounded approach, this dissertation proposes, is a mixed-methods one and combines the features of the quantitative and qualitative research (Tashakkori and Teddlie 1998, p. 5). Considering the changing nature of the context in the IS domain, researchers may encounter the dilemma of how to obtain critical insights from extant theoretical views, therefore, Venkatesh et al. (2013) suggests mix-methods as an appropriate

way to benefit from two methods. This study will introduce how this approach contributes to methodology as follows.

First, this approach lowers the certain bias of a single method by combining inferences from both MPA and qualitative case analysis. For example, qualitative case research helps researchers in shaping theory by offering a rich description of the research context, although the subjective nature of its theory selection has been criticized, with its subjective nature. In turn, MPA presents the development of crucial theory by evaluating the scientific impact of knowledge over the years but might fail to extract the potential meaning from the data. Therefore, this approach leverages the merits of both these two approaches to lower the disadvantages of the original method.

Second, our mixed-methods offer a comprehensive view by making MPA and qualitative case research complement each other. For example, MPA provides the most critical literature, involving a series of key terms in this domain, guiding researchers to conduct interviews regarding these ideas. Also, the qualitative interview offers a plentiful description of contextual background, which helps researchers explore more relevant potential concepts, thus providing a more comprehensive query strategy of MPA.

In summary, this study proposes a case-main path grounded approach to explore the mechanisms of forming a new agency for entrepreneurial IT. In terms of theoretical contribution, this study furthers the institutional entrepreneurship and socio-material. Regarding the practical contribution, this study designs three mechanisms to deal with the dynamic fabric of entrepreneurial IT. Moreover, by leveraging two research methods, the case-main path grounded approach delivers a way of presenting a more comprehensive view to dig into knowledge gaps.

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