



**Innovation, Ambidexterity, and Interaction of Managers at Different Levels: Cases in  
Chinese Banking Sector**

**A Thesis Submitted in Partial Fulfilment of the Requirements of Nottingham Trent  
University for the Degree of Doctor of Philosophy**

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## ABSTRACT

The importance of innovation in the dynamic environment has been highlighted in the past decades. Organisational ambidexterity, as capacity of organisation to achieve in both incremental and radical innovation, has been explored to be important to organisations' long-term survival. However, little has been studied in banking sector on how managers at different levels foster organisations' capability for innovation and change. This research extends the ambidexterity research by exploring the relationship between exploitation and exploration, and the impact of the interaction of managers at different levels on organisational ambidexterity in Chinese banking sector. In addition, this research aims to explore the effect of organisational ambidexterity on firm competitiveness in the Chinese banking sector. After that, this research explores how managers at different levels interact with each other to facilitate organisational ambidexterity.

Mixed method research employed quantitative and qualitative methods. Focusing on three state-owned banks in China, 202 questionnaires and 24 interviews were conducted. Analysis of the findings is conducted using SPSS for linear regression in quantitative analysis and NVivo for thematic analysis in qualitative analysis.

Findings suggest that exploitation and exploration promote each other; interaction of managers at different levels contributes to exploration, exploitation, and ambidexterity; and exploitation, exploration and ambidexterity enhance organisational competitiveness in the Chinese banking sector. Further, this research unravels how managers interact with other to facilitate exploitation,

exploration, and ambidexterity, thus solving the tension between exploitation and exploration in a way of making exploitation and exploration complement each other. Thus, this research contribute knowledge to the area of manager's interaction and organisational ambidexterity. More specifically, the conclusion of this research is that the ambidextrous activities of managers shaped by the interaction between managers at different levels is very important to achieve improved or sustained competitiveness in the organisation. This research is limited in the context of Chinese banking sector, and future research of different context is recommended.

**Keywords:**

Innovation, Ambidexterity, Managers' Interaction, Competitiveness, China

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# **CHAPTER 1**

## Introduction

## **1.1 Introduction**

This chapter introduces the background of this research. In recent decades, more and more scholars have paid attention to and studied the important role of innovation and organisational ambidexterity in the survival of organisation. In particular, the ability to balance conflicting needs in the daily task environment is necessary for the long-term development of organisation. The banking industry, especially in China, faces many challenges to obtain the ability of innovate. In general, in this chapter, the researcher provides readers with a background to explain the research objectives and problems, which is the outline of this chapter.

## **1.2 Ambidexterity as a Capacity to Innovate**

Several researchers have focused on innovation and ambidexterity and their relationship with organisational competitiveness. Innovation is defined as the process from innovation activity to innovation outcomes (Pandey and Sharma, 2009). However, the concept of innovation only describes the process of it, but it is vague to describe the ability of organisation to achieve innovation. *“Given that innovation is defined as both the generation and implementation of new ideas, one construct that has come to fore to describe the ability to do both is organisational ambidexterity”* (Pelagio and Hechanova 2014). Therefore, organisational ambidexterity is defined as the capacity of an organisation to both generate and implement new

ideas, which is the core ability to achieve innovation (O'Reilly and Tushman, 2004).

Researchers have claimed that continuous organisational competitiveness is rooted in both exploiting existing competences and exploring new opportunities (Jansen et.al, 2009). Tushman and O'Reilly (2013) believe that organisations engaged in exploratory innovation develop novel knowledge and pursue new products or services to meet the changing needs of emerging market and customers. Meanwhile, organisations pursuing exploitative innovation expand existing products and services for existing markets on the basis of applying existing knowledge and resources (Tushman and O'Reilly, 2013). Research in the literature indicates that successful organisations are characterized by exploring new products, processes, and competences, and exploiting existing products, markets, processes, and competencies (He and Wong, 2004). The performance and competitive benefit of ambidexterity have been asserted to in several research, such as those done by Gupta et al. (2006) and Raisch et al. (2009). Other research such as those done by Nosella et al. (2012) and (Junni et al., 2013) also point out the positive effect of ambidexterity in organisations. However, while other scholars have suggested that organisational ambidexterity has positive impact on firm performance, scholars like Simsek et al. (2009) emphasize that this effect tends to be industry specific. Empirical evidence indicates that a balance between exploration and exploitation is what organisations should seek (Turner et al., 2012). While exploration and exploitation are necessary for increasing an organisation's competitiveness, it is a challenge for organisations to simultaneously pursuit exploration and exploitation (O'Reilly and Tushman, 2013). Although previous literature has focused on the organisational ambidexterity discipline, Simsek (2009) states that organisational ambidexterity

has discussed for decades, however, it is still under-conceptualised and under-theorised thus remains fairly understood phenomenon. Moreover, researchers such as Turner et al. (2012) advocate that the systems, processes, structures, and mechanisms that facilitate ambidexterity are diverse in organisations, further demonstrating the complexity of the phenomenon.

Previous research has pointed that the important role in creating and managing organisational ambidexterity is played by senior managers (see O'Reilly and Tushman, 2008; Jansen et al., 2008; Jansen et al., 2009) and middle managers (Floyd and Wooldrige, 2000; Dover and Dieck, 2010; Awojide, 2015; Turner et al., 2016). Although the significance of managers in achieving ambidexterity (balance of exploration and exploitation) has been highlighted (Goosen and Bazazzianl, 2012; Tushman and O'Reilly, 2013; Hahn et.al, 2016), the specific means of which managers influence the pursuing of exploration and exploitation is still under-developed. In addition, there is no overreaching research that explains whether the interaction of managers at different levels helps organisations become ambidextrous, especially in the Chinese Banking Sector. What is missing, however, is how managers could help organisations become ambidextrous, especially from the aspect of interaction of managers at different levels (senior managers, middle managers, and line managers) in the banking sector.

Importantly, although the research on organisational ambidexterity has increased in many sectors (mostly in manufacture and technology sector) there remains a limited focus on the banking sector, especially in China. China's banking industry plays an critical part in the overall growth of the financial system and economy in China or in the world. Since 1997, the Chinese government has started several rounds of reforms to improve the efficiency of banks and eased

the licensing and entry requirements of domestic small and medium-sized banks, creating a competitive environment for banks. In other words, Chinese banks are forced to sustain competitiveness and managers are thought to play an important role.

Therefore, this research attempts to contribute to the knowledge of ambidexterity from the perspective of managers' interaction in Chinese banking sector. This research explores the influence of the interaction of managers at different levels on organisational ambidexterity in Chinese banking sector, and the effect of innovation and ambidexterity on firm competitiveness in the Chinese banking sector. In addition, this research explores how managers at different levels interact to facilitate organisational ambidexterity. In doing so, this research contributes to knowledge of ambidexterity and managers' activities in the Chinese banking sector with theoretical and contributions and practical implications.

### **1.3 Research Objective**

Organisational ambidexterity is considered to have a positive impact on competitiveness (Nosella et al., 2012; Junni et al., 2011; Suzuki, 2014; Smits et al., 2015; and Goosen and Bazazzianl, 2012). Although prior research examines the key consequences of ambidexterity, such as Suzuki (2014) in pharmaceutical sector, Smits et al, (2015) in chemical sector, the results may be differential in different sectors or countries (Tushman and O'Reilly, 2013). Scholars like Goosen and Bazazzianl (2012) and Junni et al. (2011) conduct a multi-sector

investigation and conclude that organisational ambidexterity has a positive effect on firm performance, but the data is from many different sectors. Goosen and Bazazzianl (2012) collected data from Fortune 500 companies and Junni et al. (2011) collected data from many technology and service companies) making it difficult to indicate the effect of organisational ambidexterity in one specific sector. Importantly, banking sector is still under-developed relating to the impact of ambidexterity on competitiveness and received greater impact from modern technologies.

Managers' activities are considered as the essential enabler of organisational ambidexterity, Raisch and Birkinshaw (2008) have proposed that a promising direction for future research is to exam and analysis ambidexterity at the managerial level. Although researchers have studied managers at top and middle level to the realization of organisational ambidexterity, little has been done through focusing on the interaction of managers at different levels and how this interaction helps in the orchestration of organisational ambidexterity. Therefore, this research is planned to study the impact of interactions of managers at different levels on ambidexterity and the impact of ambidexterity on competitiveness in Chinese banking sector. This research is designed to have two stages.

Firstly, the aim of Stage 1 is to explore the impact of interaction of managers at different levels on ambidexterity and ambidexterity on competitiveness, specifically focused on the Chinese banking sector. Stage 1 of the research will respond to the following questions:

*1) To what extent does managers' interaction at different levels contribute to organisational*

*ambidexterity?*

*2) To what extent does ambidexterity contribute to the competitiveness of Chinese Banks?*

Secondly, based on the result of Stage 1, Stage 2 of the research will be conducted in order to further explore the outcomes (the impact of managers' interaction at different levels on ambidexterity) of Stage 1, and seeks to understand how managers at different levels within the organisation interact with each other in order to foster ambidexterity. The research question for Stage 2 is addressed as:

*How do managers at different levels interact to facilitate organisational ambidexterity in Chinese Banks?*

Thirdly, combining the outcomes of Stage 1 and Stage 2, Stage 3 will further understand the relationship between exploitation and exploration in the interaction of managers for competitiveness in their organisation will be presented in Chapter 6.

The objective of this research is to add knowledge in the literature of innovation and ambidexterity in the banking sector with a focus on managers' interaction at different levels. This research will explore the impact of managers' interaction on ambidexterity and the impact of organisational ambidexterity is orchestrated on competitiveness in the banking sector. Importantly, the research seeks to understand how ambidexterity is achieved through the interactions of managers at different levels within the organisation. The research will enrich the conceptual framework developed from literature review, which will explain the conceptual

relations of managers' interaction at different levels, organisational ambidexterity, and competitiveness. The research will also provide practical guidance to enhance organisations' competitiveness through managers' interaction for innovation through ambidextrous activities in the dynamic environment of the banking sector.

#### **1.4 Research Context**

The banking sector in China is becoming more and more important as financial market, not only because of its huge population, but also because of its high economic growth rate. In other words, there are many opportunities for the development of banking business in China. China is becoming more and more competitive. As has been emphasized, innovation and organisational ambidexterity can provide a competitive advantage for corporations, thus it is very essential to have a decent understanding of what happens in the innovation process. Academically, there is little research in the field of innovation and organisational ambidexterity in China, particularly in the banking sector.

##### *Banking Sector in China*

China's banking sector plays a key part in the overall growth of the financial system and economy in China. Since 1997, the Chinese government has started several rounds of reforms to improve the efficiency of banks and create a competitive environment for banks. In other words, Chinese banks are forced to sustain competitiveness and managers are thought to play

an important role. China's banking system has undertaken a gradual transformation since 1978, with a view to improving efficiency and resource allocation (Heffernan and Fu, 2008).

In 1979, the Chinese government launched a series of economic reforms to convert the planned economy into a market economy. Chinese banking sector has correspondingly been reconstructed and redesigned through some reforms. The two-tier banking system was established in 1979-1993, with the People's Bank of China as the central bank, and four state-owned commercial banks (SOCBs) engaged in commercial bank loans. In order to increase market vitality in the banking sector, the Chinese government has eased the requirements of licensing and entry of domestic small and medium-sized banks. In 1996, 2003, 2004 and 2005, a few joint-stock commercial banks were newly founded. In addition, in order to enable banks to obtain external funds, strengthen supervision, enhance market vitality among banks, and encourage all banks in China to list on the stock exchange. By the end of 2011, 8 of the 12 joint-stock commercial banks were listed on the stock exchanges (Tan, 2016). At the end of 2013, it comprised of three development banks, five large-scale commercial banks, 12 joint-stock commercial banks, 145 city commercial banks, 468 rural commercial banks, 122 rural cooperative banks, 1803 rural credit cooperatives, 1134 new rural financial institutions, one postal savings bank, and 92 branches of foreign banks or non-bank financial institutions, according to the classification and statistics of the China Banking Regulatory Commission (CBRC) and the People's Bank of China (PBC) (Huang et.al., 2019). In 2003, the percentage of possessions of large state-owned commercial banks to total banking assets continuous to decrease, reaching the lowest level in 2011, at 47.3%. On the other hand, since 2003, the

proportion of possessions of joint-stock and urban commercial banks to total banking assets has continued to rise. In 2011, they reached 16.22% and 8.81% respectively. As of the end of 2022 Quarterly 2, the total RMB and foreign currency assets of China's banking institutions at home and abroad reached RMB 367.7 trillion, up by 9.4% year on year. Among those, assets of large-scale commercial banks registered RMB 151.4 trillion, accounting for 41.2% of the total, and up by 11.2% year on year. Assets of joint-stock commercial banks reached RMB 65 trillion, accounting for 17.7% of the total, and up by 7.8% year on year, according to the classification and statistics of the China Banking Regulatory Commission (CBRC). To sum up, several rounds of reform in Chinese banking sector aim to improve market vitality conditions and reduce risk-taking activities, which may affect the profitability of banks.

However, Tan and Floros (2013) claim that increase in market vitality will cause greater risk-taking activities because of the fact that market power of Chinese state-owned banks is reduced, and their charter values are decreased. Still, Despite the remarkable economic achievement of China, the expansion of China's banking system has lagged behind (Dang et al., 2014). The system not only lacks diversity - because resources are concentrated in a small number of state-owned banks, but also severe supervision has caused economic distortions. The political influence of the government on state-owned banks has led to the preference of credit allocation to state-owned enterprises and official projects (Song, et al., 2011). In summary, in order to sustain competitive advantage, Chinese banks need to solve the tension between risk and efficiency and be innovative.

## **1.5 Summary of Findings and Contributions of Thesis**

In this research, the contributions have been made in the area of innovation, organisational ambidexterity, and interaction with managers at different levels' s contribution to organisational competitiveness. This research focuses on the impact of interaction of managers at different levels on organisational ambidexterity and expands the knowledge on how managers build organisational ambidexterity into the organisation. Another important contribution of this research is that it provides indications to support that organisational ambidexterity are achieved by the interaction of managers at different levels because of key inter manager interaction activities, especially in large state-owned banking organisations. Importantly, five contributions have been summarized in this thesis.

Firstly, this research unravels the relationship between exploitation and exploration, extending the theory of ambidexterity. Scholars believe that trade-off and confliction is to define the relationship between exploration and exploitation (March, 1991; Yi et al., 2006; Andriopoulos and Lewis, 2009; Nosella et al., 2012). The findings of Stage 1 (Section 6.2.1) extended this theory that exploitation and exploration are not conflicted but complemented in the Chinese banking sector. Indeed, the finding shows that a complementary relationship between exploitation and exploration is possible in Chinese banking sector.

Secondly, underpinning by Tushman and O'Reilly (2013), the results of the consequences of ambidexterity may be differential in different sectors or countries. This research extends the consequence of ambidexterity in Chinese banking sector. In addition, effects of exploitation

and exploration on competitiveness are also missed in the previous literature. Therefore, this research fills the gap of the effect of exploitation, exploration, and ambidexterity on organisation competitiveness. The result of Stage 1 (Section 6.2.3) shows that exploitation, exploration, and ambidexterity have positive effect on organisation competitiveness in Chinese banking sector.

Thirdly, although numbers of scholars have studied the managers' activities so as to achieve organisational ambidexterity, what is remaining underdeveloped, according to O'Reilly and Tushman (2011), is a comprehensive declaration of the specific management activities that may enable exploration and exploitation simultaneously. This research extends the understanding of managerial ambidexterity by focusing on the interaction of managers at different levels. The results of Stage 1 (Section 6.2.2) illustrate the positive effect of interaction of managers on exploitation, exploration, and ambidexterity. Further, the findings of Stage 2 explain how managers at different levels interact to foster exploitation (Section 6.3.2), exploration (Section 6.3.2), and ambidexterity (Section 6.3.3).

Fourthly, this research contributes to the theory on how managers interact with each other to facilitate organisational ambidexterity. The findings of Stage 2 (Section 6.3.3) show that ambidextrous interaction of managers combine exploitation and exploration in several ways: considering the possibility of both exploitation and exploration; doing exploration in an exploitative way; doing exploitation in an exploratory way. In addition, this finding explains the result on Stage 1 (Section 6.2.1) by unravel how exploitation and exploration are complementing by the interaction of managers at different levels.

Fifthly, imperative practice contributions are also made in this thesis. The researcher appreciates that the level of environmental vitality varies from industry to industry. Therefore, this research suggests that in order to improve the competitiveness of organisations, especially in the banking industry, the organisation should encourage the interaction of managers at different levels applicable to projects and business departments. Further, the ambidextrous interactive activities that identified in this research could be integrated into the instruction manual for managers at different levels in banks in the banking sector.

## **1.6 Outline of Thesis**

This research contains seven chapters in total. Chapter one presents the context of the research, the research rational and objectives, as well as briefing the outcomes of the research.

Chapter two presents the review of literature on innovation, organisational ambidexterity and managers' interaction. The chapter two explores research gaps in the field of innovation and ambidexterity based on the review of existing literature. Then, at the last section of chapter two, a research conceptual framework is developed and presented.

The third chapter is methodology chapter, which emphasizes on the research methodology and research strategies to guide this research. In this chapter, the researcher highlights the significance of both quantitative and qualitative methods and the necessity of mixed methods in exploratory research. This chapter also demonstrates the rationality of the survey method and

case study method, regression analysis and thematic analysis, SPSS and NVivo 12 software used in the process of analysing data in the first and second stages of the research.

In the chapter four, the results of the Stage 1 are presented. The results are based on 202 survey questionnaires collected from managers at different levels in the three state-owned banks in China. In chapter four, the conceptual framework presented in chapter 2 was tested and the results of the impact of interaction of managers on exploitation, exploration, and ambidexterity as well as the impact of exploitation, exploration, and ambidexterity on competitiveness was presented. In addition, the relationship between exploitation and exploration is also tested and presented.

Chapter five presents the outcomes of Stage 2. The outcomes are based on qualitative data that consist of 24 qualitative interviews with managers at different levels in the three state-owned banks in China. In this chapter, this research presents various interactions that are related to the facilitation of exploitation, exploration, and ambidexterity respectively.

In the chapter six, the discussion of the results of Stage 1 and findings of Stage 2 are presented respectively.

Moreover, the last chapter (Chapter 7) draws conclusions and suggestions for future research directions according to the limitations of the research.

# **CHAPTER 2**

## Literature Review

## **2.1 Introduction**

The first chapter introduces the research background of this thesis, points out the challenges faced by banks, and puts forward the research problems to be addressed. In this chapter, the researcher will give a thorough review of the literature on innovation, organisational ambidexterity, the interaction between managers at different levels, and organisational competitiveness. Considerable research has been done on innovation, ambidexterity, and managers' interaction in the last few decades. It is important to review what has been researched and reported in the past per innovation, ambidexterity, and managers' interaction to understand the current gaps in the literature and attempt to remedy these gaps. Therefore, this literature review is conducted to tidy up the collective understanding of innovation, ambidexterity, managers' interaction, and competitiveness, taking those researches that can be regarded as key contribution and development of the innovation, ambidexterity, and competitiveness research. At the last section of the literature review, this researcher summarises some research gaps of the current debate and puts forward the conceptual framework of this thesis. In this chapter, section 2.2 mainly focuses upon innovation, section 2.3 mainly focusses upon organisational ambidexterity, section 2.4 mainly focusses upon interaction of manager at different levels, section 2.5 mainly focusses upon competitiveness. In addition, research gaps and conceptual framework will be illustrated at section 2.6 and section 2.7.

## **2.2 Innovation**

### 2.2.1 Concept of Innovation

The importance of innovation has been widely concerned and argued by scholars in the past century. Schumpeter (1934) believes that economic growth is motivated by innovation. Schumpeter (1934) indicates a critical difference between the concept of invention and innovation, he also highlights the concept of innovation as a separate activity: innovation is achieved when inventions are carried out in the market for a commercial purpose. Accordingly, he adds that innovation occurs only when an invention is introduced in the market and generate a substantial profit (see Schumpeter, 1934; Croitoru, 2012). Zahra and Covin (1994) suggest that *“innovation is widely considered as the life blood of corporate survival and growth.”* Bessant et al. (2005) also emphasis that *“Innovation represents the core renewal process of any organisation, which will jeopardize its survival and development prospects unless it changes what it provides to the world and how it creates and transmits it”*. According to Toivonen and Tuominen (2009), the Schumpeterian view of innovation assumes that the essence of innovation is that being carried into practice, providing profits to the developer, and is the possibility of reproducing. Some scholars have also researched on innovation as it relates to specific sectors and industries. In the banking sector for example, innovation has been described as the blood of efficient and responsive capital market (see Akhavein et al, 2005).

The definition of innovation has also been widely concerned and discussed by scholars in the past century. Scholars such as Vermeulen and Dankbaar (2002) define innovation as *“a new product, process, distribution method, or a new combination of existing products, processes, or distribution methods, perceived as new by the stakeholders.”* Furthermore, innovation is

categorised along two domains: one is the proximity to existing technologies, products, and services, and the other is the proximity to existing customer or market segments (Benner and Tushman 2003). This means that innovation doesn't only include new product, service, or technologies, but also include extension of customers and market (Danneels, 2002). However, Baregheh et al. (2009) conducted a literature review on the definition of innovation from different disciplinary literatures, such as innovation, economics, entrepreneurship, business management, as well as technology, science, and engineering. They analysed the definitions of innovation through a representative pool consisting of 60 definitions in total, and surfaced the key features mentioned in the definitions, and to profile the descriptors used in relation to each attribute, which are showed in the Figure 2-1.

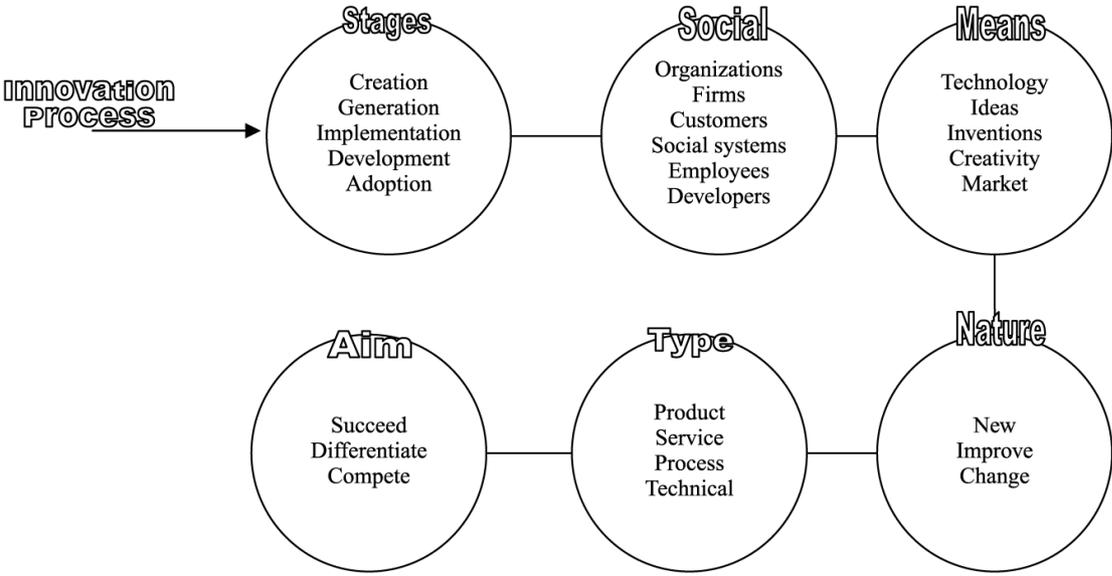


Figure 2-1: A diagrammatic definition of innovation, Source from Baregheh et al. (2009)

Based on the Figure 2-1, Baregheh et al. (2009) also propose that *“innovation is the multi-stage process whereby organisations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace.”* In other words, customer or market extensions are also innovations when comparing with product or service innovations. In order to unravel the definition of innovation, the researcher analysed some more recent definition of innovation, which is showed in Table 2-1.

| Airticle                      | Defintion   |
|-------------------------------|---|
| Thompson (1965 )              | Innovation is the generation, acceptance and implementation of new ideas, processes products or services  |
| Damanpour (1996 )             | Innovation is conceived as a means of changing an organization, either as a response to changes in the external environment or as a pre-emptive action to influence the environment. Hence, innovation is here broadly defined to encompass a range of types, including new product or service, new process technology, new organization structure or administrative systems, or new plans or program pertaining to organization members  |
| Pearson (1997)                | Changes in the process of producing existing lines of insurance for example, improvements in risk assessment (new policy conditions, new classifications of existing risks), in marketing, and in organization. Primary product innovation (PPI) can be defined as new products for new risks, which together sometimes constitute new branches of the insurance industry, in the way that, for instance, employers' liability and railway accident insurance formed branches of accident insurance |
| Chan et al. (1998)            | The purposeful and organized search for changes, and the systematic analysis of the opportunities such changes might offer for economic or social innovation.   |
| Van der Aa and Elfring (2002) | It encompasses ideas, practices, or objects which are new to the organization and to the relevant environment, that is to say to the reference groups of the potential innovator  |
| Plessis (2007 )               | Innovation as the creation of new knowledge and ideas to facilitate new business outcomes, aimed at improving internal business processes and structures and to create market driven products and services. Innovation encompasses both radical and incremental innovation  |
| Oke (2007)                    | New developments in activities undertaken to deliver core service products for various reasons, e.g. to make those core service products more attractive to consumers   |
| Wong et al. (2008)            | Innovation can be defined as the effective application of processes and products new to the organization and designed to benefit it and its stakeholders  |
| Chen et al. (2009)            | May be regarded as novel mechanisms of delivery that offer customers greater convenience and improve a firm's competitive position  |
| Ko and Lu (2010)              | Technology-based inventions, driven by the emergence of new markets or new service opportunities.   |
| Love et al. (2011)            | The commercial application of new knowledge   |
| Straub (2011)                 | Successful launching of new, improved or more competing products, services or organization structures   |
| Cho et al. (2012)             | Introduction of new or significantly improved services and products   |
| Brown and Osbourn (2013)      | The intentional introduction and application within a role, group or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group organization or wider society.   |
| Ferreira et al. (2013)        | Innovation is the mechanism by which firms design and launch the new products, processes and systems necessary to meeting changes both in marketplace technologies and in models of competition   |
| Björk (2014)                  | New products, services, systems, and processes  |
| Giannopoulou et al. (2014)    | A type of product innovation involving the introduction of a service that is new or significantly improved with respect to its characteristics or to its intended uses  |
| Henrike and Schultz (2014)    | Creation of solutions, which can either be emerging incremental adaptations or completely new solutions for products, services, or processes to significantly benefit the care situation of patients  |
| Kuo et al. (2014)             | A new way of business thinking to reform relatively conservative and inflexible operational procedures and processes, which can transform organizations to better meet the needs of their markets   |
| Stenberg (2017)               | Innovation can also be explained as s new idea, product, device or novelty. It is a mind-set, a way of thinking beyond the present and into the future.   |
| Edwards-Schachter (2018)      | Innovation is considered as both the process and outcome of creating or inventing something new and valuable that produces broader effects in the economy and technological advances.   |
| Kahn (2018)                   | Innovation is an outcome, a process, and a mindset, where outcomes arise from an innovation process accentuated by mindset.   |
| Afuah (2020)                  | Innovation is the use of new knowledge to offer a new product or service that customers want. It is invention + commercialization.  |

*Table 2-1: Definitions of Innovation*

Inspired by their research, the researcher also collected 23 definitions of innovation (as showed in Table 2-1). Based on the Table 2-1, definitions of innovation have been divided into three streams: innovation as an action (Chan et al., 1998; Plessis, 2007; Straub, 2011; Cho et al., 2012; Brown and Osbourn, 2013; Henrike and Schultz, 2014), an outcome (Damanpour, 1996; Pearson, 1997; Van der Aa and Elfring, 2002; Oke, 2007; Chen et al., 2009; Ko and Lu, 2010; Björk, 2014; Giannopoulou et al., 2014) or process (Thompson, 1965; Wong et al., 2008; Love et al., 2011; Ferreira et al., 2013; Kuo et al., 2014; Edwards-Schachter, 2018; Afuah, 2020).

Other scholars have also mentioned that innovation is the mindset (a way of thinking) that lead organisations in the innovation process to achieve outcomes (see Stenberg, 2017; Kahn, 2018). What is included in innovation are creation, changes, improvement and development of product/service and process, whereas the definition of the conception of innovation is still unclear: whether it is the creation or changes itself, or the mechanism of it, or a skill or capacity of corporate, or the way corporate turn it into commercial value, otherwise it is just an invention based on view of Schumpeter (1934).

Therefore, the concept of innovation seems to refer not only to the invention itself or the outcomes of innovation activities. More recent research added that innovation is also a mindset, a way of thinking (Stenberg, 2017). Kahn (2018) also emphasized that innovation is an outcome, process, and a mindset. It is more acceptable to consider innovation as a process, rather than an invention or outcomes. Relating to the research on definition of innovation from Baregheh et al. (2009), most definition of innovation focused on one or two attributes of innovation, and the concept of innovation is a multi-stage process.

In this research, the author agrees with the view of Baregheh et al. (2009), which defines innovation as a multi-stage process that leading to innovation outcomes. In other words, based on Schumpeter (1934) 's definition of innovation, innovation has two important stages: innovative activities and innovation outcomes. Also, based on Baregheh et al. (2009)'s view on innovation, innovative activities can be divided by type of innovation: product, service, and process innovation. In addition, innovative activities can also be divided by nature of innovation: radical and incremental innovation (Synder et al., 2016).

### 2.2.2 Types of Innovation

In this section, the researcher will review the literature focused on various types of innovation, including product innovation, process innovation, and service innovation.

#### 2.2.2.1 Product Innovation

Schumpeter defined product innovation as *“the introduction of a new good—that is, one with which consumers are not yet familiar—or a new quality of good”* (Schumpeter, 1934).

Utterback and Abernathy (1975) also define product innovation as a new technology or combination of technologies initiated commercially to meet the need of user or market.

Archibugi and Pianta (1994) define product innovation as the introduction of either a new good that which consumers are not yet familiar with, or a good of new quality. Hage and Meeus (2006) believe that product innovations are products or product varieties that are novel or improved, being produced and sold, and they emphasize that it is a question of what product is

produced. Bessant and Tidd (2007) believe that product innovation is either introduction of new products and services or changes to products and services. Product innovation is defined to include new material product as well as new services by some researchers (Hage and Meeus, 2006; Bessant and Tidd, 2007). Product innovation is divided by OECE (2010) into the products that are only new to the company and the product that are new to the entire market. Eiriz et al. (2013) believe that product innovation corresponds to the generation of new production function, which includes the possibility of distinguishing existing products. Maier (2018) argues that product innovation refers to the development of products, whose characteristics or use intention are significantly different from the products previously produced by the enterprise.

Also, product innovation is thought to have important impact on corporate performance (Maier, 2018). Bayus et al. (2003) did a survey and confirm the positive and significant impact of product innovation on corporate performance. According to Hult et al. (2004), product innovations act as a protector of the firm from competitors and market threats. According to scholars such as Pauwels et al. (2004:149), product innovations in general *“have a positive short- and long-term impact on the firm's top-line, bottom-line, and stock market performance. Moreover, the impact persists over time”*. Similar studies that conducted by Britton (1989), Propris (2002), Andries and Czarnitzki (2014) in their respective contexts also reached similar conclusions on the impact of product innovation on firm performance.

According to Maier (2018), product innovation always meets customers' needs, expectations, dreams, and aspirations through innovative products that combine the latest and greatest knowledge in the field. The same author pointed out that product innovation is a process aimed

at meeting customer needs through design and development, and introducing new products into the market to meet customer needs. Therefore, customers have demand for these new products. Therefore, the process of product innovation not only ends with the use of products, but also the starting point of the process of new product innovation.

#### 2.2.2.2 Process Innovation

Schumpeter defined process innovation as “*the introduction of a new method of production, that is, one not yet tested by experience in the branch of manufacture concerned [or] a new way of handling a commodity commercially*” (Schumpeter, 1934). Utterback and Abernathy (1975) also define process innovation as a production process which progresses over time consisting with the improvement of output productivity. According to Archibugi and Pianta (1994), process innovation is defined as the introduction of a new production process, that is, a production process that has not passed the knowledge test of relevant manufacturing departments or a new process for commercial processing of goods. Generally, process innovation refers to the production or delivery method of implementing a new method, which has been significantly improved and involves changes in technology, equipment, or software (OECD, 2010). Process innovations are defined as new ways of producing goods and services, and it is a matter of how existing products are produced, and the new ways may be technological or organisational (Hage and Meeus, 2006). In their view, process innovation is also defined as introduction of new device, method, tool, or knowledge to produce a product or render a service. Koellinger (2008) believes that process innovation can be regarded as the outward transfer of existing supply functions, corresponding to the reduction of variable costs in the production of

existing products or services, so it is the improvement of productivity. Maier (2018:135) defined process innovation as *“The implementation of a production method, or significant changes in specific techniques, equipment and / or software, in order to reduce production and distribution costs, improve the quality, production or distribution of new or improved products, to increase the efficiency or flexibility of a productive activity or supply activity and to reduce the risks to the environment”*.

Hage and Meeus (2006) also find that process innovation has a typical evolutionary pattern: higher capital intensity, higher direct labour productivity through greater division of labour and specialization, more straight-line flow quality (i.e., that is flow rationalization) in process innovation, more standardized product design and larger process scale. Piening and Salge (2015) also emphasize an internal focus that process innovation has, usually involving the technology of producing and marketing goods or services, which can be reflected through lean product development process or total quality management practice, and focuses on improving effectiveness and efficiency.

### 2.2.2.3 Service Innovation

Apart from product and process innovation, service innovation has been researched by a lot of researchers in recent years. Innovation in the service sector is very different from that in various manufacturing-oriented sectors, Gallouj and Savona (2009) believe that service innovation is usually less formal, more incremental in nature and less technical. Similar with product and process innovation, the definition of service innovation is also based on Schumpeter's definition

on innovation, according to Toivonen and Tuominen (2009), service innovation assumes that innovation is put into practice, provides benefits for developers, and is replicable. More importantly, the same scholars highlight that service innovation is also regarded as a new combination of new knowledge and existing knowledge, which should be clearly distinguished from invention. Service innovation is regarded to be essentially different from product innovation, because service industry has invisibility, heterogeneity, perishability, enhanced customer interaction and the simultaneity between production and consumption (Sampson and Spring, 2012). The same scholars believe that product innovation is regarded as more product and technology oriented and rely on technical expertise and professional ability. Cultural competence (Ettlie and Rosenthal, 2012) and human capital competence such as interpersonal skills (Johns and Storey, 1988) and customer interface and communication skills (Baines et al., 2010) are also mentioned by these scholars to play a more important role in service innovation. To some extent, there is a collective understanding of regarding service innovation as a “new service”, but Witell et al. (2016) argue that this is an inadequate definition suggesting that all firms develop service innovations. The same scholars indicate that from a theoretical, practical or policy perspective, it is futile to claim that all enterprises are innovators, because it does not help researchers understand how innovation helps build brands, enterprises or society (Witell et al., 2016). The same author emphasizes that from the perspective of assimilation, innovation often means "radical technological innovation"; From the perspective of demarcation, it usually means "small process adaptation" of enterprises; From an integrated perspective, it usually refers to skills in new service development. Gummesson (2014) believes that sharing the overall view of service innovation is conducive to theoretical construction and research, and better

operate service innovation in further empirical research. Singh and colleagues (2020) proposed that the implementation of service innovation, which is different from other forms of implementation, is the smallest change in the implementation of current business and is an inevitable adoption process between innovation and users. Therefore, they believe user units and organisations are involved in the process of service innovation.

In summary, In the literature reviewed, the definitions of product, process and service innovation have common characteristics. For example, the author acknowledges that product innovation leads to product differentiation or product quality improvement, process innovation leads to lower production costs, while service innovation leads to increased customers. The driving force of product innovation is mainly customers' demand for new products and executives' desire to enter new markets. The driving force of process innovation is mainly to shorten the delivery cycle, reduce operating costs and increase flexibility (Boer and During, 2001). Edquist et al. (2003)\_Product innovation is divided into new products and new services: new products are the material product innovation of manufacturing industry; new services are intangible and are usually consumed while producing and meeting users' non-physical needs. Based on the literature reviewed, there seem to be a clear difference between product and process innovation, but there is no significant difference between product innovation and service innovation, as service can be defined as the product in terms of service and vice versa. Another aspect of innovation is the nature of innovation. Depending on the degree of innovation, such aspect is labelled incremental innovation and radical innovation.

### 2.2.3 Degree of Innovation Novelty

Whether it is product, process, or service innovation, they have different degrees of novelty, because this novelty is the internal feature of innovation. Therefore, the novelty of innovation is another classification, which can be divided into two categories - progressive and radical (Souto, 2015). From the perspective of product innovation, both modular innovation and architecture innovation may be related to the newness of innovation (Baldwin and Clark, 2006). However, architectural innovation can be regarded as the contributing factor of new design standards in the industry, but the impact of modular innovation is regarded as mild (Habib et al., 2020).

#### 2.2.3.1 Incremental Innovation

Incremental innovation is regarded as a kind of innovation, which has lower novelty, lower risk and cost than radical innovation, but it is much less likely to have a positive impact on enterprise performance (Souto, 2015). Thus, Martínez-Ros and Orfila-Sintes (2009) point out that because it is a significant improvement on the previous products, processes or organizational methods and has low novelty, progressive innovation will not conflict with the previous products, processes or organisational methods, Importantly, consecutive incremental innovations may lead to fundamental innovation.

Incremental innovation refers to products that provide new functions, new benefits or improvements to existing technologies in the existing market (Souto, 2015). “*An incremental new product involves the adaptation, refinement, and enhancement of existing products and/or production and delivery systems*” (see Song and Montoya, 1998:126). Smith (2015) define

incremental innovation as modest changes to existing products, processes, or services to develop the potential of existing designs. Christensen (1997) argues that incremental innovation refers to a change that builds on a firm's expertise in component technology within an established architecture. From the nature of innovation, incremental innovation is defined as the product line extensions or adding modifications to existing products (Snyder et al., 2016). These scholars believe that incremental innovation is market-based, thus, in order to meet the perceived market demand, managers design such products and expect to develop products and services to meet these needs in a relatively short time (Iyer et al., 2006).

#### 2.2.3.2 Radical Innovation

Comparing with incremental innovation, radical innovation is a kind of innovation with high novelty. It breaks the previous existence and is the result of an inconspicuous path or idea. Therefore, thorough innovation contains great challenges and opportunities (Souto, 2015). Radical innovation is argued to be related with the degree innovation is based on substantially new technology comparing to existing technology (Iyer et al., 2006). These scholars also believe that radical innovation is also based on the market, through adoption, a small number of early adopters allowed the company to progress products and compete in the market, that is, the marketers of mature products found that innovation was destructive in the long run (Iyer et al., 2006). Radical innovation is defined as innovation that includes new technologies, resulting in new market infrastructure (Song and Montoya, 1998). Smith (2015) believes that unlike incremental innovation, radical innovation is non-linear and discontinuous whole new design, involving a step change from what has gone before. Smith (2015) believes that concept of

radical innovation is closely linked to Christensen's (1997) notion of "disruptive innovation". Christensen et al. (2015) present that disruptive innovation is technically straightforward, it provides a "set of attributes" different from the mainstream market. Disruptive innovators either create a low-end product to attract customers whose existing products are too complex, too expensive, and too difficult, or gain a foothold in the market by solving a series of customers ignored or ignored by mainstream competitors (Gobble, 2016).

### 2.2.3.3 Modular Innovation

Modular innovation is defined as the improvement of a single component in the management literature, whereas the relationship between the design concept and the overall design remains unchanged (Henderson and Clark, 1990). The rapid change in technology embedded in a wider product architecture (such as artificial intelligence, nanotechnology, and battery technology) is a principal mechanism of technological innovation, which is defined as a modular innovation, which refers to how to introduce new technology into specific components or subsystems of products (Habib et al., 2020). In the innovation and technology management literature, this concept of modular innovation was subsequently adopted, in which the author focused on the comparison between modular innovation and architectural innovation (e.g., Magnusson et al., 2003; Chen and Liu, 2005; Chou et al., 2016). Modular innovation is mainly to show how innovation is carried out in independent modules in broader product design (Habib et al., 2020).

#### 2.2.3.4 Architecture Innovation

On the contrary, architectural innovation appears when new connections are established between existing components or subsystems (Habib et al., 2020). In the management literature, “*architecture innovation refers to the reconfiguration of established systems to connect existing components together in a new way*” (Henderson and Clark, 1990:12; see also Magnusson et al., 2003). In the innovation management literature, architectural innovation is seen to generate system level changes as well as market and technological changes (e.g., Christensen, 1992; Abernathy and Clark, 1985). In addition, in the ambidexterity literature, Huang et al. (2013) argue that architecture innovation is needed to overcome the strategic conflictions between exploitation and exploration, flexibility and efficiency, adaptability and stability, as well as cost reduction and value adding. Therefore, conceptually, architecture innovation refers to creating new interfaces between modules and components (Habib et al., 2020), and it is regarded to be beneficial to organisational change and organisational ambidexterity (Huang et al., 2013).

In summary, there is distinguishable difference between incremental innovation and radical innovation. Accordingly, incremental innovation refers to improvement or small changes to existing product\service or process; radical innovation refers to creation or big changes of product\service or process. Indeed, both incremental innovation and radical innovation are very important for organisations to become innovative. Thus, an innovative organisation should pursue both incremental innovation and radical innovation simultaneously. Previous scholars found that information sharing and joint decision-making are the decisive factors of radical innovation, and benefit and risk sharing can promote incremental innovation (Anh et.al., 2019).

The same scholars also emphasize that since radical innovation requires a high degree of novelty, it can be realized through the exchange of knowledge and relevant information. Also, there is distinguishable difference between modular innovation and architecture innovation, these concepts distinguish the way of innovation: new components and new linkage between components. Importantly, the ability of an organisation to achieve this is defined as organisational ambidexterity (March, 1991). Radical innovation and incremental innovation are very similar with the concept of exploration and exploitation in the ambidexterity perspective. In the next section, the researcher will further explain the linkage between innovation and organisational ambidexterity.

#### 2.2.4 Innovation and Ambidexterity

Scholars have found conceptual connections between innovation and ambidexterity (Rosing et al., 2011; Pelagio and Hechanova 2014). In Section 2.2, the author regard innovation as the process from innovation activity to innovation outcomes. However, the concept of innovation describes the process, but there is a need of concept to describe the ability of an organisation to achieve the innovation process. *“Given that innovation is defined as both the generation and implementation of new ideas, one construct that has come to fore to describe the ability to do both is organisational ambidexterity”* (Pelagio and Hechanova 2014:.22). Pelagio and Hechanova (2014) believe that organisational ambidexterity is the ability of an organisation to both generate and implement new ideas, which is the core ability to achieve innovation.

In their research, Rosing et al. (2011) outlines that there are two activities that innovation

consists of, exploration and exploitation, which are closely related to radical innovation and incremental innovation. On the one hand, exploration is similar to radical innovation, according to Pandey and Sharma (2009), and it is associated with experimentation, divergent thinking, and creativity, and is characterised by risk-taking, discovery, and searching for new alternatives. On the other hand, exploitation is similar to incremental innovation, according to Pandey and Sharma (2009), and it is associated with efficiency, convergent thinking, refinement, and improvement, and it is characterised by risk-avoiding, refinement and execution (Pandey and Sharma, 2009). Instead, scholars like Pelagio and Hechanova (2014) believe that while the innovation processes are complex and nonlinear, the organisation has to constantly shift from exploration to exploitation and vice-versa. These processes define the extent of ambidexterity of the organisation (see Pelagio and Hechanova, 2014).

In summary, the concepts of innovation and ambidexterity are closely related because ambidexterity is to describe the ability of an organisation to innovate. More so, the concepts of exploitation and exploration that beneath ambidexterity is closely related with incremental and radical innovation. In the next section, the author will discuss the concept of organisational ambidexterity.

## **2.3 Organisational Ambidexterity**

### **2.3.1 The Concept of Ambidexterity**

Ambidexterity literally means the ability to use both hands equally. In the management literature, the term is used to refer to the ability of an organisation to explore new capabilities while exploit their existing capabilities (Zacher et.al., 2016). March (1991) first proposed the concept of organisational ambidexterity — defined as *"the ability of organisations in uncertain and evolving environments, to explore new opportunities and exploit existing core activities simultaneously, to assure long-term success"*. Scholars suggest that ambidexterity is a capability or an ability to manage and solve the tensions occurring within an organisation. It seems to be problematic to carry out the two activities simultaneously as there are tensions between them because they are competing for the same resources (Tushman and O'Reilly, 1996). Gibson and Birkinshaw (2004) propose that ambidexterity can be viewed as the activitiesal capacity to simultaneously demonstrate alignment and adaptability across an entire business unit. Tushman and O'Reilly (2008) believe that innovation and efficiency are not always trade-offs when ambidexterity as a dynamic capacity solve the dilemma of exploration and exploitation. According to Simsek et al. (2009), the concept of organisational ambidexterity has been enormously used to sketchily refer to an organisation's capacity to perform differing and often competing, strategic acts at the same time. Realising organisational ambidexterity requires simultaneously both operating explorations to tap new opportunities and operating exploitation to enhance existing capabilities (Andriopoulos and Lewis, 2010). Madani and Andersson (2016) purpose that organisational ambidexterity is referred to the capability to balance and resolve tensions between these opposing forces (exploration vs. exploitation).

However, there are some different thoughts on the definition of ambidexterity. Carmeli and

Halevi (2009) define organisational ambidexterity as the synchronic chase of exploration and exploitation, via different subunits or individuals specializing either exploration or exploitation. Mom et al. (2009) also propose that ambidexterity is a manager's activitiesal alignment within a certain period of time to balance exploration and exploitation. Heracleous et al. (2017) claim that ambidexterity refers to a way of organisation to accommodate the tensions arising from exploration and exploitation related activities.

Previous scholars conceptualise ambidexterity as an organisational capability to solve tensions in organisations, alignment against adaptability (March, 1991), exploration against exploitation (Gibson and Birkinshaw, 2004), long-term adaptability against short-term survival (O'Reilly and Tushman, 2008), new product domains against existing product domains (Wang and Rafiq, 2014). The definitions indicated in Table 2-2, show that organisational ambidexterity has been discussed within several reference theories such as organisational design, innovation management, strategic management, and organisation learning. Except for some isolated cases, people have reached clear agreement and temporary continuity on the conceptual definition of organisational ambidexterity as a kind of ability or capacity. Based on the literature, there is a consensus of definitions of ambidexterity could be defined as the capacity of organisation to balance exploration and exploitation. Importantly, several scholars emphasize the conflictions and tensions that the organisation needs to solve to balance these two innovation processes. In this research, the researcher agrees with the definition that ambidexterity is defined as the capacity to simultaneously pursue exploration and exploitation. In the next section, the researcher will further review the definitions and relationship of exploitation and exploration.

| Article                                | Reference Theory        | Defination   |
|--|-------------------------|--|
| March (1991)                           | Organizational design   | Organizations operating in uncertain and evolving environments need to explore new opportunities and exploit existing core activities simultaneously, to assure long-term success  |
| Tushman and O' Reilly (1996)           | Organizational design   | The ability to simultaneously pursue both incremental and discontinuous innovation and change that result from hosting multiple contradictory structures, processes, and cultures within the same firm   |
| Gibson and Birkinshaw (2004)           | Organizational design   | The behavioural capacity to simultaneously demonstrate alignment and adaptability across an entire business unit. Contextual ambidexterity can be viewed as a meta-level capacity that permeates all functions and levels in a unit, rather than as a 'dual structure' in which the two demands are kept separate  |
| Im and Rai (2008)                      | Organizational learning | An organization' s capability to conduct two paradoxical things at the same time by requiring organizations and their people to have two heterogeneous but related skills simultaneously   |
| He and Wong (2004)                     | Innovation management   | The capability to operate in both mature markets and develop new products and services for emerging markets  |
| Jansen et al. (2008)                   | Innovation management   | Organizations capable of pursuing exploration and exploitation simultaneously  |
| Andriopoulos and Lewis (2009)          | Innovation management   | The ability to excel at conflicting modes of innovation: at exploiting existing products to enable incremental innovation and at exploring new opportunities to foster more radical innovation   |
| Jansen et al. (2009)                   | Innovation management   | A dynamic capability that refers to the routines and processes by which organizations mobilize, co-ordinate, and integrate dispersed contradictory efforts, and allocate, reallocate, combine, and recombine resources and assets across differentiated exploratory and exploitative units   |
| Andriopoulos and Lewis (2010)          | Innovation management   | The ability to excel at conflicting modes of innovation  |
| Lubatkin et al. (2006)                 | Strategic management    | Ambidextrous firms are <i>capable</i> of exploiting existing competences as well as exploring new opportunities with equal dexterity   |
| Cao, Gedajlovic and Zhang (2009)       | Strategic management    | Firm <i>capable</i> of both exploiting existing competencies as well as exploring new opportunities. There exist two distinct but related dimensions of ambidexterity, one pertaining to the balance between exploration and exploitation, 'balance dimension of ambidexterity' (BD), and the other pertaining to their combined magnitude, 'combined dimension of ambidexterity' (CD) |
| Carmeli and Halevi (2009)              | Strategic management    | The synchronous pursuit of both exploration and exploitation via loosely coupled and differentiated subunits or individuals, each of which specializes in either exploration or exploitation   |
| Mom, van den Bosch and Volberda (2009) | Strategic management    | A manager' s behavioural orientation toward combining exploration and exploitation related activities within a certain period of time  |
| Madani and Andersson (2016)            | Strategic management    | The ability to balance and solve the tensions between these opposing forces (exploration vs. exploitation) is referred to as <i>organizational ambidexterity</i>   |
| Palm and Lilja (2017)                  | Strategic management    | The capability of an organization to perform not only incremental quality improvements to the existing processes and products but also innovative or radical improvements that explore new opportunities is referred to as <i>organizational ambidexterity</i> .   |
| Chandrasekaran et al. (2012)           | Strategic management    | The organization' s ability to explore and exploit in comparison to its competitors in a similar environment.  |
| O'Reilly and Tushman (2013)            | Innovation management   | The ability of an organization to both explore and exploit—to compete in mature technologies and markets where efficiency, control, and incremental improvement are prized and to also compete in new technologies and markets where flexibility, autonomy, and experimentation are needed.  |
| Nosella et al. (2012)                  | Innovation management   | The capability of an organization to manage conflicting activities and tensions by achieving high levels of both simultaneously, comes into play as a possible solution to this concern  |
| Heracleous et al. (2017)               | Organizational design   | A way for organizations to accommodate the tensions arising from simultaneous exploration and exploitation   |

Table 2-2: Definitions of Ambidexterity

## 2.3.2 Exploration and Exploitation

### 2.3.2.1 Concepts of Exploration and Exploitation

Several types of tensions have been discussed; these tensions make the ambidexterity literature quite fragmented. They include alignment against adaptability (March, 1991), exploration against exploitation (Gibson and Birkinshaw, 2004), long-term adaptability against short-term survival (O'Reilly and Tushman, 2008), new product domains against existing product domains (Wang and Rafiq, 2014). In this research, the researcher chooses to focus on the tensions between exploration and exploitation.

*“Exploration is associated with terms such as search, variation, risk taking, experimentation and discovery, while exploitation is associated with refinement, production, efficiency, selection, implementation and execution”* (March, 1991:71).

Some previous scholars link exploration and exploitation directly with innovative achievements, i.e., products or services (Levinthal and March, 1993; Dowell and Swaminathan, 2006; Jansen et al., 2006; Greve, 2007). In such case, exploration and exploitation are frequently used as identical with ‘radical innovation’ and ‘incremental innovation’, respectively (Benner and Tushman, 2003; Jansen et al., 2006). For example, Levinthal and March (1993) believe that exploratory innovations are radical innovations and are designed to meet the needs of emerging customers or markets, exploratory innovations require new knowledge or departure from existing knowledge. Similarly, Greve (2007) in his/her research measured exploration as the

quantity of ‘new to the firm’ innovations that involved the development of new technology, and measured exploitation as all other types of innovations. Conversely, exploitations are incremental innovations and are considered to meet the requirements of existing customers and markets (Danneels, 2002).

Unlike early scholars who consider exploitation and exploration as innovation outcomes (see Levinthal and March, 1993; Dowell and Swaminathan, 2006; Jansen et al., 2006; Greve, 2007), more and more scholars consider exploitation and exploration as innovation process (Levinthal, 1993; He and Wong, 2004; Pandey and Sharma, 2009; Pelagio and Hechanova, 2014).

As stated in Section 2.2.3, some scholars investigate exploration and exploitation in terms of the innovation process, which involves learning activities, activities, investment, and strategies (e.g., Levinthal, 1993; He and Wong, 2004; Van et al., 2005; Jansen et al., 2006; Pelagio and Hechanova, 2014). Levinthal (1993) suggest that exploration and exploitation are two different innovation processes, exploration refers to exploratory innovation and exploitation refers to exploitative innovation (Jansen et al., 2006). These scholars considered exploitation and exploration as different forms of the learning process through which innovations come forth. He and Wong (2004:485) explicitly assert that: *“We did not use scales related to radical versus incremental innovation because exploration and exploitation should be used with reference to a firm’s ex-ante strategic objectives in pursuing innovation, whereas the radical versus incremental innovation is often used in an ex-post outcome sense”*. Exploration is related to experiment, divergent thinking, and creativity, which is the ability to discover in the early stages of the innovation process, including generating new ideas and concepts; Exploitation is

generally employed at the latter stages of innovation when focus is on implementing and commercializing new ideas (Pelagio and Hechanova, 2014). *Suzuki* (2014) define exploitation and exploration as alternative modes of organisational learning underlying innovation initiatives: exploitation is the use and refinement of existing knowledge within an organisation's internal domains, while exploration is the search for and pursuit of new knowledge within an organisation's external domains.

As the rapidity of change and competition accelerates and increases, enterprises are pushed to update themselves by both using existing capabilities and exploring new capabilities (Floyd and Lane, 2000). Scholars believe that organisations who engaged in exploratory innovation often acquire new knowledge and progress new products and services for emerging market and clients, whereas organisations who engaged in exploitative innovation refine existing knowledge and expand existing products and services for existing clients (Benner and Tushman, 2003). Lavie et al. (2010) finds that in the early research, learning, improving, and acquiring new knowledge is the core of exploitation and exploration. At the same time, the difference between the two concepts is whether the new learning takes place along the same track as the old one or along a completely different track as the new one (Lavie et al., 2010).

Critically, based upon the view on the relationship of exploitation and exploration in current literature is that there are conflictions (March, 1991; Yi et al., 2006; Andriopoulos and Lewis, 2009; Nosella et al., 2012; Huang et al. 2013) and tensions (March, 1991; Tushman and O'Reilly, 1996; Agostini et al. 2016; Madani and Andersson, 2016; Heracleous et al., 2017) between exploitation and exploration, several scholars have different views on the relationship of

exploitation and exploration. Lavie et al. (2010) contends that researchers who employ the framework of exploration-exploitation, should theoretically transmit their concepts back to original definitions of March (1991). Additionally, Lavie et al. (2010) suggest that the distinction of exploration and exploitation is often “*a matter of degree instead of a kind*”, and exploration-exploitation concepts should be viewed as “*a continuum rather than a choice between discrete options*”. Scholars find that exploration and exploitation related activities are not always undivided but as in-between activities that combine new knowledge development and leveraging of existing knowledge (Lavie and Rosenkopf, 2006). Scholars also find that conceptualising exploration and exploitation may consist with the movement of organisations to transit from exploration to exploitation and vice versa over time (Rothaermel and Deeds, 2004; Brunner et al., 2006; Lavie et al., 2010). The review gives the researcher an opportunity to further understand ambidexterity from managers’ perspective and to see how exploration and exploitation work in Chinese banks.

In summary, organisations operating in an uncertain and changing environment requires exploring new opportunities while leveraging existing core activities to ensure long-term success (March, 1991). Although the importance of pursuing these two kinds of innovation is often emphasized, there is still a lot to know about how to coordinate the development of exploratory innovation and exploitative innovation at the same time (O’Reilly and Tushman, 2013). Obviously, in terms of innovation process viewpoint or innovation outcome viewpoint, there is an ambiguity of the definition of exploration and exploitation.

Although comparing the two viewpoints, both outcome view and process view have their

legitimacy and advantages, Yi et al. (2006) proposed that exploration and exploitation are two different innovation processes, and exploration and exploitation are very important for the adaptation and survival of organisations. They also believe that these two different types of innovation processes involve different risk-taking, require different investments and resources, and ultimately lead to different financial returns (Yi et al., 2006). Linking with the definition of innovation, innovation is defined as the process from innovation activity to innovation outcomes in Section 2.2, and incremental and radical innovation are closely connected with exploitation and exploration respectively (Jansen et al., 2006; Pelagio and Hechanova, 2014). However, the concept of innovation describes the process, but it is vague to the ability of organisation to achieve innovation, thus, organisational ambidexterity is the concept to describe the ability. In addition, different views of the relationship between exploitation and exploration are still controversial (confliction or a matter of degree) as seen above. Thus, in this research, exploration and exploitation will be considered as two innovation processes: exploitation is defined as improvement, development and changes of existing product or service; while exploration is defined as creation, development of new product or service.

#### 2.3.2.2 Dimensions of Exploration and Exploitation

Scholars like Popadiuk et al. (2009) believe that there are at least two views in the research of exploration and exploitation strategy: they are related to the internal environment and external environment respectively. In terms of internal environment, the focus is on the ability of the organisation, so it is to make efficient and effective use of its resources. From the perspective of the external environment, seeking a favourable competitive position means constantly

monitoring competition and establishing consistent partnerships with several participants in the external environment. Based on their argument, from an internal perspective, exploitation and exploration are determined to include five dimensions: (1) organisational efficiency; (2) Organisational knowledge; (3) Strategic positioning; (4) The cost of organising activities; (5) The result of organisational knowledge application, that is, incremental or radical innovation. From an external perspective, there are two dimensions: (1) competition monitoring; (2) Relationship with external environment related to cooperation / alliance. Table 2-3 shows a set of attributes related to each dimension, which are taken from the literature review (Popadiuk et al., 2009).

| Dimensions  | Exploration                                  | Exploitation                                  |
|-------------|--|---|
| Knowledge   | High level of focus on use of new knowledge  | Lower level of focus on use of new knowledge  |
| Innovation  | High level of focus on search for innovation | Lower level of focus on search for innovation |
| Strategy    | Long term strategy                           | Short term strategy                           |
| Efficiency  | Lower level of focus on efficiency           | High level of focus on efficiency             |
| Competition | Lower level of competition                   | High level of competition                     |
| Cost        | Lower level of focus on production cost      | High level of focus on production cost        |
| Partnership | Creation of partnership                      | Amplification of partnership                  |

*Table 2-3: Attributes associated to the dimensions of the exploration and exploitation strategies (Popadiuk et al., 2009)*

According to the declaration of Popadiuk et al., (2009), to achieve organisational ambidexterity, risk aversion concerns also need to be solved. Severgnini et al., (2019) declare that risks and uncertainties affect the way an organisation invests resources in exploration or exploitation, and this risk mitigates the direct impact of exploration and exploitation on performance and

decision-making, amplifying, or reducing their effects. Thus, risk reduction is very important for organisations to achieve organisational ambidexterity.

As summarized by Mom et al. (2009), the research focuses on the exploration and exploitation activities of managers. The essence of exploration activities is to create diversity in experience, and the essence of exploitation activities is to create reliability in experience. Such exploration activities of managers include finding new organisational norms, practices, structures, and systems, and trying new technologies, business processes or market methods, innovating and adopting a long-term orientation and reconsidering existing beliefs and decisions (McGrath, 2001; Mom et al., 2009). Mom and colleagues (2009) believe that one of the important manager's exploration activities is search for new possibilities with respect to product/service, process, and market. The following findings are consistent with these statements. Such exploitative activities of managers include using and improving their existing knowledge, expanding, applying, and improving existing processes, capabilities, technologies, and products focusing on production and taking a fairly short-term orientation, and elaborating on existing beliefs and decisions (McGrath, 2001; Mom et al., 2009).

### 2.3.3 Perspectives of Ambidexterity

There are two main perspectives of research on organisational ambidexterity, one is *structural ambidexterity* which is emphasized by scholars such as Duncan, (1976), Tushman and O'Reilly, (1996), O'Reilly and Tushman (2013) and the other is *contextual ambidexterity* which is emphasized by scholars such as Gibson and Birkinshaw (2004), Wang and Rafiq (2012). In

addition, managerial ambidexterity has been the third perspective on organisational ambidexterity because it focuses on the individual (managerial) levels (Floyd and Lane, 2000; Gibson and Birkinshaw, 2004; Mom et al., 2009). Ambidexterity is achieved by exploration and exploitation in a situation within the same business unit and achieved structurally by different independent units (Simsek et al., 2009). Raisch et al. (2009) argue that conceptual work of organisational ambidexterity has been started from empirical studies that provide evidence of ambidexterity's positive effect on firm performance (Gibison and Birkonshaw, 2004, He and Wong, 2004) to initial attention to structural antecedents and then extended to investigation of the roles played by contextual (Gibison and Birkonshaw, 2004), informal network (Gulati and Puranam, 2009), and leadership-based (Beckman, 2006) antecedents of ambidexterity. Raisch et al. (2009) discuss that there are four tensions in the literature of organisational ambidexterity: differentiation or integration, individual or organisational level, static or dynamic, and internal or external. These factors will be discussed in this research.

#### 2.3.3.1 Structural Ambidexterity

Tushman and O'Reilly (1996) suggest that a key means by which organisations try to resolve the tensions associated with organisational ambidexterity is by using separate structures whereby organisations are able to concurrently manage short-term efficiency and long-term growth. This involves the structural separation of exploration and exploitation related activities in different business units; each with their own alignments and capabilities. In addition, structural ambidexterity, as stated by Gibson and Birkinshaw (2004:211) is achieved by *“developing structural mechanisms to cope with the competing demands faced by the*

*organisation for alignment and adaptability.*” From the structural ambidexterity’s view, the solution of tension between exploration and exploitation is the different activities of the independent organisational units (Agostini et al. 2016). Benner and Tushman (2003) indicate that structural separation permits units to focus on both on innovation, and results and short-term efficiency imposed on major organisations. According to O’Reilly and Tushman (2013), there are numerous research explore the association of structural ambidexterity and firm performance that confirm the positive effect of ambidexterity on firm performance.

In order to actualize structural ambidexterity, there are four enabling mechanisms namely ‘metaroutine’, ‘enrichment’, ‘switching’, and ‘partitioning’ (Adler et al., 1999). In their view, metaroutine is a set of general architecture principles, which distinguish routine work from unconventional work; Enrichment is to increase and integrate all kinds of conventional and unconventional work, while balancing exploration and exploitation; Switching reflects the concept of routine and unconventional work rotation; Partitioning refers to the use of dual structures within an organisation or department to coordinate routine and unconventional work (Gibson and Birkinshaw, 2004; Huang and Kim, 2013:926). Jansen et al. (2009) present that, structural differentiation tends to benefit ambidextrous organisations on maintaining a variety of inconsistent and conflicting needs, however, differentiated exploration and exploitation activities need to be mobilized, coordinated, integrated, and applied. From his idea, he suggests that informal senior team (i.e., senior team social integration) and formal organisational (i.e., cross-functional interfaces) integration mechanisms assert direct effect on ambidexterity. Fang et al. (2010) further pointed out that both exploration and exploitation can be effectively

managed through semi-autonomous subunits, thus leading to structural ambidexterity. They also highlight that those semi-autonomous subunits have only a small number of cross team contacts, such as inter team liaison roles, personnel rotation, or cross departmental task forces.

Accordingly, the importance of these integration mechanisms raised by Fang et al. (2010) is confirmed in other literature. Some scholars suggest that the pursuit of structural ambidexterity may be largely a leadership issue, not just a structural issue (Jansen et al., 2009; Heracleous et al., 2017). These scholars disclose the key issues in the area of structural ambidexterity: it is expressive to structurally separate the organisation to manage tensions in the organisation, and highlight the essential role of managers in pursuing structural ambidexterity by enabling integration and maintaining the connections between different units. Scholars in this factor contribute the definition of structural ambidexterity and how organisations achieve ambidexterity with structural solution. There are also some empirical research acknowledge the positive of structural ambidexterity towards firm performance, those will be discussed later in this chapter.

#### 2.3.3.2 Contextual Ambidexterity

Gibson and Birkinshaw (2004) first propose that the tensions associated with ambidexterity could also be resolved through what they termed contextual ambidexterity at the individual level. They defined contextual ambidexterity as "*the activitiesal capacity to simultaneously demonstrate alignment and adaptability across an entire business unit.*" In their view, the ability to balance exploration and exploitation depends on "*an organisational environment*

*characterized by the interaction of extensibility, discipline and trust*" and requires a *"supportive organisational environment"*, which *"encourages individuals to judge for themselves how to best allocate time between conflicting consistency and adaptive needs"* (Gibson and Birkinshaw, 2004:211; O'Reilly and Tushman, 2013). From the contextual ambidexterity perspective, an ambidextrous organisation could simultaneously and internally build balance between exploitation their existing competences and exploring new opportunities in business units (Wang and Rafiq, 2014). At the organisational level, the contextual ambidexterity can be defined as a collective orientation of the simultaneous adjustment and adaptation of employees (Kusumastuti et al., 2015). According to Gibson and Birkinshaw (2004), since the demands of a firm in task environment are to some extent conflict, enterprises in a dynamic environment always have no choice but to look for new opportunities while consolidating their existing businesses, which makes the contextual ambidexterity a necessary condition for enterprises to achieve short-term and long-term sustainability. Gibson and Birkinshaw (2004) argue that it is more difficult to achieve contextual ambidexterity because the processes or systems that encourage individuals to manage time between conflicting demands for alignment and adaptability is more complex than managing one consistent strategy after another. Contextual ambidexterity epitomizes the development of a whole organisation geared to the combination of exploration and exploitation through a procedure of organisational learning, so as to avoid the coordination cost caused by structural separation and the transition cost caused by time separation (Simsek et al., 2009). Kusumastuti et al. (2015) argue that an organisation's innovation ability is created through the organisational environment in the form of performance management and social support. They also highlighted that the design of organisational

performance management and social support can provide an environment to support employees' innovative act in an exploratory and exploitative sense. At the organisational level, the contextual ambidexterity can be defined as a collective orientation of the simultaneous adjustment and adaptation of employees (Kusumastuti et al., 2015). Contextual ambidexterity is reinforced by formal structures that facilitate switching between exploratory and exploitative activities on the organisational, team, and individual levels, thus, Güttel and Konlechner (2009) identify four formal structural elements that keep ambidextrous organisations in line: operationalized business model and target agreements, semi structures, fluid project-based structures, and HR systems. In addition, Havermans et al. (2015) believe that contextual ambidexterity is not conceptualized at the organisational level, but at the individual and group levels. In their view, this form of ambidexterity contributes to the adaptation of the whole subsystem and encourages individuals to use their own judgment to combine alignment oriented and adaptation-oriented activities. Therefore, researchers propose that organisational ambidexterity may be achieved rather than from implementing dual structures (structural ambidexterity), but from the feature of the organisational context in terms of organisational cultures and norms. Havermans et al. (2015) also highlight that rather than realized at the structural level, organisational ambidexterity is realized at individual level. In a supporting environment, individuals are actually indirectly driven to organise their working hours in order to integrate two opposite activities in daily tasks. Therefore, although the structure definition uses structural ambidexterity as a means to achieve ambidexterity, the context definition recommends the establishment of a carefully selected system and process "to enable and encourage individuals to make their own judgment on how to allocate time between opposing

needs" (Gibson and Birkenshaw, 2004).

#### 2.3.4 Managerial Ambidexterity

Previous research on organisational ambidexterity shows that exploration and exploitation are usually conducted simultaneously at the organisation level (e.g., Benner and Tushman, 2003 and He and Wong, 2004) or at the business unit level (e.g., Gibson and Birkinshaw, 2004). At the individual analysis level, there are limited conceptual and empirical studies on exploration and exploitation (Raisch and Birkinshaw, 2008; Mom et al., 2009). Importantly, the role of managers in building ambidextrous organisations has been researched by scholars. Previous research has pointed to the important role played by senior managers in creating and managing organisational ambidexterity (see O'Reilly and Tushman, 2008; Jansen et al., 2008; Jansen et al., 2009). Managerial ambidexterity involves individual managers combining both the activities of exploration and exploitation within a specific time period (Gibson and Birkinshaw, 2004).

Scholars like Floyd and Lane (2000) draw their attention on the role of senior managers, they indicated an implication that senior managers ought to solve conflict and make the precise decision according to the circumstance. Jansen et al. (2008) pointed out that the common vision and substitute reward of a senior team are related to the company's ability to combine high-level exploratory innovation and exploitative innovation. In addition, their research shows that the transformational leadership of executive directors improves the effectiveness of senior team attributes in organisational ambidexterity and regulates the effectiveness of senior team social

integration and substitute reward (Jansen et al. 2008). The fundamental indication of ambidextrous leadership is that the density of innovation activities needs to be matched by a correspondingly compound leadership approach. Organisational ambidexterity can be achieved by switching between two complementary leadership activities -- opening and closing activities -- predicting individual and team innovation, in which Open leadership activities are defined as leader activities, which increase the differences of follower activities by encouraging followers to do things and experiment in different ways, give followers space for independent thinking and action, and support followers' attempts to challenge the current situation. Closing leadership activities are defined as leader activities, which reduce the differences of follower activities by taking corrective measures, formulating specific guidelines, and monitoring the realization of objectives (Rosing et al., 2011). Moreover, ambidextrous leadership theory contends that opening leadership activities lead to follower exploration activities and closing leadership activities lead to follower exploitation activities (Jansen et al. 2008). Combining both types of leadership activities, ambidextrous leadership was defined as *“the ability to foster both exploratory and exploitative activities in followers by increasing or reducing variance in their activities and flexibly switching between those activities”* (Zacher and Rosing, 2015:55). Carmeli and Halevi (2009) suggest that top management teams influence ambidextrous orientation through decision making processes. Smith and Tushman (2005) indicate that top management teams engage in resource allocation and organisational design decisions to balance short- and long-term outcomes). According to Smith and Tushman (2005), balanced strategic decisions are defined as 1) distributive decisions because they involve the allocation of resources between existing products and innovation, and they are balanced in supporting the

two products over time, and 2) decisions to integrate these opportunities, linkages and innovation, and the possible synergies of exploitation and exploration activities are recognized. Mom et al (2009) indicate that there are three related characteristics that ambidextrous managers have. Firstly, they have the motivation and ability to be sensitive to, to understand, and to pursue a range of seemingly conflicting opportunities, needs and goals (Host contradictions). Secondly, they fulfil multiple roles and conduct multiple different tasks within a certain period of time, both refine and renew their knowledge, skills, (Multitaskers). Thirdly, they acquire and process different kinds of knowledge and information (Expertise). This factor scopes the importance of managers in pursuing organisational ambidexterity. Managers are rather vital in achieving organisational ambidexterity, senior managers and top management teams are thought to need to focus on the combination of exploration and exploitation and take appropriate risks, are heavily emphasis in research in this area (Tushman, O'Reilly, 2012).

In an ambidextrous organisation, the role of middle managers is to focus on complexity—plan, organize, coordinate and control; the role of top managers is to focus on changing direction, adjusting, and motivating employees; The role of entrepreneurs is to focus on opportunity identification, innovation and value creation (Dover and Dieck, 2010). Researchers believe that top managers' activities are the key enabler in building an ambidextrous organisation. Middle managers, on the other hand, are always considered to focus on the short-term outcomes and have little contribution to organisational ambidexterity. However, few research have been drawn attention on the role of middle managers when it comes to achieving organisational ambidexterity. Burgess et al. (2015) conducted a case study on how middle managers facilitate

organisational ambidexterity in hospitals. They argue that middle managers have a critical influence on organisational ambidexterity, by spanning boundaries through linking activities, adjusting strategy from their position, and managing change with frontline employees (Floyd and Wooldrige, 2000). Awojide (2015) also conducted a case-study research to further explore the role of middle managers in achieving ambidexterity and their toolkit from organisation culture resources. In his research, he argues that middle managers' exploitative activities are alignment and guide refinement; middle managers' exploratory activities are innovativeness, adaptability and leading and encouraging change; middle managers ambidextrous activities are multitasking, swift decision making, developing others and creativity. Turner et al. (2016) also contended that one of the critical antecedents of organisational ambidexterity is managers' ambidextrous activity at the individual level. In this area, most of the research investigate the contribution of the top managers' activities, only a few has been done upon a qualitative method on how middle managers contribute to the organisational ambidexterity.

### 2.3.5 Antecedents of Ambidexterity

Antecedents of ambidexterity is the factors that lead to organisational ambidexterity. Existing literature on the antecedents of organisational ambidexterity contains three main solutions. Structural solutions allow two activities in different business units, contextual solutions that allow two activities in the same department, and leadership-based solutions (Raisch and Birkinshaw, 2008; Simsek et al, 2009; Awojide, 2015).

O'Reilly and Tushman (2004) argue that structural differentiation contends that "dual structures"

could separate exploitative and exploratory activities, prevent them from conflicting with one another. Jansen et al. (2009) also present that physical separation in the organisation leads to structural differentiation, in which R&D facility is in charge of exploration while the manufacturing facility is in charge of exploitation. Chandrasekaran et al. (2012) believe that organisations are faced with frequent changes in customer preferences, technological innovation, and regulations, which may lead to changes in exploration-exploitation objectives at the strategic level.

Previous literature that focused on organisation context solution helps understand how alignment and adaptability promote ambidexterity capability in practice (Chandrasekaran et al., 2012). A higher level of constancy between the strategic level and the project level promotes the constancy and precision of exploration and exploitation objectives and makes organisation members to work together towards the same objectives and share the same vision (Gibson and Birkinshaw, 2004). Literature that focused on organisational context solution also provides the explanation of how the adaptability of objectives and decisions between strategic and project levels affect the ability of the organisation to explore and exploit, Having adaptive project team structure and facilities to meet the new needs of the project and allowing the business department to quickly respond to changes in market or customer needs (Gibson and Birkinshaw, 2004). Scholars like Chandrasekaran et al. (2012) also claim that contextual alignment affects ambidexterity capability for high tech organisations. Besides of structural and contextual solutions, leadership is another solution to achieve ambidexterity (O'Reilly and Tushman, 2013)

The researches on leadership for ambidexterity are mainly carried out in the form of relatively

stable characteristics of leaders or teams, such as transformational leadership, activity integration, trust and discipline among followers (Jansen et al., 2009; O'Reilly & Tushman, 2008). Havermans et al. (2015) indicate that when responding adaptively to environmental stimuli, leaders switch between practices that emphasize exploitation or exploration in order to (regain) the high level required by both, and their formulation is limited by the conditions of maintaining a high level of exploration and exploitation at the same time. Chandrasekaran et al. (2012) argue that a capability in ambidexterity contains three competences at different organisational levels: decision risk (strategic level), structural differentiation (project level), and contextual alignment (meso level). These scholars also present that realising organisational ambidexterity is not a single level issue (strategic or project level), but it needs to be synchronized across multiple levels. The data they collected show that decision-making risk and contextual alignment will affect the ambidexterity ability of high-tech organisations, while structural differences will not affect the ambidexterity ability, but will have a mixed impact on the performance of R & D projects. Palm and Lilja (2017) propose that to achieve ambidexterity, managers should realize and can communicate with the exploration and exploitation team and create a culture that allows mistakes. Incentives for both exploration and exploitation are also key antecedents when the organisation formulates objectives and evaluates, explorative as well as exploitative activities can both be seen as equally important (Palm and Lilja, 2017). Baskarada et al. (2016) identify three key organisational mechanisms that leaders use to promote exploitation: training, performance management and knowledge management. Baskarada et al. (2016) also identify five key organisational mechanisms that leaders use to promote exploration: commitment, vision, risk comfort, empowerment, and inclusivity

Paliokaitė and Pačėsa (2015) present that organisational foresight is discussed to be the antecedents to organisational ambidexterity. Discussion on the antecedents to organisational ambidexterity emphasis its link to organisational foresight. First, the importance of the external acquisition of new knowledge is often focused, Raisch et al. (2009) stressed the importance of the external acquisition of new knowledge in their research. Second, ambidexterity requires both internal and external knowledge processes as well as knowledge integration across organisational boundaries that can be associated to both strategic selection and integrative capabilities of organisational foresight (Paliokaitė and Pačėsa, 2015). Raisch et al. (2009) summarised that there are three abilities that organisational ambidexterity may depend, including the firm's ability to integrate internal and external knowledge bases, the ability to integrate external knowledge relies on a combination of external brokerage and internal absorptive capacity, and the social networks that contrast internal and external as well as strong and bridging ties. In addition, Gibson and Birkinshaw (2004) suggested to develop the ability of organisation ambidexterity by creating a specific type of organisational environment (broadly defined as systems, processes and beliefs that affect individual activities in the organisation). Gibson and Birkinshaw (2004) found that the four activitiesal framing attributes - stretch, discipline, support, and trust - are positively related to the level of ambidexterity of an organisation. Liu et al. (2015) also outlined the importance of environmental factors such as trust and management support, and they proposed that homophiles networks and their choices and preferences for individuals in social interaction also have a significant impact on the organisational ambidexterity of enterprises based on a longitudinal study focused on fellow-townsmanship mechanism and ambidexterity.

Indeed, a large number of research focus on the antecedents or enablers in building ambidextrous organisations. Looking at the enablers, structural mechanism, context, and managers' characteristics are regarded to be the key foundations of possible solutions for the different kinds of tensions (Nosella et al., 2012). In addition, organisational foresight is also key enabler for building ambidextrous organisation. As we can see the literature reviewed in this section, most of these studies analyse a single specific typology of enablers, adapting either a quantitative or qualitative approach, and choosing either the level of analysis among firm or\and the business units and individual's levels. These studies are conducted by choosing a specific sector and explore (qualitative approach) or empirical test (quantitative approach) the key enablers or mechanisms in the ambidextrous organisations.

### 2.3.6 Consequences of Ambidexterity

When it comes to consequences, one of the reasons for the growing interest in organisation ambidexterity is that there is a positive link between organisation ambidexterity and corporate performance. Gibson and Birkinshaw (2004) found that contextual ambidexterity is the key driver of business-unit performance. Moreover, Lubatkin et al. (2006) also observed a positive relationship between ambidexterity capability and firm performance. Similarly, Cao et al. (2009) identified that both a close balance (balance dimension of ambidexterity refers balance or relative magnitudes of exploration and exploitation) or a high combination level (combined dimension of ambidexterity refers to combined magnitude of exploration and exploitation) of exploration and exploitation will enhance firm performance. In addition, Cao et al. (2009) also find that a concurrent high level of both balance and combined dimensions of ambidexterity

will enhance firm performance through a new mechanism—firms acquire new capabilities by allowing existing knowledge and resources and be integrated into the existing pool of competencies by permitting new knowledge and resources. Moreover, He and Wong (2004) found confirmed the impact of exploitative and exploratory activities on sales growth. Úbeda-García et al. (2016) also found empirical evidence that positively relates organisational ambidexterity and performance. organisational ambidexterity is an essential element in the generation of competitive advantages and, consequently, of business competitiveness (Úbeda-García et al. 2016). Junni et al. (2013) find that organisational ambidexterity is more important in service and high-technology sectors, because of the elevated level of environmental dynamism in knowledge-intensive service firms and in high-technology industries.

Hahn et al (2016) also indicate that ambidexterity with both balance dimension and combined dimension, improve corporate social performance through a unique mechanism. In the balance dimension, instrumental and ethical initiatives compensate each other - which increases the scope of corporate social performance. Through the combination of these two dimensions, instrumental and ethical initiatives complement each other - which increases the scale of corporate social performance (Hahn et al, 2016).

Many empirical studies are mainly based on quantitative analysis at the enterprise level to test the relationship between organisation ambidexterity and enterprise performance. Finance and corporate performance are the most studied dependent variables. Some recent studies have begun to analyse the impact of organisation ambidexterity on corporate social performance. Previous research has investigated both the antecedents and consequences of organisational

ambidexterity, which indicates that how organisations could become ambidextrous and then enhance its performance. Chandrasekaran et al. (2012) point out that pursuing organisation ambidexterity is not a single level problem (strategic or project level) but requires synchronization across multiple levels. Thus, interaction of managers at different levels might be an enabler of organisation ambidexterity.

## **2.4 Interaction of Managers at Different Levels**

Previous literature has pointed out the importance of the role of top and middle managers in fostering organisational ambidexterity (Raisch and Birkinshaw, 2008; Mom et al., 2009). Managers' activities are thought to be an important antecedent of organisational ambidexterity (see Turner et al. 2016). It can be concluded that both top managers and middle managers have been researched to play their own role in fostering organisational ambidexterity, but very few has discussed the influence of the interaction of managers at different levels on ambidexterity. Some scholars have discussed the interaction of managers at different levels and its influence on strategy (Kim et al., 2014) and innovation (Mom et al., 2007), and very few scholars have discussed the influence of interaction of managers on organisational ambidexterity (Mom et al, 2007; Torres et al., 2015).

### **2.4.1 The Influence of Interaction of Managers at Different Levels on Strategy**

Senior managers should translate priority strategic themes into executable goals for middle

managers, who should coordinate with each other and report upward on implementation progress in order to take corrective actions (e.g., March and Simon, 1958; ethiraj and Levinthal, 2004). Senior managers work with others throughout the organization to identify effective ways to create new business or develop new products (Hornsby et al., 2009). In addition, senior managers can take advantage of insights generated through interaction with external stakeholders (Yoo et al., 2009). As Floyd and lane (2000) concluded, in order to achieve strategic renewal, the role set of senior managers includes approval, guidance and recognition, while the role of middle managers is advocacy, promotion, integration and implementation. On the other hand, middle managers are responsible for supporting new plans, promoting adaptability and entrepreneurial processes, integrating information and reporting upward, and implementing new projects (Floyd and lane, 2000).

One of the typical features of middle managers is defined as “*any managers two levels below the CEO, and one level above line workers and professionals*” (Huy, 2001), indicating that that they are both subordinates and superiors (Dutton and Ashford, 1993). For a long time, scholars have regarded middle managers as key figures of the company (Wooldridge et al., 2008; Guo et al., 2017) because they translate strategic objectives into specific operation practices. In addition, middle managers act as a link in the daily work of senior managers and front-line managers, translating broad strategic intentions into specific operational practices and vice versa (Floyd and Wooldridge, 1992). Baker and Pullman (2009) also emphasize on the linkage role of middle managers, they argue that middle manager have double-direction impact by bridging the different views from line managers and senior managers. Similarly, middle

managers also play a key bridging role, connecting working groups horizontally (Balogun and Johnson, 2004) and interacting with external stakeholders such as customers and suppliers (Rouleau, 2005). Scholars also found that if senior managers care about their personalized needs and invite them to join the strategic dialogue, middle managers will be more dynamic in strategy implementation (Westley, 1990). The legitimacy judgment and emotional response of middle managers to the personal motivation and ability of senior managers will affect their views on the process of strategic change and subsequent results (Huy et al., 2014). In addition, if middle managers actively participate in the strategic process and share information with senior managers, the quality of strategy formulation and organizational performance can be improved (Wooldridge and Floyd, 1990). In addition, joint decision of managers at different levels is thought to be crucial for both strategy formulation and strategy implementation. And the expected outcome of these interactions is higher quality of strategy that leading to growth of organisation performance (Raes et al., 2011).

*Joint Decision:* Joint decision making is a specific set of managerial practices that involve the delegation of discretion and responsibility down the hierarchy to provide team members with increased authority in the execution of their tasks (Guo and Wang, 2017). In their view, team members involved in joint decision-making process are more likely to have intrinsic motivation and continue to participate in innovation efforts and teamwork, such as sharing unique information, finding alternatives, making novel attempts and coordinating their actions. In addition, as an important role, team leaders who promote joint decision-making encourage members to invite and consider the different views and perspectives of other members, which

will contribute to knowledge integration and team creativity (advanced people, 2011). Treur (2011) suggests that to achieve a solid joint decision, a shared feeling and valuation for the chosen option are important, and mutual recognition of this sharedness. Strategy quality is also an important mediator in achieving innovation and ambidexterity (Raes et al., 2011), and joint decision of managers at different levels is thought to be crucial for both strategy formulation and strategy implementation. And the expected outcome of these interactions is higher quality of strategy that leading to growth of organisation performance (Raes et al., 2011).

#### 2.4.2 The Influence of Interaction of Managers at Different Levels on Innovation

Some scholars argue that top and middle managers should coordinate to facilitate innovation (Kim et al., 2014). Saari et al. (2015) argue that innovation can be initiated from lower-level managers and even employees because they have more chance to interacting with clients. Practical activities and actors of interaction of managers at different levels could make innovation processes meet, by which bottom-up innovation could drive top-down strategic reflexivity and leading to innovation.

Innovation requires efficient information sharing between different groups in the organisation (Vuori and Huy, 2016). Kim et al. (2014) suggest that lower-level managers may require top management's support for the success of any autonomous initiatives in the area of new product or technology development. Yet, middle and frontline managers should be encouraged to initiate process improvement and even innovation. Heyden et al. (2017) argue that middle managers are initiators of change and top managers are executors of change. In his view, middle

managers more directly confront technological and market developments, which motivates them to initiate new ideas, leading to rethinking the strategy priorities of their unit and then initiate change of the whole organisation. On the other hand, as top managers have a big picture of the interaction of sub-units throughout the organisation, they can execute change and swiftly adjust change overtime. Heyden et al. (2017)'s research indicate that organisational change needs to be understood from a multi-echelon perspective-leveraging complementarity between top managers and middle managers. In their recent research, Heyden and colleagues (2020) pointed out that change initiatives may be most effective when middle managers initiate, while top managers implement, and the top managers are taking a deliberate and supportive back seat, advising, judging, and supporting, while middle managers take the wheel in driving innovative change initiatives.

*Information Exchange:* Information exchange is a core process of the team, sharing work-related data, ideas and knowledge that affect the team's results (Mesmer Magnus and Dechurch, 2009; Gong et al., 2013). In particular, information exchange is crucial to innovation (Gong et al., 2013). High quality information exchange "is essential because it allows team members to share their knowledge and past experience, exchange and discuss ideas" (HuëLsheger et al., 2009). Empirical research shows that the exchange of information and knowledge improves the speed of product innovation (Smith et al., 2005). Haythornthwaite and Wellman (1998) suggest that the more formal the work tie, the more information exchange among co-workers, the closer the friendship, the more information exchange among co-workers. As for the media use for information exchange, managers at different levels always use email, unscheduled meetings,

and scheduled meetings, while videoconferencing, telephoning and faxing are not frequently used (Haythornthwaite and Wellman, 1998). Ha and colleagues (2016) conclude the kinds of information that exchanged among managers at different levels: demand information, forecast information and product development information.

#### 2.4.3 The Influence of Interaction of Managers at Different Levels on Organisational Ambidexterity

Organisational ambidexterity is a multi-level phenomenon of top-down and bottom-up process (O'Reilly and Tushman, 2013). From the organisational environment to assist the operation manager to cope with the challenges of exploration and development, from sharing and expanding these activities to collective organisational actions, the goal is to establish firm level portfolio of exploratory and exploitative innovation (Birkinshaw and Gupta, 2013).

A few scholars also suggest that managers at different levels should cooperate and interact with each other to create top-down and bottom-up knowledge inflows, which contributes to organisational ambidexterity (Mom et al., 2007, 2019). Mom et al. (2007) argue that knowledge inflows are important antecedents of managers' exploitation and exploration activities. As summarized by Mom et al. (2007), bottom-up knowledge flow of managers is positively related to managers' exploration activities but seems no significant effect to managers' exploitation activities. Mom et al. (2007) argues that top-down knowledge inflows of manager are positively related to the managers' exploitation activities, but not significantly related to manager's exploration activities. With regard to exploration, managers' bottom-up knowledge inflow may

increase the diversity of experience; Previous conceptual studies and case studies in the field of strategic research have shown that front-line managers are directly faced with new technological developments, unexpected problems, changing market conditions and customer needs (Branzei et al., 2004). Bottom-up knowledge inflow provides higher-level managers with more understanding of existing technologies, products, processes, and market changes, as well as new or emerging technologies, markets, customer needs or internal plans (Floyd and lane, 2000). Similar to the research of Mom et al. (2007), scholars also suggest that in order to achieve ambidexterity, managers at different levels should share knowledge with each other in both bottom-up and top-down way (Wei et al., 2011; Zhou et al., 2019).

*Knowledge Sharing:* Knowledge sharing refers to providing task information and know-how to help others and cooperate with others to solve problems, develop new ideas or implement policies or procedures (Cummings, 2004). Knowledge sharing is defined as a culture of social interaction, including the exchange of employees' knowledge, experience and skills through the whole department or organisation (Lin, 2007). Lin (2007) believes that in order to achieve knowledge sharing, individual, organisational and technology factors are the key enablers. Knowledge sharing is the fundamental means through which employees and managers can contribute to knowledge application, innovation and ultimately the competitive advantage of the organisation (Wang and Noe, 2010). Du et al. (2019) suggest that degree of knowledge-sharing refers to willingness to share the knowledge provider in the integrated project team.

Wei et al. (2017) also argue that bottom-up learning process has positive effect on exploration but has a U-shape effect on exploitation. With regard to exploration, managers' bottom-up

knowledge inflow may increase the diversity of experience; Branzei et al. (2004) believe that the conceptual research and case studies in the field of strategic research show that new technology development, unexpected problems, changing market conditions and customer needs are directly faced by front-line managers. Lin et al. (2011) suggest that ambidextrous managers obtain knowledge from the outside of the organisation as an important external knowledge source and bring the knowledge into organisation and circle it. Others also argue that top managers can influence other lower-level managers' exploration by fostering a culture which allows for deviant activities and differing opinions and ideas (O'Reilly and Tushman, 2013).

In addition, Lin et al. (2011) believe that organisational culture is crucial to the organisation ambidexterity of an organisation. In addition, leadership and culture interact to produce innovation. Lin et al. (2011) believes that in order to build an ambidextrous organisation, managers at different levels need to foster the values of tolerance for uncertainty, openness to challenges and trust in organisational culture help to strengthen the use of existing knowledge and the exploration of new capabilities.

*Organisational Culture:* Organisational culture is defined as the basic beliefs that a group usually holds and learns. These beliefs dominate the cognition, thought, emotion and action of group members and are the typical beliefs of the whole group (Sackman, 2003). According to Awojide (2015), middle managers are considered to have responsibility to encourage lower-level managers and employees to initiate change and innovation. Providing an open organisational culture for employees to foster ambidexterity is also a tool of middle managers

(Awojide, 2015). Zacher and Rosing (2015) suggest that by increasing variance and flexibly that influence the culture of different level managers' activities, top managers are able to foster both explorative and exploitative activities in lower levels managers. In Lin et al. (2011)'s research, empirical results show that organisation culture plays a much more important role in facilitating ambidexterity than leadership activities. Furthermore, Wang and Noe (2010) argue that an organisational culture is a key environmental factor for knowledge sharing; Gong et al. (2013) also mention that an open organisation culture contribute to the quality of information exchange among managers; organisation culture will also contribute to the participation of managers at different levels towards joint decision making (Guo and Wang, 2017).

In the ambidexterity discipline, joint decision making is thought to be a key managerial activity to achieve ambidexterity (Lubatkin et al., 2006; Simisek et al., 2009). However, Mom et al. (2009) believe that the decision-making authority of managers is positively related to the ambidexterity capacity of managers, while the formalization of managers' tasks is not significantly related to the ambidexterity capacity of managers. In his view, formalized decision-making routines may increase the quality and speed of decision making. From the joint decision aspect, top managers may have tools to influence middle and line managers' exploration activities, such as increasing other managers' participation in decision making or decreasing manager' formalization of tasks (Tushman and O'Reilly, 1996).

#### 2.4.4 Ways of Interaction of Managers at Different Levels

In the review of literature presented above, four aspects of interaction of managers at different levels that contribute to strategy, innovation and organisational ambidexterity has been discussed. These are information exchange, (bottom-up and top-down) knowledge sharing, joint decision and cultural management (Mom et al., 2007; Raes et al., 2011; Kim et al., 2014; Awojide, 2015; Vuori and Huy, 2016; Heyden et al., 2017; Zhou et al., 2019). Some of the scholars argue that top and middle managers should coordinate to facilitate innovation ambidexterity (Mom et al., 2007).

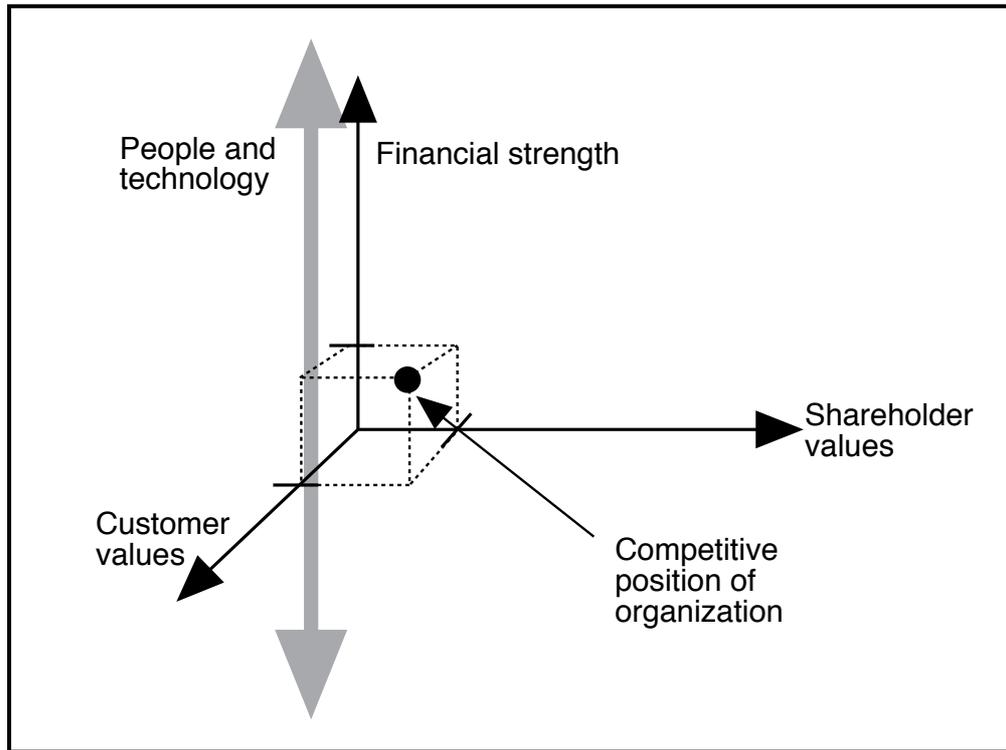
From previous research, it could be summarized that managers play an essential role in helping organisation facilitating ambidexterity. However, managers at different levels may have different roles to play in the process of pursuing exploration and exploitation simultaneously.

To conclude, interaction of managers at different levels are argued to have impact on innovation formulation and implementation helps per the orchestration of organisational ambidexterity (see Raes et al., 2011), organisational change initiation and execution (see Heyden et al., 2017), and exploitation and exploration (Mom et al., 2007). Previous research has found that different aspects of interaction of managers at different level may have positive effect on the facilitation of ambidexterity, yet most of them are empirical research on the effect of those aspects, little has been done on how managers interact in through aspects to foster ambidexterity. More research is required to further explore the mechanisms under managers interaction and ambidexterity on how managers at different levels interact towards organisational innovation

ambidexterity and improved competitiveness.

## **2.5 Competitiveness**

The standard definition is that competitiveness refers to the ability of enterprises to compete, grow and make profits in the market (Reinert, 1995). Competitiveness at the enterprise level can be defined as the ability of an enterprise to design, produce and or sell products superior to competitors, taking into account price and non-price quality (D'cruz, 1992). Competitiveness is also defined as relative rather than absolute. It depends on the value of shareholders and customers, the financial strength that determines the ability to act and respond in a competitive environment, and the potential of people and technology in implementing the necessary strategic changes. Competitiveness can be maintained only by maintaining an appropriate balance between these conflicting factors (Feurer and Chaharbaghi, 1994). Feuerer and Chaharbaghi (1994) believes that an organisation's competitive position reflects the trade-off between meeting customer and shareholder values and maintaining financial strength.



*Figure 2-2: Trade-offs of competitive position (Feurer and Chaharbaghi, 1994)*

Competitiveness is at the heart of a firm's performance in competitive markets, and today the importance of it could be even greater (Porter, 2008). Organisations must create and commercialize new products and processes at the frontier, as fast as their competitors catch up (Porter, 2001). Thus, to survive in dynamic markets, it is important for organisations to exploit and explore. D'Cruz (1992) proposes that there are six dimensions of organisational competitiveness: cost, attraction of human resources, market success, creativity and innovation, problem-solving quality, and organisational flexibility. Waheeduzzaman and Ryans (1996) define that competitiveness in the firm level is determined by several dimensions: Company resources (employee skills, assets, cash flow, capital / investment, human, non-human and strategy), organizational structure (flexibility, balance and dynamic aspects), organizational

environment interface (source and location advantages, organizational consistency, general strategy, strategic planning and customer-oriented products), And many enterprise specific variables (core competitiveness, product imitability, information, intelligent systems, enterprise added value and quality).

## **2.6 Research Gaps**

Innovation as a well-developed concept has been defined by many researchers in the last decades. Although the definition of innovation is still controversial: whether it is the creation or changes itself, or the mechanism of it, or a skill or capacity of corporate, or the way corporate turn it into commercial value, the author believes that innovation is a multi-stage process that leading to innovation outcomes. The service innovation and product innovation focus on the innovation in service sector and manufactory sector, while the process innovation is the innovation on how to produce service or product. In this research, innovation is defined as the process from creation of new ideas and knowledge to the implementation of them. Exploration and exploitation, also defined as exploratory innovation and exploitative innovation, are considered as two separated type of innovation process by some researchers. In this research, exploration and exploitation will be considered as two innovation processes: exploitation/exploitative innovation will be defined as improvement, development and changes of existing product or service; exploration/explorative innovation will be defined as creation, development of new product or service.

Why organisations need to become ambidextrous? Organisations aim to survive in the long run, they pursue the consequence of the ambidexterity, which is considered to be enhancement of competitiveness. Thus, the capability to achieve this is to solve the tensions between exploration and exploitation (organisational ambidexterity). Several solutions have been argued to help organisations become ambidextrous: structural solution, contextual solution, and managerial solution. From the early stage of researches on ambidexterity, researchers believe that physical separation of dual structure is the solution of organisations to become ambidextrous; then some researchers realize that ambidexterity is more frequently realized by a context, in term of organisation culture or context: more recently, more and more researchers focus on the role of senior managers and their senior management team, and middle managers, and find that managers' activities and characteristics become more and more important for organisations to achieve ambidexterity. Turning into antecedents and consequences, researchers explore the key enablers of building ambidextrous organisations, and the enablers of both exploration and exploitation respectively. In recent years, more and more researchers empirically test the relationship between ambidexterity and firm financial performance, which is the incentive of organisations to become ambidextrous. Competitiveness as an important capacity of an organisation has drawn researchers' interest for decades, it is essential for an organisation to survive and grow in a competitive environment. Scholars have long argued that exploration and exploitation are expected to have different effects on firm performance (Lavie et al., 2010). In specific, March (1991) suggests that foreseeable benefits in the short run could be achieved if an organisation invests in reducing diversity, rising efficiency, and improving adaptation to the current environment. On the other hand, Mom et al. (2007) indicate that exploration seems to

improve organisations' long-run performance. In both short-run and long-run, in order to achieve high competitiveness, organisations are regarded to distribute resources in both exploration and exploitation simultaneously, the ability of which is also defined as ambidexterity.

Scholars have explored the solutions for organisations to achieve ambidexterity, managers seem to have undoubted influence on organisation ambidexterity (Tushman and O'Reilly, 2013). Therefore, managers' activities and the impact on organisational ambidexterity seems to be the future direction to explore.

Although the literature on organisational ambidexterity has increased in the past few years, the expansion of research on organisational ambidexterity is a key challenge for scholars and managers. Nosella and colleagues (2012) believe that the literature on organisational ambidexterity has deviated from the original definition of the ability to solve tensions between exploitation and exploration. Prior research highlights that the nature of ambidexterity is a capability to innovate, which may benefit future research with the definition of the concept. Tushman and O'Reilly (2013) argue that the essence of organisational ambidexterity is to leverage existing assets and capabilities to gain competitiveness in new areas. In this research, organisational ambidexterity is considered as the capability to pursue exploitation and exploration simultaneously and effectively. Therefore, several research gaps have been found in the literature review.

Firstly, scholars believe that trade-off and confliction is to define the relationship between

exploration and exploitation (March, 1991; Yi et al., 2006; Andriopoulos and Lewis, 2009; Nosella et al., 2012; Huang et al. 2013; Agostini et al. 2016; Madani and Andersson, 2016; Heracleous et al., 2017). However, Lavie et al. (2010) suggest that the division of exploration and exploitation is often a matter of degree instead of a kind, and exploration-exploitation concepts should be viewed as a continuum rather than a choice between discrete options. Scholars also find that conceptualising exploration and exploitation may consist with the movement of organisations to transit from exploration to exploitation and vice versa over time (Rothaermel and Deeds, 2004; Brunner et al., 2006; Lavie et al., 2010). Mathias et al. (2017) suggest that comparing with sequential and simultaneous balance of exploration and exploitation, simultaneous balance of exploration and exploitation has stronger positive influence on effect of ambidexterity on firm performance. What is unclear about is whether exploration and exploitation conflict each other within the organisation and in what circumstances.

Secondly, although there is plenty of consensus over fostering ambidexterity can be positive related to the organisation performance, many researchers consider exploitation and exploration as two separated innovation outcomes at a macro level (Nosella et al., 2012; Junni et al., 2011). Future research is needed to explore the effect of ambidexterity at micro level on organisational ambidexterity such as the effect of ambidexterity at individual level on organisational competitiveness and cross managerial levels. In addition, although prior research examines the key consequences of ambidexterity, the results may be differential in different sectors or countries (Tushman and O'Reilly, 2013). Scholars like Geert et al. (2010) and Goosen et al.

(2012) conduct multi-sector investigation and conclude that organisational ambidexterity has positive effect on firm performance, but the data is from many different sectors, making it difficult to indicate the effect of organisational ambidexterity in a certain sector such as banking sector. In addition, few scholars have focused on the impact of exploration and exploitation on firm competitiveness, thus, the effect of exploration and exploitation on organisational competitiveness respectively is also a research gap for scholars to explore.

Thirdly, current literature related to interaction of managers at different levels focus on the strategy initiation (Kim et al., 2014) and implementation process (Heyden et al., 2017) and knowledge flow (Mom et al, 2007, 2019) among them. However, interaction of managers at different levels are considered to have essential effect on organisational ambidexterity (Mom et al., 2007; 2019) and organisational change (Vuori and Huy, 2016; Heyden et al., 2017). It is possible that organisational ambidexterity is not only rely on the solo role of top or middle managers, but the interaction between managers at different levels is rather important to foster organisational ambidexterity. Therefore, another research gap that needs to explore is the impact of interaction of managers at different levels on organisational ambidexterity.

Fourthly, managers' activities are the essential enablers of organisational ambidexterity, making the further direction of research in this area to be how managers manage exploitation and exploration activities and the inevitable conflicts that arise. Raisch and Birkinshaw (2008) have indicated that the promising direction for future research is to exam organisational ambidexterity at the managerial level of analysis. Although numbers of scholars have examined the managers' activities so as to achieve organisation ambidexterity, what is remain

undeveloped is a well-defined expression of the specific management activities between managers at different levels, thus, facilitate the organisational ambidexterity (O'Reilly and Tushman 2011). Thus, there is in need to further investigate the activities of managers at different levels interact to implement and conduct ambidextrous activities. Prior research focus on the managerial solution of ambidexterity is either focus on top or middle managers' activities. Thus, little has been explored relating to the interaction of managers at different levels and ambidexterity. Therefore, another research gap is to see how managers interact with each other to foster organisational ambidexterity.

In summary, more research from a micro level (such as managerial and individual level) of ambidexterity is in need to understand how managers solve this specific tension. As prior researchers focus on a macro aspect of ambidexterity, such as firm or business unit, there are gaps of studies that examine ambidexterity at a more micro aspect: a single organisational process, project, or period. It is in need to explore how ambidexterity really develops from the interaction of managers at different levels by looking at the internal operating practices. There are research gaps that need to be explored on the relationship between exploitation and exploration; the effect of exploitation, exploration, and ambidexterity on competitiveness; the effect of interaction of different levels on exploitation, exploration, and ambidexterity, in sectors other than the technology sector, and in developing country. More importantly, based on the relationship of exploitation and exploration, and the effect of interaction of managers at different levels, it is also vital to further explore how managers achieve these outcomes.

Currently research on ambidexterity mainly adopted either quantitative or qualitative methods

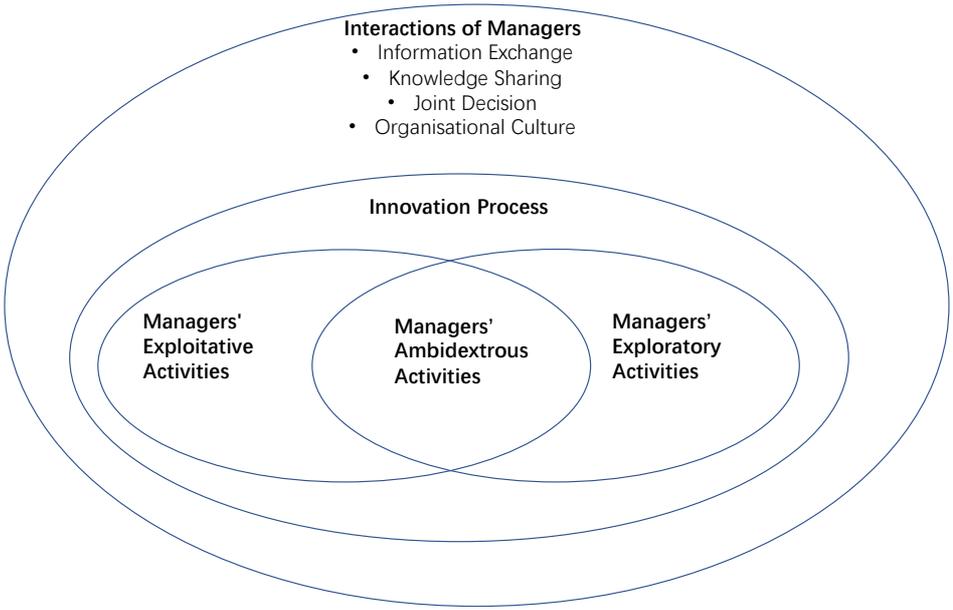
in the literature (O'Reilly and Tushman, 2013). In order to respond to the questions, mix-methods of quantitative and qualitative methods are most appropriate to be employed for filling the research gaps because the main research question needs qualitative methods and has to rely upon the outcomes of quantitative methods. The details of research method in this research will be discussed in Chapter 3 in details. The researcher determined the research methods and guided by its conceptual framework which illustrates the theories and concepts related to this research, and a conceptual model to illustrate the hypothesizes for the quantitative part of this research. The following section will present the conceptual framework.

## **2.7. Conceptual framework**

In the last section of literature review chapter, the conceptual framework will be presented based on the review of the literature and the gap identified from the literature. It is obvious that the existing research of the interaction of managers at different levels in promoting organisational ambidexterity is inadequate. The purpose of this research is to explore the "how" of organisational ambidexterity through a critical review of the interaction of managers at different levels, as well as the influence of the interaction between managers on these activities and on the organisation, so as to deepen the understanding of the research on organisational ambidexterity.

Therefore, a conceptual framework has been established to combine the unique phenomena of

great significance to the research (see Figure 2-3). The conceptual framework is established to show the concepts related to this study, the research gaps found by the researcher, and the intention and motivation of the researcher to collect data. The framework is also linked to research objectives and will guide the collection and analysis of research data.



*Figure 2-3: Conceptual Framework*

Additionally, a conceptual model (Figure 2-4) was built to show the potential correlations between concepts in the research, which is for generating the hypothesizes in the research. Based on the conceptual framework, interaction of managers at different levels could be the driving force of exploitation, exploration, and leads to organisational ambidexterity. Also, exploitation and exploration could be conflicting with each other. Moreover, exploitation, exploration, and ambidexterity could contribute to competitiveness. Thus, a conceptual model could be generated to explore these assumptions. In addition, based on the outcomes of the

conceptual model, the researcher will further explore how managers interact to foster organisational ambidexterity. Based on the conceptual framework, the researcher developed a conceptual model to present the hypothesis of the research. These include:

H1: Exploration is positively related to Exploitation.

H2: Interaction of managers at different levels is positively related to Innovation Ambidexterity.

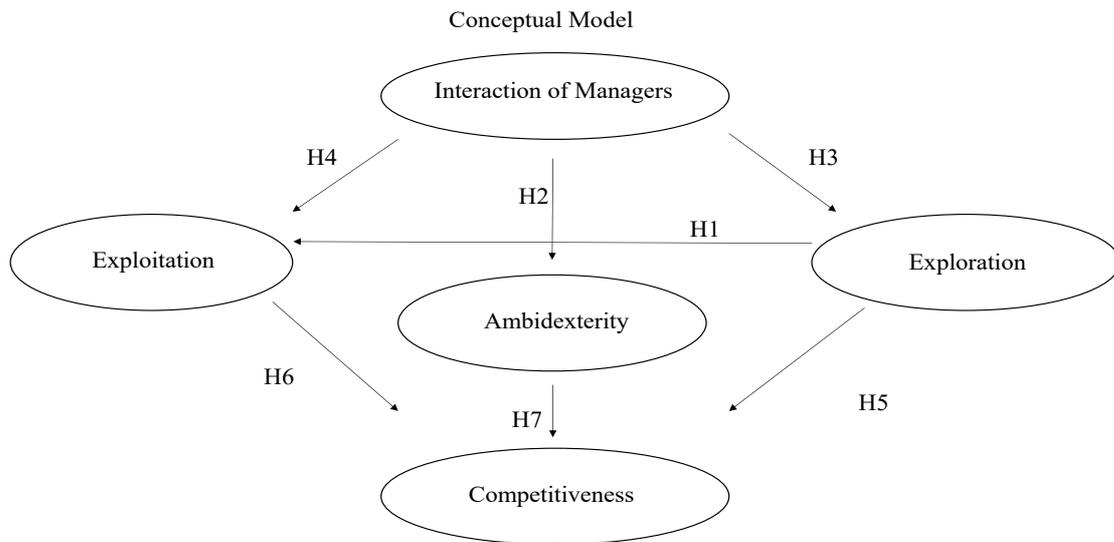
H3: Interaction of managers at different levels is positively related to Exploration.

H4: Interaction of managers at different levels is positively related to Exploitation.

H5: Exploration is positively related to Competitiveness.

H6: Exploitation is positively related to Competitiveness.

H7: Innovation Ambidexterity is positively related to Competitiveness.



*Figure 2-4: Conceptual Model and Hypothesis*

Based on the outcomes of the conceptual model in Figure 2-4, this research further explored how managers interact with each other to foster organisational ambidexterity. Importantly, this research focused on the managers' activities upon interaction of managers at different levels, relating to exploitation, exploration, and ambidexterity.

# **CHAPTER 3**

## Methodology

### **3.1 Introduction**

The purpose of this chapter is to illustrate the research philosophy, research strategy, data collection methods and data analysis methods of this study. Research philosophy, which forms the basis of the research, are subsequently clarified. The purpose of determining the research strategy is to provide a detailed explanation of the research philosophy and methodology used in the research to help answer research questions. The data collection methods are to explain how the data was collected and what methods were used. The data analysis methods explained how the researcher analysis the data. The purpose of this study is to explore the impact of the interaction between managers of different levels on organisational ambidexterity and how the interaction between managers can facilitate the organisational ambidexterity of organisations in banking sector. The next section will introduce the epistemology and ontology of the research.

### **3.2 The Research Philosophies: Ontology and Epistemology**

A paradigm consists of the following components: ontology, epistemology, axiology, and methodology. Some scholars emphasize that it is important to initially question the research paradigm applied in research because it substantially affects the way a person conducts social research from the perspective of framework and understanding social phenomena (Berry and Otley, 2004; Creswell, 2014a; Saunders et al., 2009; Neuman, 2013). The two main philosophical dimensions that distinguish existing research paradigms are ontology and

epistemology (Laughlin, 1995; Karov et al., 2008; Sanders, Lewis and Thornhill, 2009). They are related to the nature and development of knowledge.

Ontology is the study of existence (Crotty, 1998). Ontological assumptions focus on what constitutes reality, in other words, what it is. Researchers need to take a stand on their views of the real state and how things work. Ontology is a view of how one perceives reality. As far as social science research is concerned, it can be seen from ontology that the existence of reality is external and independent of social actors and their interpretation of reality. It is called objectivism or realism (Saunders et al., 2009). These scholars also pointed out that from ontology, it can be seen that reality depends on social actors and assumes that individuals contribute to social phenomena, which is called subjectivism or nominalism adopter theory (Neuman, 2013).

The second paradigm, epistemology, is about how to produce, understand and use knowledge that is considered acceptable and indorsed. Epistemology focuses on the nature and form of knowledge (Cohen et al., 2007). In their view, epistemological hypothesis focuses on how knowledge is created, acquired, and transmitted, in other words, what knowledge means. Guba and Lincon (1994) explain that epistemology asks the question, what is the nature of the relationship between the would-be knower and what can be known? In addition to these two basic philosophies, the two basic beliefs that affect the way of investigating reality are axiology and methodology. The former involves ethics, including the role of values in research and the researcher's position on the research object, while the latter refers to the model of research process under a specific paradigm (Wahyuni, 2012). The current literature outlines four

different approaches, which can be termed positivism, post positivism, interpretivism and pragmatism. These methods will be discussed below and the decisions guiding this research will be clarified.

| Fundamental Beliefs   | Positivism (Naïve realism)   | Postpositivism (Critical Realism)   | Interpretivism (Constructivism)   | Pragmatism  |
|---|--|---|---|---|
| <b>Ontology: the position on the nature of reality</b>                      | External, objective and independent of social actors   | Objective. Exist independently of human thoughts and beliefs or knowledge of their existence, but is interpreted through social conditioning (critical realist) | Socially constructed, subjective, may change, multiple  | External, multiple, view chosen to best achieve an answer to the research question  |
| <b>Epistemology: the view on what constitutes acceptable knowledge</b>      | Only observable phenomena can provide credible data, facts. Focus on causality and law-like generalisations, reducing phenomena to simplest elements | Only observable phenomena can provide credible data, facts. Focus on explaining within a context or contexts  | Subjective meanings and social phenomena. Focus upon the details of situation, the reality behind these details, subjective meanings and motivating actions | Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research, integrating different perspectives to help interpret the data |
| <b>Axiology: the role of values in research and the researcher's stance</b> | Value-free and etic<br>Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance       | Value-laden and etic<br>Research is value laden; the researcher is biased by world views, cultural experiences and upbringing                                   | Value-bond and emic<br>Research is value bond, the researcher is part of what is being researched, cannot be separated and so will be subjective            | Value-bond and etic-emic<br>Values play a large role in interpreting the results, the researcher adopting both objective and subjective points of view  |
| <b>Research Methodology: the model behind the research process</b>          | Quantitative   | Quantitative or qualitative   | Qualitative   | Quantitative and qualitative (mixed or multi- method design)  |

*Table 3-1: Typology of Research Paradigms, based on Saunders et al. (2009) and Wahyuni (2012)*

### 3.2.1 Positivism

Positivists believe that social reality is external and objective. Therefore, axiologically positivists take an objective approach or an outsider's perspective, they insist on the separation between researchers and subjects. (Wahyuni, 2012). Positivist epistemology is a kind of objectivism, and positivists independently go to the world and discover absolute knowledge

about objective reality (Scotland, 2012). Wahyuni (2012) presents that in epistemology, positivists advocate using scientific methods to generate acceptable knowledge by developing digital metrics. On this basis, they start with the theoretical test in the form of hypothesis and include statistical test in the research process. Positivist researchers try to measure social phenomena by conducting value-free research, so as to obtain a generalisation similar to law, which is called "nomothetic" (Neuman, 2013). Positivists believe that different researchers observing the same factual problem will produce similar results by carefully using statistical tests and applying similar research processes when investigating large samples (Creswell, 2014a). Their common belief is that there is a general generalisation that can be applied in different contexts, which is now called naive realism. Positivists attempt to recognise the causes which impact the outcomes (Creswell, 2014a). Positivist aims to formulate laws, accordingly, yielding a foundation for estimate and generalisation (Scotland, 2012).

Scholars believe that the purpose of positivist method is to explain interpersonal relationships (Scotland, 2012), and positivists try to find out the reasons that affect the results (Creswell, 2014b). Their goal is to enact laws to provide a basis for prediction and generalisation, in which deductive methods are used. Also, correlations and experiments are believed to reduce complex interactions of their constituent parts.

### 3.2.2 Interpretivism

Interpretivism, is regarded to be at the extreme of positivism, advocates to what is called constructivism (Saunders et al., 2009). Flick (2013) believes that the historical root of

interpretivism lies in anthropology, which is similar to positivism, but it is opposite to positivism, so it is sometimes called anti positivism. Scotland (2012) proposed that the ontological position of interpretivism is relativism, which emphasizes that reality is subjective, and it differs from person to person (Cuba and Lincoln, 1994). Flick (2013) present that interpretivist believe that the realities are mediated by senses of the researcher, and the world is meaningless without consciousness. When consciousness comes into contact with objects that have given birth to meaning, the reality appears (Crotty, 1998). Interpretivists believe that truth and knowledge are subjective, based on people's experience and understanding of culture and history (Ryan, 2018). The same author believes that researchers can never be completely divorced from their own values and beliefs, so these values and beliefs will inevitably affect the way they collect, interpret, and analyse data (Ryan, 2018). Grix (2010) added that interpretative epistemology is a subjective epistemology based on real-world phenomena, and the world does not exist independently of what people know about it. Hennink et al. (2020) proposed that individuals with different backgrounds, assumptions and experiences can help to continuously build reality in a broader social context through social interaction. They recognize that because these human perspectives and experiences are subjective, social reality may change, and there may be multiple perspectives. In terms of axiology, interpretative researchers take a thematic or internal perspective, which means studying social reality from people's own perspective. Therefore, the experience and values of research participants and researchers largely affect the collection and analysis of data (Saunders et al., 2009; Wahyuni, 2012).

In order to understand the social world from people's experience and subjective meaning of the

social world, interpretative researchers prefer to use qualitative data that provide rich descriptions of social structure and are more inclined to interact and dialogue with the participants studied (Wahyuni, 2012). Hermeneutics use narrative analysis to describe the details and highly detailed description of the specific social reality studied, which is called idiographic method, which is contrary to the generalisation or monogathic analysis method adopted by positivist researchers (Saunders et al., 2009). Interpretivist researchers generally believe that a study that reveals the internal view or true meaning of social phenomena from research participants is a kind of good social knowledge (Neuman, 2013). The purpose of the interpretivism method is to understand phenomena from the perspective of individuals, to explore the interface between individuals and the historical and cultural background of people (Creswell, 2014b). Scotland (2012) suggested that examples of methodology include case studies (in-depth study of long-term events or processes), phenomenology (Study of direct experience without allowing the interference of existing preconceptions), Hermeneutics (extracting hidden meaning from language) and ethnology (long-term study of cultural groups).

### 3.2.3 Pragmatism

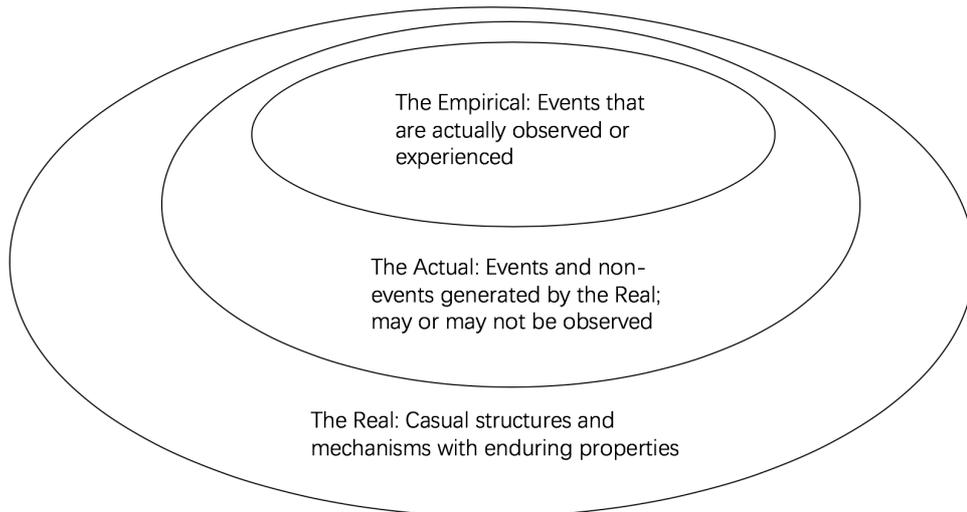
In addition to the above positivism and hermeneutics, pragmatism is another branch of research paradigm, but unlike the "paradigm war" between positivism and hermeneutic research philosophy, it is more like a middle choice (Tashakkori and Teddlie, 1998). Supporters of pragmatism start with research questions to determine their research framework, rather than first questioning ontology and epistemology. Wahyuni (2012) stressed that people should look research philosophy as a continuum rather than an option from the opposite position. In other

words, pragmatism holds that objectivism and subjectivism are not commonly undivided. Therefore, the combination of ontology, epistemology and axiology is an alternative to explore and comprehend social phenomena. In other words, the focus is on what is best suited to solve the research problem at hand (Sanders et al., 2009). Saunders et al. (2009) also pointed out that pragmatist researchers favour working with both quantitative and qualitative data because it enables them to better understand social reality.

### 3.2.4 Critical Realism

In the 20th century, critical realism developed from positivism. Popper (1959) proposed that although critical realism and positivism have similar ontological and epistemological beliefs, they are different in several aspects. First, the truth produced by the scientific paradigm is only our belief in the truth of the current tested hypothesis. Secondly, the falsification principle holds that scientific theories can never be proved to be correct (Ernest, 1994; Scotland, 2012). In addition, Popper (1959) proposed that the truth can be accepted temporarily only when all attempts to refute the truth fail. Therefore, every scientific statement must always be tentative. Finally, in order to understand some scientific theories, empirical data are often insufficient. For example, Heisenberg's uncertainty principle points out that it is impossible to know the exact position and velocity of subatomic particles at the same time (Crotty, 1998). Critical Realism claims that Critical Realism knowledge is more certain and objective than knowledge which originated from other paradigms (Scotland, 2012). Saunders et al. (2009) believe that the philosophy of critical realism emphasises on explanation of what we see and experience, in terms of the underlying structures of reality that shape the observable events. Wahyuni (2012) pointed

out that the emergence of critical realism challenges the certainty of absolute truth, especially in the study of human activities in social sciences. Although critical realism believes in generalization, similar to positivists, it recognizes that knowledge is the result of social conditions. Wahyuni (2012) calls this phenomenon the position of critical realism, which means that social reality needs to be understood in the specific context of relevant laws or dynamic social structures, which create observable phenomena in the social world. Similar to positivist, critical realism seeks to comprehend causality; Therefore, experiments and correlational research are conducted. According to Creswell (2014b), although it is not just sensory data collected, the views of participants are often sought. In addition, because knowledge is temporary, the hypothesis cannot be confirmed just because it has not been rejected. As showed in the Figure 3-1, Critical realism believes that there are two steps for people to understand the world: first, the feelings and events we experience. Second, at some time after the experience, we will carry out psychological processing when we "backward reasoning" from our experience to the potential reality that may lead to these experiences (this backward reasoning is called "reverse reasoning") (Bhaskar, 1978: Reed, 2005).



**Figure** Critical realist stratified ontology  
*Source:* Developed from Bhaskar (1978)

*Figure 3-1: Critical realist stratified ontology (Bhaskar, 1978)*

Indeed, between the epistemological positions of objectivism (realism) or subjectivism (relativism), there is an epistemological choice that affects the form of research (Symon and Cassell, 2012). Critical realists accept epistemological relativism, a subjectivist approach to knowledge (Reed, 2005). Bhaskar (1989) believes that epistemological relativism recognizes that knowledge is historical (in other words, knowledge is the product of the times and is specific to it) and that social facts are the social structure of human beings rather than of independent existence. This means that the critical realism concept of causality cannot be simplified into statistical correlation and quantitative methods, and a series of methods are acceptable (Saunders et al., 2009). Therefore, mixed methods are often conducted in the research of critical realists (Saunders et al., 2009).

### 3.2.5 Research Philosophy of the Research

The choice of research philosophy is mainly based on the nature of research objectives. According to Saunders et al (2009), every researcher will face specific research questions and should consider methodology problems according to their research needs. This research has three research questions, and they are divided into two stages.

**Stage 1:**

To what extent interaction of managers at different levels contribute to ambidexterity.

To what extent ambidexterity contribute to competitiveness in the Chinese banking sector.

**Stage 2:**

How managers at different levels interact to facilitate organisational ambidexterity.

At Stage 1, based on the conceptual model (see Figure 2-4) built in Chapter 2, the researcher planned to explore the causality relationship between linked concepts in the conceptual model. These include the causality relationship between exploitation and exploration; manager's interaction at different levels and organisational ambidexterity (including exploitation and exploration); as well as the causality relationship of organisational ambidexterity and competitiveness. After that, interview questions of stage 2 could be built based on the result of Stage 1 and literature review.

Further, at Stage 2, the researcher will explore the mechanisms under the process of how

interaction of managers at different levels leads to the orchestration of ambidexterity, which could add explanation to the results of Stage 1. In addition, this study adopts the epistemological standpoint of subjectivism, and the philosophical method is the method of critical realism. The reason why critical realism epistemological standpoint is adopted is that the critical realist stance believes in generalisation but admits that knowledge is a result of social conditioning (see Wahyuni, 2012). Critical realism philosophy admits the potential fallacy of all knowledge claims and supports humility in verification and falsification (Miller and Tsang, 2011). The critical realist epistemology stance suits the research the best as to an exploratory study such as this and this research can employ various established research methods by adopting a critical realist method to conceptual framework building at Stage 1 and an insider mechanism exploration at Stage 2.

### **3.3 Research Methods**

In the section 3.2, the researcher has confirmed to apply a critical realist epistemology. Under the epistemological stance, there is a choice between quantitative method, qualitative method, or mixed method. In addition, researchers' way of thinking about social reality determines their choice between qualitative and quantitative research methods (Strauss and Corbin, 1998). The choice of research methods is often influenced by researchers' ontological and epistemological views. Once researchers have determined their philosophical views, research methods will be decided, and researchers can determine which type of data is most suitable and effective to

answer research questions (Lee and Ling, 2008). Lee and Ling (2008) also suggested that the decision-making of research methods should be based on which data is more effective to answer research questions, rather than on previous biases. Similarly, scholars of methodology and philosophical methodology also pointed out that the decision to choose a method or specific method should mainly depend on the purpose and objectives of the research. For example, scholars such as Silverman (2000) and Miles and Huberman (2002) believe that the most important determinant of the choice of methods used in the research is the theme and objectives of the research.

A quantitative approach was suitable to answer the two research questions in Stage 1. Then, A further investigation on how managers at different levels interact with each other to foster ambidexterity was investigated using qualitative method. Thus, a mixed method research helped answer the research questions. In that case, a sequential mixed method was conducted according to Palinkias (2011)'s taxonomy of mixed method research.

### 3.3.1 Quantitative Research

Martin and Bridgman (2012) claimed that in quantitative research, data can be quantified. They added that since samples are usually sizeable and are regarded to represent the whole population, the results are taken as if they constitute a comprehensive and sufficient view of the population of sample as a whole. Quantitative methods that involving standardized measurement and statistical techniques according to Queirós et al. (2017) are often accompanying with empirical paradigms related to natural science, mathematics, statistics, and other disciplines have a

fundamental generality in the process of analysing and summarizing the results obtained. According to Fleetwood and Ackroyd (2004), this paradigm is based on the philosophy that our preconceptions need to be shelved in order to establish objective facts based on empirical observations. The purpose of empirical research is to determine the general law according to the statistical relationship between dependent variables and independent variables (Fleetwood and Ackroyd, 2004). The selection of research objects adopts sampling techniques aimed at eliminating potential sources of bias and generalizes a wider population from the sample, in addition, methods related to empirical research include structured interviews and questionnaires, randomized controlled trials, systematic reviews and official statistical analysis (Creswell, 2014a).

Because quantitative research focuses on objectivity, especially when it is possible to collect variables and infer quantitative indicators from population samples, quantitative research uses structured procedures and formal tools for data collection, which is objective and systematic (Queirós et al. 2017). Finally, the analysis of numerical data is carried out through statistical programs, usually using SPSS, R or Stata software (Queirós et al. 2017).

### 3.3.2 Qualitative Research

Bryman (1988) pointed out that qualitative research is a method to study the social world. It attempts to explain and analyse the ethos and activities of human beings and their groups from a subjective perspective. Therefore, qualitative research is considered relevant to any type of research that focuses on the results of people's lives, stories, activities, organizational functions,

or interactions, rather than through statistical procedures and quantification (Strauss and Corbin, 1998). Denzin and Lincoln (2012) believe that qualitative research is traditionally about "what" and "how", and is subjective oriented (Stack, 1995). Moreover, qualitative research is an activity to determine the position of observers in the world, which includes a series of explanations and material practices that make the world visible. The qualitative research based on non-numerical narration is related to the interpretive paradigm. The interpretive paradigm emphasizes the way society constructs and understands the world, as Blaikie et al. (2000) indicated, it contains a wide range of philosophical views, including semiotic interactionism, phenomenology, ethnology, and hermeneutics. Qualitative research does not refer to the representativeness of research value but refers to the deepening of understanding of a specific problem. In qualitative research, researchers are both subjective and objective. Because qualitative research focuses on practical aspects that cannot be quantified, the purpose of qualitative research is to provide in-depth illustrative information in order to understand all aspects of the problem analysed. (Queirós et al., 2017). They also highlighted that qualitative research emphasizes on the understanding and interpretation of social relationship dynamics. Maxwell et al. (2013) advocated that qualitative research corresponds to the deep space of relationships, processes and phenomena. It involves the universe of meaning, motivation, desire, belief, values and attitude, so it cannot be simplified as the manipulation of variables. The qualitative method related to interpretive paradigm includes focus group, unstructured interview, text analysis and ethnographic case study (Creswell, 2014a). The research methods usually associated with hermeneutics are small in scale but strong in intensity, the interaction between researchers and research participants is also considered as an essential part of the

research process (Philip, 1998). Participants were selected by purposive or theoretical sampling according to their potential usefulness to the survey, and the opinions of those who did not necessarily represent the general sample were actively solicited (Goering and Streiner, 1996; Strauss and Corbin, 1998).

### 3.3.3 Mixed-method Research

The idea of mixed-method research was originally proposed as a method in social science research to seek the convergence between qualitative methods and quantitative methods (Creswell, 2014b). Mixed method research is defined philosophically as a basic research model that combines qualitative and quantitative research models in order to mix evidence and increase knowledge in a more meaningful way than using either model alone (Clark and Creswell, 2008). Scholars believe that mixed method research is particularly useful in social science research because only a broader perspective can fairly reflect the complexity of the phenomena studied (Clarke and Yaros, 1988; Foss and Ellefsen, 2002; Steckler et al., 1992). Combining qualitative and quantitative findings makes it possible to forge a comprehensive or negotiated report on the survey results, which is impossible to adopt a single method (Bryman, 2007). The differences between the methods of Bernardi and others (2007) are also helpful.

Interest in and expansion of mixed method approach design has recently been driven by pragmatic issues: the growing demand for cost-benefit research, the shift from theory driven research to research that meets the needs of decision makers and practitioners, and the increasing competition for research funding (Brannen, 2009; O'cathain et al., 2007).

According to Zohrabi (2013), There are various procedures for data collection: tests, questionnaires, interviews, classroom observations, diaries, diaries, etc., quantitative design usually uses tests and closed questionnaires to collect, analyse and interpret data, while qualitative methods mostly use interview, diary, classroom observation and open questionnaire to obtain, analyse and interpret data, while mixed methods usually use closed questionnaire (digital data), interview and classroom observation (text data) to collect information. In order to triangulate the data, researchers can obtain information through different programs to improve the reliability and credibility of the data and its interpretation (Zohrabi, 2013).

#### 3.3.4 Choice of Research Method for This Research

The mixed method is very appropriate for the objectives of this study. First, the research on the relationship between interaction of managers at all levels and organisational ambidexterity at Stage 1 needs the research method to explore the conceptual model. This requires quantitative research methods to verify the impact of interaction among managers at all levels on organisational ambidexterity. Moreover, the qualitative research method aiming to explore the interaction between managers can help to understand how the interaction activities affects the organisational ambidexterity. Creswell (2014b:139) also defines mix-methods research design as: *“an approach to research in the social, activitiesal, and health sciences in which the investigator gathers both quantitative (closed-ended) and qualitative (open-ended) data, integrates the two, and then draws interpretations based on the combined strengths of both sets of data to understand research problems”*. In his view, the core advantage of mixed method is that when researchers combine statistical trends (quantitative data) with stories and personal

experiences (qualitative data), this collective power can help the researcher better understand the research problem than any form of data alone.

### 3.3.5 Validity, Reliability, and Generalizability in Mixed Method Research

In this section, the researcher will discuss the validity, reliability, and generalizability of mixed method research, also, the researcher will clarify their applicability and usefulness for this research respectively.

#### 3.3.5.1 Validity

Mixed method research involves mixing quantitative and qualitative methods or paradigm features into one study (Johnson and Onwuegbuzie, 2004; Tashakkori and Tedlie, 2006). According to the basic principles of hybrid method research, hybrid method includes the combination of quantitative and qualitative methods, methods, and concepts, so that the research has the complementary advantages and non-overlapping disadvantages of multiple methods (brewer and hunter, 1989; Johnson and Turner, 2003). According to Green, Karacheli and Graham (1989), this basic principle is not limited to triangulation or corroboration. The term "complementary advantage" means the advantage of all qualitative and quantitative research. Therefore, through "complementary advantage", researchers mean the combination of different methods, methods, and strategies in various creative ways. According to Onwuegbuzie and Johnson (2006), mixed research is still plagued by representation, integration, and legitimation. Representation problem refers to the difficulty of capturing (i.e., expressing)

life experience with texts, especially words and numbers. Legitimation refers to the difficulty in obtaining credible, credible, reliable, transferable and / or verifiable discoveries and / or inferences. In fact, in many cases, these problems are more serious in mixed research, because the quantitative and qualitative components of the research bring their own representativeness and legitimacy problems, which are likely to produce the threat of addition or multiplication, thus resulting in integration problems.

In general, validity is related to whether our research is credible and reliable, and whether it is evaluating what should or is intended to be evaluated (Zohrabi, 2013). In this regard, Burns (1999) stressed that effectiveness is the basic standard for assessing the quality and acceptability of research, and in general, researchers use different tools to collect data, which makes the quality of these instruments crucial because "researchers' conclusions are based on the information they obtain using these instruments" (Frauenkel and Wallen, 2003).

Content validity refers to a kind of validity in which different elements, skills and activities are fully and effectively measured (Zohrabi, 2013). Experts in the research field can review research tools and data. According to reviewers, unclear and vague issues can be modified, and complex items can be rewritten. In addition, invalid and non-functional problems can be completely discarded (Zohrabi, 2013).

Internal validity mainly involves the congruence of research results and reality (Johnson and Onwuegbuzie, 2004). In addition, it involves the extent to which researchers observe and measure what should be measured. In general, to improve the internal validity of research data

and tools, researchers can adopt six methods recommended by Onwuegbuzie and Johnson (2006): triangulation, member inspection, long-term observation of research site, peer review, participatory or collaborative research model, and researcher bias.

Another issue to consider is external effectiveness. External validity is related to the applicability of research results in other environments or other disciplines, as Burns (1999) pointed out, "how common are our studies to other backgrounds or topics?" additionally, it may rely on the potential similarity between our background and other backgrounds. Moreover, Nunan (1999) emphasized the research design and pointed out that "does the research design enable us to extend the contents beyond the survey objects to a wider population?"

The researcher's personal beliefs and theoretical background about the interaction between managers and organisational ambidexterity are not excluded. However, throughout the research process, they have been challenged over time. As Denzin and Lincoln (2012) declared, knowledge is formed through a interaction in which participants learn from and challenge each other. More importantly, in order to describe the overall feelings of "outsiders" from the organization, it is basic and useful for researchers to record their own experience in this field (Loukidou, 2008).

#### 3.3.5.2 Reliability

One of the main requirements of any research process is the reliability of data and discovery. Reliability includes the consistency, reliability, and reproducibility of "research results" (Nunan,

1999). Obtaining similar results in quantitative research is very simple because our data are presented in digital form. However, in qualitative research methods, it is difficult to obtain the same results. This is because the data is narrative and subjective. Therefore, Lincoln and Guba (1985) pointed out that it is better to consider the reliability and consistency of data rather than obtain the same results. In this case, the purpose is not to achieve the same results, but to agree that the survey results and results are consistent and reliable based on the data collection process. Merriam (1998) believes that human tools can become more reliable through training and practice. In general, Lincoln and Guba (1985) and Merriam (1998) believe that three techniques can be used to ensure the reliability of results: investigator location, triangulation, and audit testing.

In addition, external reliability is related to the repeatability of research. As LeCompte and Goetz (1982) pointed out, external reliability is the degree of repeatability of research projects. As Burns (1999) raised the question: "can independent researchers replicate the research results and obtain similar results to the original research?" Scholars believe that if investigators pay attention to the five important aspects of the investigation, the external reliability of the research can be improved (LeCompte and Goetz, 1982; Nunan, 1999). These five aspects include the status of researchers, the choice of insiders, social conditions and conditions, the structure and premise of analysis, and the methods of data collection and analysis. Internal reliability refers to the consistency of data collected, analysed, and interpreted. When an independent researcher reanalyses this information, it may produce similar results as the original researcher. Burns (1999) asserted that "will other researchers use the same analysis to get the same results? "In

this study, four basic strategies proposed by LeCompte and Goetz (1982) and elaborated by Nunan (1999) were adopted to prevent internal reliability from being threatened. These are: the use of low inference descriptors, multiple researchers/participant researchers, peer examination and mechanically recorded data.

Overall, ensuring the reliability of a mixed method research is very important and it is never easy to do so. King et al. (2021) suggested that researchers admit their biases and assumptions and allow themselves to be surprised. For the quantitative method, based on the previous literature and research the measurement would be ensured reliable and proper data analysis method could also ensure the reliability of the research. On the other hand, to check the reliability of the qualitative research need understanding of the meanings of the interviewee during the interview and avoid making false assumptions. In addition, during the interview, the researchers tried to clarify the questions raised by the interviewees to obtain a thorough understanding and to guarantee that no false assumptions were captured in the explanations.

### 3.3.5.3 Generalisability

Another concern that the researcher may have in the design of research is the extent to which the research results are generalisable, as Saunders et al. (2009) enlightened, what researchers may have in the research design is the generalisability of the research results, that is, whether the research results are also applicable to other research environments, such as other sectors or organisations. Saunders et al. (2009) also pointed out that this may be a particularly worrying issue for studies that focus on one or a few organisations, as it may be important if the

organisation is marked "different" to some extent. Generalisability is considered to involve the transferability of research results in other cases, in other words, the applicability of theoretical propositions in different environments (Bryman, 1988). Realist researchers generally believe that considering the universality of research is crucial to quality research because they believe in objective reality (Lee and Ling, 2008). Critical realists focus on explaining the observable phenomena provide by credible data and facts within a certain context, thus, the results and findings are also within the certain context that the researchers focused on (Saunders et al., 2009). In sum, this research conducted the field work in three banks in Chinese banking sector. Although the objective of this research is not to generalize the outcomes in Chinese banking sector, the outcomes could still explain some phenomena in the certain research context. In the next section, the researcher will discuss various research strategies and determine the research strategies used in this thesis.

### **3.4 Research Strategy**

Research strategies (also known as research design) include experiments, surveys, case studies, action research, grounded theory, ethnography, and archival research (Saunders et al., 2009). Experiment is a form of research. Although it has strong characteristics in many social science research, it is largely due to Natural Science (Saunders et al., 2009). According to Hakim (2012), the purpose of the experiment is to study accidental connection: whether the change of one independent variable will lead to the change of another dependent variable. Saunders and his

colleagues said that in business and management research, survey is a popular and common strategy, which is usually used to answer questions such as "who", "what", "where", "how" and "how many" and so on (Saunders et al., 2009). Moran-Ellis and Jo (1994) defined case study as a research strategy that includes empirical investigation of specific contemporary phenomena using multiple sources of evidence in real life. Eden and Huxham (1996) defined action research as research conducted by researchers and members on issues of real concern to the organisation. In his view, researchers are part of the organization where the research and change process is located. A ground theory strategy is, according to Goulding (2002), particularly helpful for research to predict and explain activities, the emphasis being upon developing and building theory. Ethnography originated in the field of anthropology, that is to describe and explain the social world of the research object in the way of description and interpretation (Saunders et al., 2009). The final research strategy to consider is the archival research, which makes use of administration records and documents as the principal source of data (Hakim, 2012). Researchers understand the advantages of all these research strategies. However, for the purpose of this study, this study adopts the methods of survey and case study in answering research questions. The reason for this is to be closer to the mechanism of phenomena and social processes in the social context, and to understand the first-hand information, that is, to verify the conceptual model with quantitative methods, and to understand the respondents' understanding of their organizational environment. This is also due to the critical realism method adopted by researchers and the adoption of mixed research methods. In addition, the reason why these research strategies are adopted is because the research is exploratory, aiming to investigate how managers at different levels interact and coordinate the organisational

ambidexterity. Exploratory research design is regarded to be flexible and diverse, which allows the use of data collection strategy such as questionnaires, observations, as well as interviews. In different stages of field work, researchers use these data collection strategies to collect relevant information, in order to answering the research questions. This research strategy helps to triangulate the collected data. Overall, as Saunders et al. (2009) indicated, a case study strategy can be adopted because case studies can be a very useful way to explore existing knowledge (Saunders, 2009), it can enable the researcher to challenge the existing theory and provide source of new research. Generally speaking, there are various procedures for collecting data. The main tools of the mixed method research include close-ended questionnaire, open-ended questionnaire, interviews, and observation. These different ways of data collection can complement each other, thus improving the effectiveness and reliability of data. The quantitative data are mainly obtained by close-ended questionnaire, while qualitative data are obtained through open-ended questionnaire, interview, and observation (Zohrabi, 2013).

### 3.4.1 Survey

Survey research strategies are usually associated with deductive method (Saunders et al., 2009). In business and management research, answering who, where, how much and how many questions is a common strategy. According to Queirós et al. (2017), survey is a research technology that can collect data directly from relevant researchers through a series of questions organized in a certain order. Survey is one of the most commonly used quantitative techniques because it can obtain information about specific phenomena by asking questions that reflect the perceptions, views and activities of a group of people. Queirós et al. (2017:370) also highlighted

several advantages of survey: *“The two most important advantages of this method are that it is more representative and lower cost than other alternative methods. On the other hand, the reliability of survey data largely depends on the survey structure and the accuracy of the answers provided by respondents.”* Saunders et al. (2009) added that survey is popular because it allows researchers to collect a large amount of data from a sizeable population in an economical way. In addition, the survey strategy is perceived as authoritative by people in general and is both comparatively easy to explain, compare and understand. In Saunders et al. (2009)’s view, survey allows researchers to analysis the quantitative data using descriptive and inferential statistics. In relation to this research, the data collected using a survey strategy can be analysed to suggested possible reasons for relationships between variables and to produce a model of these relations.

Queirós et al. (2017) concluded that there are many advantages of investigation and research, such as short development time, high cost-effectiveness, easy collection and analysis of data by statistical methods, strong representativeness and independent of the researcher's subjectivity, In order to conduct survey strategy, the researcher need to ensure the sample is representative, design and pilot the data collection instrument and try to ensure a good expected response rate (Saunders et al., 2009).

#### 3.4.1.1 Questionnaire

Questionnaire survey is undoubtedly one of the main data sources of any research work. However, the key is that when designing the questionnaire, researchers should ensure that it is

"effective, reliable and clear" (Richards and Schmidt, 2013). Generally speaking, the questionnaire can be divided into three types: closed (or structured) questionnaire, open (or unstructured) questionnaire and closed and open mixed questionnaire. In fact, closed questionnaires provide quantitative or digital data for respondents, while open questionnaires provide qualitative or textual information (Richards and Schmidt, 2013). In this regard, Blaxter et al. (2006) suggested that the questionnaire was divided into "seven basic question types: quantity or information, category, list or multiple choice, scale, ranking, complex grid or table, and open-ended". In his view, one or more of these questions can be used in a questionnaire.

It can be said for unquestionable that there are many advantages in the proper preparation of questionnaires. The following Table 3-2 are some advantages and disadvantages of the questionnaire (Seliger and Shohamy, 1989; Robinson, 1991; Lynch, 1996; Nunan, 1999; Gillham, 2000; Brown, 2001).

| Advantages   | Disadvantages   |
|--|---|
| <ol style="list-style-type: none"> <li>1. They are one of the effective means to collect data on a large scale.</li> <li>2. They can be sent to a large group of people simultaneously the same time.</li> <li>3. Researchers can easily collect data in the field.</li> <li>4. The anonymity of respondents makes it easier for them to share information.</li> <li>5. When similar questions are asked to a large number of people at the same time, the data obtained are more identical, correct and standard.</li> <li>6. They are a time-efficient way to collect data from many people.</li> <li>7. The close-ended questionnaire can be analysed simply and clearly.</li> <li>8. They are cost-effective.</li> </ol> | <ol style="list-style-type: none"> <li>1. Sometimes the answer is inaccurate and problematic.</li> <li>2. When sent by mail or email, the return rate is usually low.</li> <li>3. Some questions are ambiguous and unclear, which can lead to inaccurate and irrelevant answers.</li> <li>4. Some questions may lead to misunderstanding.</li> <li>5. The wording of the question may affect the respondents' responses.</li> </ol> |

*Table 3-2 advantages and disadvantages of questionnaire*

The questionnaire is mainly based on the research purpose and research questions. As the research questions using quantitative method at Stage 1 are:

**Stage 1:**

*1, To what extent does interaction of managers at different levels contribute to ambidexterity?*

*2, To what extent does ambidexterity contribute to competitiveness in the Chinese banking sector?*

The researcher chooses to use close-ended questionnaire to collect quantitative data as the research strategy for the research questions on Stage 1.

3.4.1.2 Measures

As for how the independent variables are measured in this research, well validated scales were used. Exploration and exploitation were measured referring to the scale of discipline taken from Popadiuk et al. (2009), who present the attributes associated to the dimensions of exploration and exploitation. The researcher adapted the measurement of eight scales of both exploration and exploitation. According to interaction of managers at different levels, the researcher adapted Gong and colleagues (2013)'s two scales of team information sharing which indicate the information sharing process between managers at different levels, Du and colleagues

(2019)'s scale of degree of knowledge sharing process and Zhou et.al. (2019)'s scale of bottom-up knowledge sharing process, Guo and Wang (2017)'s two scales of joint decision-making process and Awojide (2015)'s two scales of cultural management among managers at different levels. Firm competitiveness was characterized by the seven scales from Feurer and Chaharbaghi (1994), who believe that the firm's competitiveness reflects a firm's position to satisfy customer, enhance shareholder values and maintain financial strength. Ambidexterity was calculated as the multiplicative score between explorative and exploitative innovation, as suggested by the literature (Gibson and Birkinshaw, 2004; Gupta et al., 2006).

#### 3.4.2 Case Study

Hakim (2012) holds that the following factors should be considered: Case studies focus on one or more selected examples of social entities, such as communities, social groups, organizations, events, life histories, families, work teams, roles or relationships studied using various data collection methods. According to Queirós et al. (2017), case studies provide a method for investigating and analysing multivariable complex situations. Case studies are particularly effective in improving the knowledge base of an area. Therefore, they are very popular in Applied Science in the field of social science. They also highlighted that case studies provide a good opportunity for innovation and challenge current theoretical assumptions (Queirós et al., 2017). These scholars emphasize that case studies can also be a good alternative or supplement to the focus group method. However, it is difficult to establish causality to draw conclusions and generalize, especially when considering a small number of causality or case studies (Queirós et al., 2017). Other scholars like Yin (2003) pointed out that case studies are the first

choice in these situations: when asking "how" or "why" questions, when investigators can hardly control events, and when paying attention to contemporary phenomena in real-life environments. Yin (2003) also emphasized the importance of context and added that in case studies, the boundary between the phenomenon studied and the context is not obvious. Comparing with experimental strategy, Saunders et al (2009) believe that case study is the complete opposite, where the research is undertaken within a highly controlled context. They also added that comparing with survey strategy, even in a controlled environment, the ability of case studies to explore and understand this context is limited by the number of variables for which data can be collected. Yin (2003) also separates between four case study strategies that are based on two detached dimensions: Single case and multiple case; holistic case and embedded case. In his view, single case is often used where it represents a unique case or critical case, it may be because of the extent of its typical. However, the rationale for conducting a multiple case strategy is often based on the necessity to establish whether the findings of the first case occur in other cases, in other words, the need to generalize from these findings. Yin (2003)'s another dimension of holistic and embedded indicates to the unit of analysis. If the research focuses only on the organisation as a whole, a holistic case study is preferred. Conversely, if the researcher plans to also examine several logical subunits within the organisation, an embedded case study is inevitably recommended.

In general, as a research strategy, case studies are used in many cases to help us understand individuals, groups, organizations, society, politics, and related phenomena (Yin, 2003). Moreover, the overall approach of case studies focuses on processes in the social environment

and is usually inductive (Cassell and Symon, 2004). They added that the case study focused on the ability to understand processes that occur in a specific environment (Cassell and Symon, 2004). As they claimed, the purpose of Kassel's theoretical research in 2004 is not to summarize and test, not the research questions of "what" and "how much", but the research questions of "how" and "why".

#### 3.4.2.1 Interviews

Interview is the second main type of data collection method in the mixed method research design. Burns (1999) believes that interviews are a popular and widely used means of collecting qualitative data. He also stressed that researchers hope to obtain first-hand information directly from some knowledgeable informants. Investigators intend to "get a special kind of information" and personally investigate the thoughts of respondents (Merriam, 1998). The key is that researchers cannot observe the feelings and thoughts of the respondents. Therefore, interviews are the key to understand people's perception and "explain the world around them" (Merriam, 1998). In this regard, Flick (2013) added that the purpose of the interview is to reveal the existing knowledge in a way that can be expressed in the form of answers for researchers to facilitate interpretation. Interviews are considered to take two forms: face-to-face interviews and group or group interviews (Zohrabi, 2013). Merriam (1998) believes that both forms of interview are goal oriented. In general, Johnson and Turner (2003) listed the advantages and disadvantages of the interview, as shown in table 3-3:

| Advantages  | Disadvantages  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Great for measuring attitudes and most other things of interest.</li> <li>2. Allow to explore through interviews.</li> <li>3. It can provide in-depth information.</li> <li>4. Allow good interpretation validity.</li> <li>5. Telephone interviews are very fast.</li> <li>6. Moderately high measurement validity for well-constructed and well-tested interview protocols.</li> <li>7. Generally, a relatively high response rate can be achieved.</li> <li>8. It is useful for exploration and confirmation.</li> </ol> | <ol style="list-style-type: none"> <li>1. Face to face interview is expensive and time-consuming.</li> <li>2. Respondents may have a lower sense of anonymity.</li> <li>3. For open projects, data analysis is sometimes very time-consuming.</li> </ol> |

*Table 3-3 Advantages and Disadvantages of interview*

*Structured interview:* according to King et al. (2021)'s declaration, a main feature of structured interviewing is that it deconstructs unchanged questions and leave researchers forced to perceive respondents. In other words, the interviewer only asked a chain of predetermined questions, while the respondents only passively answered a series of predetermined interview questions. Structured interview is in sharp distinction to semi-structured interview, which has a higher proportion of semi-structured and open interview.

*Unstructured interviews:* adapting this method allows researchers to bring up some short topics to remind respondents that there are no predetermined questions, while respondents mainly follow up the interviewer's points of interest and express their views (Lee and Ling, 2008). Scholars like Denzin and Lincoln (2012) believe that unstructured interviews often provide more sufficient data than structured and semi structured interviews. In unstructured interviews,

the researcher usually puts forward a series of topics he wants the respondents to talk about, then asks the respondents to express the questions in the way they like and discusses their feelings by joining the conversation (Gilbert, 2001). In the process of unstructured interviews, researchers sometimes influence the views of the interviewees, and even impose some views on the interviewees, bias may occur as a result (Lee and Ling, 2008). Nevertheless, scholars like Denzin and Lincoln (2012) classify in-depth interviews to be a kind of unstructured interviews. They also claim that in-depth interviews are often easy to deviate from the normal track and seek interesting perspectives while maintaining flexibility. Therefore, researchers have the opportunity to explore the real personal feelings, opinions, and experiences, of the respondents in rich and in-depth answers (see Lee and Ling, 2008).

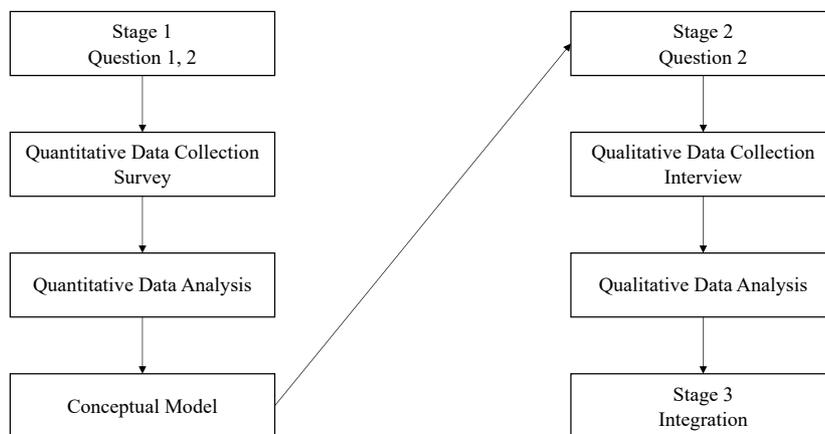
*Semi-structured interviews:* different from the first two interview methods, semi-structured interview allows researchers to change the order freely and modify the same questions in the different way each time, so as to ensure more information and sufficient detail and understanding (Gilbert, 2001). During the semi-structured interview, researchers are free to investigate any phenomenon related to the research topic and allow respondents to answer freely in their own way (Bryman, 2004). Semi structured interview is considered to provide more guidance because rather than specific questions, it is relying on a detailed topic guide (interview guide) to grasp the interview. The guide usually contains not only the description of some questions, but also possible to follow the questions to explore more details (Lee and Ling, 2008). These scholars also stressed that as an important document, the interview guide helps to remember the interview process, that is, this guide is considerably important to prevent the

interview process from being completely confusing or embarrassing. Researchers need to have a decent knowledge of the theoretical nature of the research to use semi-structured interviews, such as interviews from literature reviews, which makes the topic guide well structured, which means that interviews can be compared.

Obviously, the most popular method of interview is semi-structured interview. With the interview guidance, the process of interview will be flexible and encourage the interviewee to express more information than other interviewers (Zohrabi, 2013). Neither too rigid nor too open, semi-structured interview is in the middle and suits most of case studies. This is a moderate form in which a large amount of data can be obtained from the interviewees. In this way, semi-structured interviews were conducted to collect qualitative data to answer the research question on Stage 2:

*How do managers at different levels interact to facilitate organisational ambidexterity?*

In summary, according to Palinkas (2011), conducting quantitative data collection and analysis first, then conducting qualitative data collection and data analysis is a sequential mixed method. Therefore, a sequential mixed method research strategy will be conducted as shown in the Figure 3-2 below.



*Figure 3-2: Research Strategy*

### **3.5 Data Collection**

#### **3.5.1 Banking Sector in China**

China's banking industry plays an important role in the financial system and economic development. Since 1978, China's banking system has undergone gradual reform to improve efficiency and resource allocation (Heffernan and Fu, 2008). In 1979, the Chinese government launched a series of economic reforms to transform the planned economy into a market economy. China's banking industry has also been rebuilt and redesigned through some reforms. The two-tier banking system was established from 1979 to 1993, with the people's Bank of

China as the central bank and four state-owned commercial banks (SOCB) engaged in commercial bank loans. In order to increase competition in the banking industry, the Chinese government has relaxed the licensing and access requirements for domestic small and medium-sized banks. In 1996, 2003, 2004 and 2005, several new joint-stock commercial banks were established. In addition, in order to enable banks to obtain external funds, strengthen supervision, enhance competition among banks, and encourage all Chinese banks to be listed on the stock exchange. At the end of 2011, state-owned commercial banks issued initial public offerings (IPOs) on the Shanghai and Hong Kong stock exchanges for the first time. Among the 12 joint-stock commercial banks, 8 are listed on the stock exchange (Tan, 2016). At the end of 2013, it comprised of three development banks, five large-scale commercial banks, 12 joint-stock commercial banks, 145 city commercial banks, 468 rural commercial banks, 122 rural cooperative banks, 1803 rural credit cooperatives, 1134 new rural financial institutions, one postal savings bank, and 92 branches of foreign banks or non-bank financial institutions, according to the classification and statistics of the China Banking Regulatory Commission (CBRC) and the People's Bank of China (PBC) (Huang et.al., 2019). In 2003, the proportion of assets of large state-owned commercial banks in the total assets of banks continued to decline, reaching the lowest level in 2011, 47.3%. On the other hand, since 2003, the proportion of assets of joint-stock commercial banks and urban commercial banks in the total assets of banks has continued to rise. In 2011, they reached 16.22% and 8.81% respectively. By the end of 2022 Q2, the total RMB and foreign currency assets of China's banking institutions at home and abroad reached RMB 367.7 trillion, up by 9.4% year on year. Among those, assets of large-scale commercial banks registered RMB 151.4 trillion, accounting for 41.2% of the total, and

up by 11.2% year on year. Assets of joint-stock commercial banks reached RMB 65 trillion, accounting for 17.7% of the total, and up by 7.8% year on year, according to the classification and statistics of the China Banking Regulatory Commission (CBRC). To sum up, several rounds of banking reforms in China are aimed at improving the competitive conditions and reducing risk-taking activities that may affect the profitability of banks.

However, Tan and Floros (2013) believe that increased competition will lead to greater risk-taking activities, because the market power of Chinese banks is reduced, and their franchise value is reduced. Despite China's remarkable economic achievements, the development of China's financial system still lags behind (Dang et al., 2014). The system not only lacks diversity - because resources are concentrated in a small number of state-owned banks, but also severe regulation has caused economic distortions, and the political impact on state-owned banks has led to credit allocation biased towards state-owned enterprises and official projects (Song et al., 2011). In short, in order to maintain competitive advantage, Chinese banks need to solve the tension between risk and efficiency and innovate. In this case, this study chooses China's banking industry as the research background.

#### 3.5.1.1 Sample Selection

Scholars like Symon and Cassell (2012) believe that the researcher should choose participants based on both the emphasis of the study and the answers to research questions. These scholars believe that it is important to think deeply about how to select research participants and from whom to collect data to answer research questions and achieve research objectives. In addition,

Creswell (2014a) argues that it is important for researchers to select participants who are not only easily accessible but also prepared to provide the necessary information to help explain the phenomenon being explored.

The field work was conducted to investigate three Chinese banks owned by the State and located in Beijing, which are Bank A, Bank B and Bank C. One of the three banks is from the five large-scale banks and the other two are from the 12 joint-stock banks. These three Chinese banks are all top 10 listed banks in China. The reasons why the researcher chose these three banks include 1) in the same range of ranking, top ten listed banks are elites in the Chinese banking sector, 2) have larger market share and more business lines, and 3) have connections with the three banks for the fieldwork. Thus, the samples from them could represent the elites in the Chinese banking sector and cover more market share in the Chinese banking sector. Despite of the organisation structure, the ability to innovate (or organisational ambidexterity) is more likely to be a necessity to help these banks stay in top ten. Having the access to these banks helps the researcher to complete his fieldwork for this research.

### **Stage 1:**

The population of the survey are the managers at different levels (employees, frontline managers, middle managers, and top managers) and departments in these banks. The reason why employees are included is that frontline employees are more familiar with how banks have made changes or implemented innovative projects to adapt to the market. The field work has begun with questionnaires that allows me to find critical correlations relating to ambidexterity,

the interaction of managers at different levels and competitiveness through questionnaires. As can be seen clearly from the Table 3-4, all the 202 participants are voluntarily participating the survey, and men are slightly more than women. 58.9% of participants are employees, followed by the line managers and middle managers, accounting for 26.2% and 10.9% respectively, and the top management is the least, accounting for only 4%.

| Items     |               | Frequency | Percentage |
|-----------|---------------|-----------|------------|
| Voluntary | Yes           | 202       | 100        |
|           | No            | 0         | 0          |
| Sex       | Male          | 106       | 52.5       |
|           | Female        | 96        | 47.5       |
| Position  | Employee      | 119       | 58.9       |
|           | Line Manager  | 53        | 26.2       |
|           | Middle Manger | 22        | 10.9       |
|           | Top Manager   | 8         | 4          |

*Table 3-4: Sample of Distribution*

**Stage 2:**

The population of the case study are middle and top managers at subbranches, branches and head office in these three banks. As a result, the researcher conducted 24 qualitative interviews with managers in different organisational positions (see Table 3-5). Although the samples of

Stage 1 and Stage 2 are different ( the samples of Stage 2 consist of only managers) due to different focuses at each stage, the outcomes of both stage 1 and 2 could contribute to the outcomes of Stage 3 as presented in the discussion chapter of Chapter 6. Because the objective of Stage 2 is to explore more details of managers’ interactions that are relating to ambidexterity, and middle managers have enough knowledge and experience when it comes to interactions between middle manager and line managers or even employees.

| Name | Age | Bank | Position  | Level of manager | Number of interviews |
|------|-----|------|---|------------------|----------------------|
| AP   | 39  | ZX   | Vice head of subbranch  | Subbranch        | 1                    |
| BG   | 36  | ZX   | Personal loan manager   | Subbranch        | 1                    |
| BXF  | 36  | HX   | Personal client manager   | Subbranch        | 1                    |
| CC   | 32  | HX   | Internal compliance manager                                       | Head office      | 1                    |
| GM   | 40  | HX   | Head of subbranch   | Subbranch        | 1                    |
| HSB  | 37  | GS   | Personal client manager   | Subbranch        | 1                    |
| HTB  | 28  | ZX   | Corporate client manager  | Subbranch        | 1                    |
| JM   | 34  | HX   | Internal control manager  | Branch           | 1                    |
| LW   | 32  | HX   | Internal control manager  | Branch           | 1                    |
| LH   | 41  | HX   | Head of subbranch   | Subbranch        | 1                    |
| LL   | 37  | GS   | Corporate client manager  | Subbranch        | 1                    |
| LMS  | 30  | GS   | Regional manager of head office International Business Department | Head office      | 1                    |
| LN   | 31  | HX   | Product manager   | Branch           | 1                    |
| LY   | 36  | HX   | Vice Head of subbranch  | Subbranch        | 2                    |
| QX   | 30  | GS   | Personal finance manager  | Subbranch        | 1                    |
| SXH  | 32  | HX   | Lobby manager   | Subbranch        | 1                    |
| WY   | 36  | ZX   | Corporate business department manager                             | Branch           | 1                    |
| ZJ   | 46  | HX   | Personal business department manager                              | Branch           | 1                    |
| ZL   | 32  | HX   | Credit, Internal plus integration manager                         | Branch           | 2                    |
| ZLN  | 31  | GS   | Personal finance manager  | Subbranch        | 1                    |
| ZXH  | 41  | HX   | Corporate business department manager                             | Branch           | 1                    |
| ZYY  | 36  | HX   | Personal business department manager                              | Branch           | 1                    |
|      |     |      |   | Total            | 24                   |

*Table 3-5: Names, Ages, organisational positions, and level of employment of participants.*

Scholars such as Symon and Cassell (2012) believe that the higher level if an organisation is able to stop the researcher’s field work at any time even if research access has been granted by the gatekeeper. Yet, in this study, the researcher’s access was granted directly to the senior level

of the organisation, that is, the researcher was guaranteed to get access to the organisation. Still, some of the interviewees raised questions about the authority of the interview and the recording, which were resolved after the researcher's explanation and the presentation of relevant documents. Fortunately, after relevant explanations and reading of documents, all respondents recorded uniformly. As described by Lewis Beck et al. (2004), snowball is often recommended to researchers, as a method for collecting data or interviewing interviewees, can help researchers provide contact with other informants by identifying the initial interviewees. Lewis Beck et al. (2004) pointed out that contacts themselves may help researchers expand their contact and survey networks. Therefore, snowball can be applied to a broader method, by adapting this method, the researcher get contact to social networks of identified respondents, who may also provide the researcher with a group of potential contacts and interviewees to get contact as well.

### 3.5.2 Data Collection Process

The nature of research and the objectives researchers want to achieve determine the adoption of mixed method research, but it is by no means easy to enter the organization. Cassell and Symon (2004) pointed out that some people in the organisation (generally senior managers) are very important and influential in determining whether researchers are granted access. Therefore, the first task for the researcher is to get in touch with the initial contacts for these organisations. As far as this research is concerned, the process of recruitment target organisation started in July 2018. The researcher went to Beijing to collect survey data. Based on the researchers' personal connections, three banks in Beijing were contacted (Bank A, Bank B, and Bank C). in

contacting with the managers in these three banks, the researcher sent the participant information sheet for survey and consent form for survey via WeChat (a social media app in China). Meanwhile, the researcher asked if those managers are willing to conduct interviews in the next stage. In order to get the responses enough for the sample size, the researcher also asked if the contacts could distribute the survey in their working group chat in WeChat. In July 2019, the researcher went to Beijing for the second time to collect interview data.

#### Stage 1:

Stage 1 data collection was started in September 2018. the researcher uses Quatrics (an online survey data collection platform) to design and develop the questionnaire in Chinese and collect responses from the participants at the three banks. A survey platform software Quatrics was used to make and conduct survey in the three banks in Beijing. the researcher edited the survey questionnaire at Quatrics platform so that the researcher could distribute it when it was ready. The distribution was quite convenient as the researcher can both email the link of the survey to the participants and send the QR code of the survey to any mobile device like mobile phone or pad etc. Participants could complete the survey in any mobile devices or laptops because the researcher uses the link and QR Code produced by Qualtrics and then Participants could scan the QR code and start the survey. The researcher uses connections in these three banks by sending them the QR code and let them distribute the QR code to group chat in WeChat (a social App in China, people use group chat in WeChat to communicate with co-workers). Then, the researcher sent the survey to 30 groups that averagely consist of 20 people (approximately 600 were distributed) and collect 249 responses. These include the employees and managers at

different levels both in the head offices, branches and subbranches of Bank A (33 subbranches in Beijing), Bank B (51 subbranches in Beijing) and Bank C (65 subbranches in Beijing).

## Stage 2

Stage 2 data collection was started in July 2019. The researcher started a three-month internship in Bank A's Beijing Branch, Branch Sales Department. The researchers actively participated in and observed the organisational process for three months, participated in monthly departmental briefing, meetings between department managers and managers at different levels, weekly internal meetings, meetings organized by branches both with subbranches and with head office. This is to understand the interaction between interviewees and managers at all levels in a specific context. The researcher also visited offices of managers at different levels weekly. The data collection method of snowballing was conducted. Through the internship department, the researcher contacted and interviewed the managers at different levels of other departments, and when the branch holds a meeting with the subbranch and the head office, the researcher interviewed the managers at different levels of the subbranch and the head office. After the internship in Bank A, the researcher used contacts in Bank B and Bank C in Beijing to continuously visit managers at different levels in different departments, which include managers in subbranches, branches and head office. In addition, some managers suggested to conduct interview by phone call, in that case, the researcher make appointment with those managers at their leisure time. Between July and December 2019, the researcher went to China and interviewed 24 interviewees in Beijing, China, involving with managers at different levels in different departments. The participants were identified through a snowball approach with

help of connections in the banks as cases in Beijing. Each interview lasted between 40 to 90 minutes and were audio-recorded and transcribed. At the beginning of each interview, the researcher will introduce the objectives and information of the interview and ask the interviewee if they are willing to be audio recorded.

The starting point for collecting qualitative data is regarded to be the access to an organisation or a group of individuals (Bryman, 2004). Importantly, it's very vital to record the generated data. Researchers are often faced with the choice of taking notes, recording or other electronic recording devices. As far as interviews are concerned, Silverman (2010) suggests that interviews should always be recorded as technology advances and the advantages of playback interviews are widely recognized; he said that this is because the era of research and pen has long passed. In this study, the researcher used audio recording equipment, which allows the researcher to pay full attention to what the interviewees said in the interview (Bryman, 2004). In this case, this ensures that the interview is conducted without any interference, so that researchers can fully participate and focus on the interview. In addition, researchers can capture and analyse the content during the interview, for example, pauses, emotional intonation, and laughter (Bryman, 2004). Due to the long interview time, the recording of the interviewee's speech has proved to be very useful. In that case, each interview began with an introduction of research background and research rational, following with a confirmation of willingness to be audio recorded. None of the interviewees refused to record, so all interviews were recorded.

In addition, although Lee and Ling (2008) pointed out that notes may have a negative impact on the attention concentration of interviewers and respondents in qualitative interviews, Cassell

and Symon (2004) believed that taking notes during observation was very convenient. Although the researcher did not have enough time to take notes during the interview, but at any time during the conversation, the researcher will add key points to the interview guidance and ask questions according to the interviewee's statements to obtain more data information. These notes are useful for obtaining other necessary information, which can help to provide a deeper insight and understanding of the organisation under study. Thus, note taking was conducted during the process of interviews to generate follow-up questions based on what the interviewee was speaking before.

### **3.6 Data Analysis Method**

A mixed method research strategy was used to compensate for one set of methods by the use of another set of methods (Palinkas, 2011). In that case, this research conducts two stages of data analysis to answer the two sets of research questions. According to the research strategy of the research (see Figure 3-2), this research also conducted two stages of data analysis. For the research questions on Stage 1:

*1, To what extent interaction of managers at different levels contribute to ambidexterity?*

*2, To what extent ambidexterity contribute to competitiveness in the Chinese banking sector?*

the researcher conducted a survey questionnaire. Then a quantitative data analysis was conducted to explore the conceptual model between interaction of managers at different levels

and organisational ambidexterity. In that process, based on the outcomes on Stage 1, the researcher generated semi-structured interviews to further explore the research question on Stage 2:

*How managers at different levels interact to facilitate organisational ambidexterity?*

Based on the qualitative data collected from interviews, a qualitative data analysis was conducted. Thus, in this section, the researcher will present the data analysis process on Stage 1 and Stage 2.

### 3.6.1 Data Analysis on Stage 1

Considering to two research questions on Stage 1 are questions focus on causality, simple linear regression is employed to analyse and evaluate the interaction of the variables in order to understand to what extent ambidexterity for innovation leads to improved competitiveness in the Chinese banking sector and the effect of the interaction of managers at different levels on ambidexterity. According to Saunders et al. (2009), the process of using an independent variable to calculate the determination coefficient and regression equation is often referred to as simple linear regression analysis. The determination coefficient (represented by R) can take any value between 0 and + 1. It measures the proportion of changes in dependent variables and can be statistically explained by independent variables or multiple variables. The results of survey questionnaires are analysed using SPSS software to get critical elements to ambidexterity and show the correlation between the concepts indicated in the conceptual model

and using AMOS to conduct structural equation model (SEM) and path analysis to confirm the causality among them. The results of Stage 1 also provide insights during the whole process of Stage 2, starting from questionnaire generating to qualitative data analysis and discussion.

### 3.6.2 Data Analysis on Stage 2

#### *Thematic Analysis*

Thematic analysis is defined as a technique for identifying and interpreting patterns of meaning across qualitative data (Barun and Clarke, 2014). Boyatzis (1998) pointed out that thematic analysis regarded as a method that can be applied to conduct qualitative data analysis regardless of the researcher's cognitive and ontological assumptions. Similarly, Denzin and Lincoln (2012) outline topics as an abstract structure that researchers can create at any time (before, during, or after data collection). They stressed that these topics not only provide a way to connect different experiences and ideas, but also allow the consolidation of interrelated examples and features in the data. According to Gibson and Brown (2009), thematic analysis focuses on the detailed analysis of the interviewees' experience in the research environment. Theme is a key aspect of qualitative research, and the term "thematic" is related to the aggregated topics searched in the data, and topic analysis is a process of analysing and studying data based on the relationship, commonness, and differences between data sets (Gibson and brown, 2009). It involves storytelling; topics then become very useful narrative means (Gibson and Brown, 2009). Cassell and Symon (2004) also pointed out that reflexivity, discussing topics from different perspectives, and generating rich descriptions from data are the important requirements that

researchers must keep in mind. A thematic analysis method was used (Clarke et.al., 2015) to examine the transcripts to identify key terms for the categories.

In addition, the code is the unique source can be built in thematic analysis. Cassell and Symon (2004:257) define code as *" a label attached to the text part, which is used to index the content related to topics or questions in the data. Researchers believe that these topics or questions are important for their interpretation."* The essence of code is a category, which captures the general characteristics of data and is related to a series of examples in the data, so it has attracted attention to the commonalities in the data set (Gibson and brown, 2009). Accordingly, the codes are initially constructed from key concepts in relevant literature and the authors' knowledge and experience, in which the codes appearing in the coding process are added.

NVivo 12 qualitative software is used to record, store, and manage coding. On this basis, the inductive style is adopted, and the concepts of organizational ambidexterity and manager interaction are used for reference. Sanders et al. (2009) suggested using qualitative data analysis software to help organise and examine data. QSR NVivo 12 is designed to perform qualitative analysis for researchers. The early steps are usually encoding or transcribing the relevant parts of the research document (Bazeley and Richards, 2000). NVivo stores these codes as browsable, organised, or changeable for data analysis. Using NVivo 12 data management software, the initial manual coding process driven by subject analysis can be improved through in-depth and systematic coding procedures. Scholars such as Tesch (1990) and Burton (2000) criticized the use of software in qualitative research, for example, Tesch (1990) believes that using software like NVivo in qualitative research will lead to the loss of the relationship between researchers

and data. Burton (2000) advocated that the drive and purpose of data analysis may be ignored in the study when researchers use analysis software. (See Bollbach, 2012). Kofi et al. (1996) also expressed some uncertainties about using software programs (such as QSR NVivo) to analysis data and considered that this data classification method in software has some shortcomings. However, due to the advantages of QSR NVivo, QSR NVivo was used in this study. Some advantages have been also emphasized by other scholars, which include the capability to help researchers link, annotate, create relationships, and the ability to reshape and reorganize coding and node structure (Weitzman and miles, 1995; Bollbach, 2012) quickly and easily. Moreover, given the size of the research data generated by the interview, preliminary manual coding through subject analysis seems to be insufficient. In addition, due to the repeatability of data analysis, it is difficult to reorganize or modify the code only through manual data analysis in the advanced stage of data analysis (Bollbach, 2012). Therefore, due to the above advantages, researchers imported and encoded interview records using nvivo12 software, which allows researchers to store and retrieve research data and promotes efficient coding, linking and data sorting (Barzelay, 2007).

The steps of qualitative analysis include: (1) preliminary exploration of data by reading transcripts and writing memos; (2) Encoding data through text segmentation and marking; (3) Use code to develop topics by aggregating similar code; (4) Contact and relate themes; And constructing narrative (Creswell, 2002). By the use of NVivo software, the data analysis will include detailed contact and interaction between all branches, branches, and managers at all levels of the headquarters. During the analysis, researchers place the case in its context so that

the case description and theme are relevant to the specific activities and situations involved in the case (Creswell, 2002). This analysis is very rich in the context or environment of the case itself (Merriam, 1998). Based on this analysis, the researchers provide a detailed case narrative, using a detailed perspective of some events, chronologies, or major events, followed by a close-up description. In the design of multi case study, the analysis is divided into two levels: internal and cross case of each case (Stack, 1995). The analysis of these data can be the overall analysis of the whole case or the embedded analysis of specific aspects of the case (Yin, 1994). In this study, firstly, the researcher selected different levels of bank managers for case analysis, then, analyse the common theme or different themes of all cases. This will show the extent to which the identified internal and external factors affect the interaction between managers at different levels and the ambidexterity of the organisation (Lincoln and Guba, 1985).

Importantly, qualitative research is concerned about the accuracy of data analysis when researcher chosen to employ qualitative material, such as interviews and observations. According to Denzin (2017), data triangulation means collecting data at different times and from different sources to obtain a richer and more detailed description of the phenomenon. This researcher interviewed managers working in Chinese banks located in China and conducted in Chinese. All the quotations were taken from the original transcripts of the interviews in Chinese. The chosen quotations that related to a specific code need to be translated to English and then be able to put into NVivo for further analyse. Due to the fact that translation itself may cause deviation in the meaning of expression, it is usually difficult to translate from Chinese words into English because of the polysemy of Chinese words (Teng, 2003). In addition, Chinese tend

to use idioms to express their ideas, which makes research and analysis more difficult. Thus, the researchers are required to triangulate between the Chinese and English version of data. Indeed, the researcher as one who had education up to bachelor's degree in China and received MSc in Financial Management and completing his PhD in the UK is able to fully understand what the interviewees responded to the interview questions and even if they were trying to express the meanings in a specific context. Additionally, the researcher had internship in the banks and has good knowledge of banking industry in China. Thus, he is able to articulate the interview materials well in terms to select and present the quotations to support his arguments.

### 3.6.3 Triangulation and Integration

Triangulation is an epistemological proposition, involving more understanding of a phenomenon when data results generated by two or more methods are gathered together (Moran Ellis et al., 2006). Triangulation is defined as using more than two methods to study the same phenomenon under investigation (Mitchell, 1986). In addition, in qualitative research, quantitative methods are used as preliminary investigations, because quantitative methods are regarded as auxiliary methods (Hussein, 2009). This research will triangulate the quantitative and qualitative results and then provide more understanding of the research topic.

Semantically, integration means "combining (one thing) with another to form a whole" (Oxford English Dictionary). Coxon (2005) proposed that integration methods can be developed to understand specific phenomena qualitatively and quantitatively to provide a more comprehensive understanding of them. In addition, the data generated by different methods can

only be integrated during theoretical interpretation, and each method is analyzed within the parameters of its own paradigm. According to Moran Ellis et al., (2006), in the research process, integration is interpretative integration, in which interpretation is generated from empirical work, which combines knowledge generated by different methods and integrates it into a coherent narrative. Thus, in this research, the researcher provides an integration based on the outcomes of both quantitative and qualitative methods, which will be a Stage 3 in the discussion chapter (Chapter 6).

## Summary

In this chapter, the researchers emphasize the mixed method methodology as the research methodology, because it is the most suitable methodology to achieve the research objectives and answer the research questions in this research. The use of mixed methods is also based on the views of researchers who believe that reality is objective and is interpreted through social conditioning. Specifically, both quantitative and qualitative analysis are used as a research method for data analysis based on the potential cognitive and ontological assumptions of researchers. Thus, a sequential mixed method research strategy was conducted beginning with survey and following with interviews. In terms of data collection, a survey consists of 249 sample population at stage 1 and 24 semi-structured interviews over a period of 6 months at stage 2 were both collected in Beijing, China. According to the research strategy, quantitative data is analysed first to help extend to qualitative data collection and analysis. In addition, a stage 3 was further to understanding the outcomes of Stage 1 and Stage 2 thought integrating the outcomes of both Stages. In this way, the researcher understands the views of the insiders, the

managers on whether exploitation and exploration conflict with each other in banking sector of China from an organisational perspective.

# **CHAPTER 4**

## Quantitative Data Analysis

## 4.1. Introduction

In the Chapter 3, the research philosophy, research design, data collection methods and data analysis methods are discussed in detail. This chapter presents the research results of quantitative data analysis. The purpose of this chapter is to analyse the data from survey to seeks to address the research questions in Stage 1:

To what extent interaction of managers at different levels contribute to ambidexterity?

To what extent ambidexterity contribute to competitiveness in the Chinese banking?

Grounded on the review of the literature and the gap found, it was obvious that the existing research of the interaction of managers at different levels in promoting organisational ambidexterity is not enough. The purpose of this research is to explore the "how" of organisational ambidexterity through a critical review of the interaction of managers at different levels in the process of exploration and exploitation. In order to achieve that research objective, the researcher need to first explore the "to what extent" of the interaction between managers on exploitation, exploration and organisational ambidexterity, so as to deepen the understanding of the research on organisational ambidexterity. Therefore, a conceptual framework has been established to combine the unique phenomena of great significance to the research (see Figure 2-3). The conceptual framework is an abstract representation and reflection of the literature, the gaps found, and the intention and motivation of researchers to collect data. The framework is also linked to research objectives and will guide the collection and analysis of research data.

Based on the conceptual framework, the researcher builds a conceptual model (see Figure 4-1) to present the hypothesized relationships of the Stage 1 of the research. The hypothesized relationships are:

H1: Exploration is positively related to Exploitation.

H2: Interaction of managers at different levels is positively related to Innovation Ambidexterity.

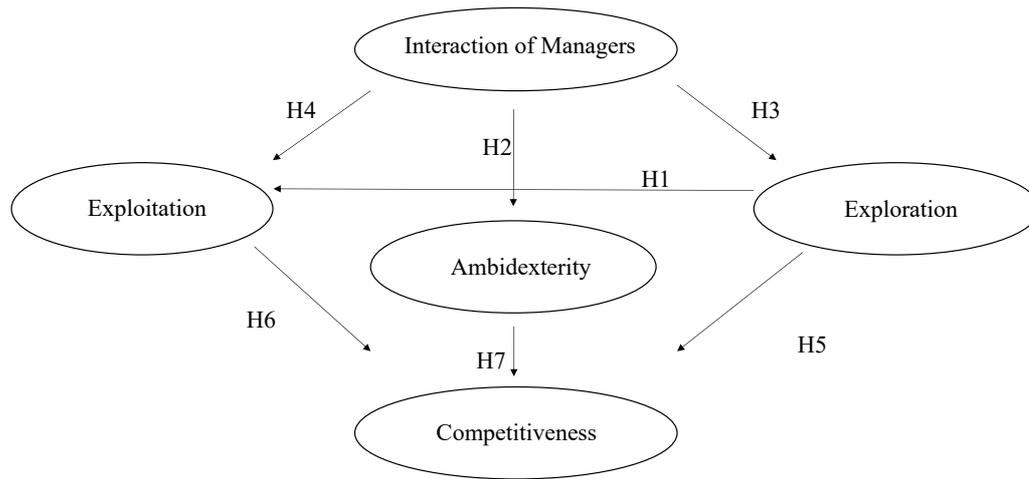
H3: Interaction of managers at different levels is positively related to Exploration.

H4: Interaction of managers at different levels is positively related to Exploitation.

H5: Exploration is positively related to Competitiveness.

H6: Exploitation is positively related to Competitiveness.

H7: Organisation Ambidexterity is positively related to Competitiveness.



*Figure 4-1: Hypothesizes*

#### **4.2. Distribution of Samples**

For the 202 valid questionnaires collected, the basic information of the 202 participants is as follows:

| <b>Sample of Distribution</b> |               |           |            |
|-------------------------------|---------------|-----------|------------|
| Items                         |               | Frequency | Percentage |
| Voluntary                     | Yes           | 202       | 100        |
|                               | No            | 0         | 0          |
| Sex                           | Male          | 106       | 52.5       |
|                               | Female        | 96        | 47.5       |
| Position                      | Employee      | 119       | 58.9       |
|                               | Line Manager  | 53        | 26.2       |
|                               | Middle Manger | 22        | 10.9       |
|                               | Top Manager   | 8         | 4          |

*Table 4-1: Sample of distribution*

As can be seen clearly from the above table, all the 202 participants are voluntarily participating the survey, and men are slightly more than women. 58.9% of participants are employees, followed by the line managers and middle managers, accounting for 26.2% and 10.9% respectively, and the top management is the least, accounting for only 4%.

Through the survey data, we can get the status quo and dimensions of rating of exploration, exploitation, managerial collaboration, competitiveness, and ambidexterity (exploration\*exploitation) as follows:

| Descriptive Statistics                    |     |         |         |         |                |
|---|-----|---------|---------|---------|----------------|
|   | N   | Minimum | Maximum | Mean    | Std. Deviation |
| Exploration                               | 202 | 1       | 5       | 4.2481  | 0.69586        |
| Exploitation                              | 202 | 2.88    | 5       | 4.2828  | 0.61282        |
| Managers' Interaction                     | 202 | 2.25    | 5       | 3.9319  | 0.76742        |
| Competitiveness                           | 202 | 2       | 5       | 4.0785  | 0.70994        |
| Ambidexterity (Exploration *Exploitation) | 202 | 5       | 25      | 18.4822 | 5.05498        |
| Valid N (listwise)                        | 202 |         |         |         |                |

*Table 4-2: Descriptive Statistics*

Table 4-2 presents the descriptive statistics of the 202 data, with a minimum, maximum, mean, and standard deviation.

### **4.3. Reliability and Validity**

Before conducting data analysis, it is necessary to test the reliability and validity of the questionnaire first. Only the questionnaire with reliability and validity can be used to analyse the data collected.

#### **4.3.1. Reliability**

The survey collected 202 questionnaires. In order to verify whether the 202 collected data can truly reflect the survey intention, that is, the reliability of the questionnaire, the reliability of the questionnaire needs to be verified first. According to the general standard, the reliability of the questionnaire is measured by the size of the commonly used Cronbach alpha score. The Cronbach alpha score above 0.9 indicates that the reliability of the questionnaire is good; the Cronbach alpha score above 0.7 is acceptable; if the coefficient below 0.7, the questionnaire should be revised.

|                       | Cronbach Alpha | Number of Items |
|-----------------------|----------------|-----------------|
| Exploration           | 0.925          | 8               |
| Exploitation          | 0.897          | 8               |
| Managers' Interaction | 0.941          | 8               |
| Competitiveness       | 0.928          | 7               |
| Total                 | 0.962          | 31              |

*Table 4-3: Cronbach Alpha Score*

From the results of the Table 4-3, the reliability coefficients of the dimensions under each scale are greater than 0.7, indicating that the scale used in this survey has high reliability and good internal consistency.

### 4.3.2 Validity

The reliability of the scale is passed; however, the validity test needs to be further tested.

Confirmatory factor analysis (CFA) was used to test the four scale (Brown, 2006). The 202 valid questionnaires were collected according to 4 dimensions to establish the structural equation model, and the following results were obtained in Figure 4-2.

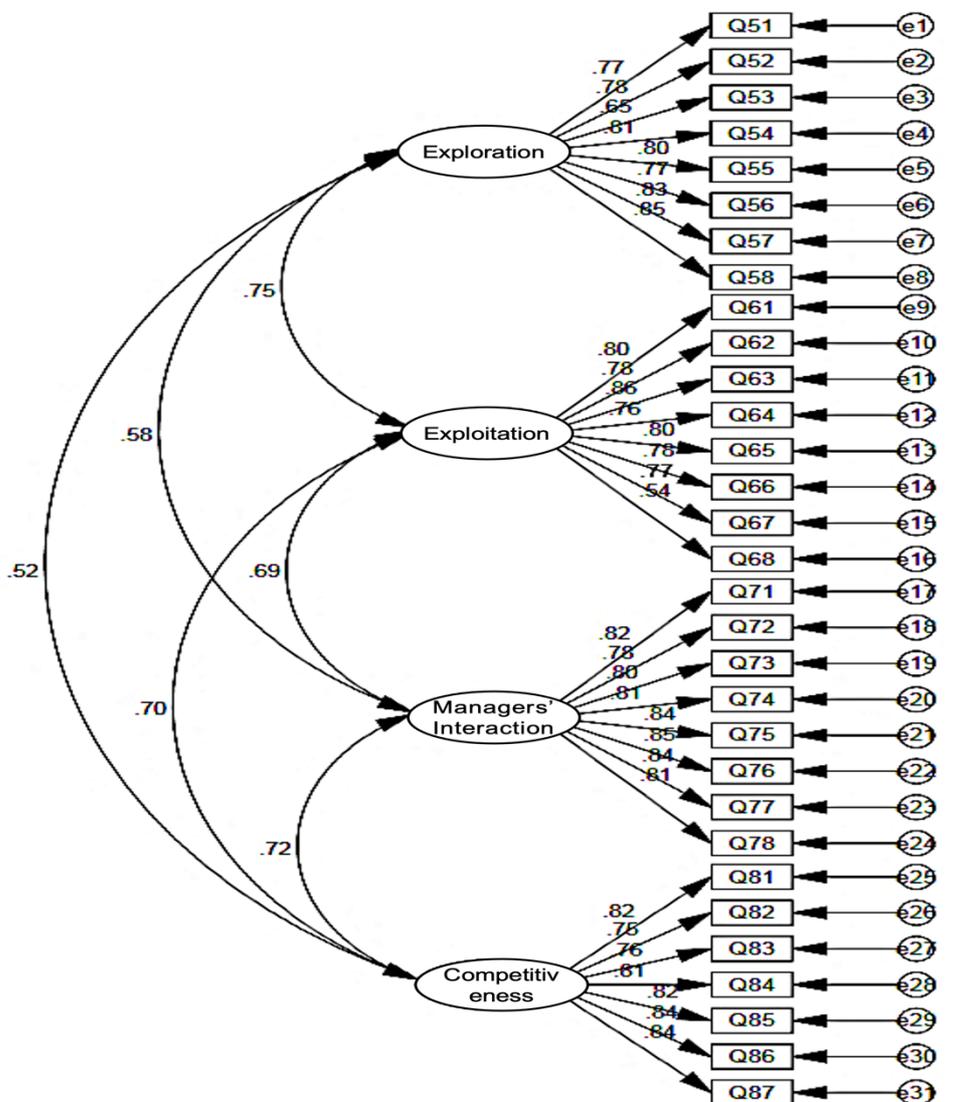


Figure 4-2 Structural Equation Model

The above structural equation model matches the data of the scale well, and the matching index values are as follows in Table 4-4:

| <b>Model Fit Index</b> | <i>CMIN/DF</i> | <i>RMR</i> | <i>RMSEA</i>                                 | <i>GFI</i> | <i>AGFI</i> | <i>NFI</i> | <i>TLI</i> | <i>CFI</i> |
|------------------------|----------------|------------|--|------------|-------------|------------|------------|------------|
| <b>Suggested Value</b> | <3             | <0.05      | <0.08<br>(<0.05, good;<br><0.08, acceptable) | >0.90      | >0.90       | >0.90      | >0.90      | >0.90      |
| <b>Value</b>           | 2.315          | 0.043      | 0.078  | 0.905      | 0.907       | 0.911      | 0.913      | 0.915      |

*Table 4-4 Model Fit*

Based on the data above, each index meets the requirements, indicating that the model matches the scale well, indicating that the model is established. Then the convergence validity of the scale is analysed. The main index of convergence validity was AVE. The larger the AVE, the stronger the commonality of the measurement indicators, the more reflecting the same kind of problems.

| Measurement Model Results |       |                |                  |      |      |
|---------------------------|-------|----------------|------------------|------|------|
| Dimension                 | Items | Factor Loading | Cronbach's Alpha | CR   | AVE  |
| Exploration               | Q51   | 0.77           | 0.92             | 0.93 | 0.62 |
|                           | Q52   | 0.78           |                  |      |      |
|                           | Q53   | 0.65           |                  |      |      |
|                           | Q54   | 0.81           |                  |      |      |
|                           | Q55   | 0.8            |                  |      |      |
|                           | Q56   | 0.77           |                  |      |      |
|                           | Q57   | 0.83           |                  |      |      |
|                           | Q58   | 0.85           |                  |      |      |
| Exploitation              | Q61   | 0.8            | 0.9              | 0.92 | 0.59 |
|                           | Q62   | 0.78           |                  |      |      |
|                           | Q63   | 0.86           |                  |      |      |
|                           | Q64   | 0.76           |                  |      |      |
|                           | Q65   | 0.8            |                  |      |      |
|                           | Q66   | 0.78           |                  |      |      |
|                           | Q67   | 0.77           |                  |      |      |
|                           | Q68   | 0.54           |                  |      |      |
| Managers Interaction      | Q71   | 0.82           | 0.94             | 0.94 | 0.67 |
|                           | Q72   | 0.78           |                  |      |      |
|                           | Q73   | 0.8            |                  |      |      |
|                           | Q74   | 0.81           |                  |      |      |
|                           | Q75   | 0.84           |                  |      |      |
|                           | Q76   | 0.85           |                  |      |      |
|                           | Q77   | 0.84           |                  |      |      |
|                           | Q78   | 0.81           |                  |      |      |
| Competitive ness          | Q81   | 0.82           | 0.93             | 0.93 | 0.65 |
|                           | Q82   | 0.75           |                  |      |      |
|                           | Q83   | 0.76           |                  |      |      |
|                           | Q84   | 0.81           |                  |      |      |
|                           | Q85   | 0.82           |                  |      |      |
|                           | Q86   | 0.84           |                  |      |      |
|                           | Q87   | 0.84           |                  |      |      |

Table 4-4: Measurement Model Results

As can be seen from the above Table 4-4:

1. The factor loading of 31 items in the four scales was all higher than 0.5, which indicated that all 31 items were valid.

2. The composite reliability (C.R.) of the four dimensions of the four scales was all higher than 0.6, and the average variance extracted (AVE) of the four dimensions was all higher than 0.5, indicating that the four dimensions had better aggregation validity.

To sum up, it can be judged that the scale has good validity.

#### **4.4. Results**

Through the survey data, we can get the status quo and dimensions of rating of exploration, exploitation, managerial collaboration, competitiveness, and ambidexterity (exploration\*exploitation) as Table 4-5 shows:

|                       | Mean $\pm$ St. Deviation | Exploration | Exploitation | Managers' Interaction | Competitiveness | Ambidexterity |
|-----------------------|--------------------------|-------------|--------------|-----------------------|-----------------|---------------|
| Exploration           | 4.25 $\pm$ 0.7           | 1           | .679**       | .550**                | .489**          | .931**        |
| Exploitation          | 4.28 $\pm$ 0.61          |             | 1            | .649**                | .638**          | .892**        |
| Managers' Interaction | 3.93 $\pm$ 0.77          |             |              | 1                     | .674**          | .653**        |
| Competitiveness       | 4.08 $\pm$ 0.71          |             |              |                       | 1               | .601**        |
| Ambidexterity         | 18.48 $\pm$ 5.05         |             |              |                       |                 | 1             |

\*\* When the confidence level (two-tailed) is 0.01, the correlation is significant.

*Table 4-5: Correlation Analysis*

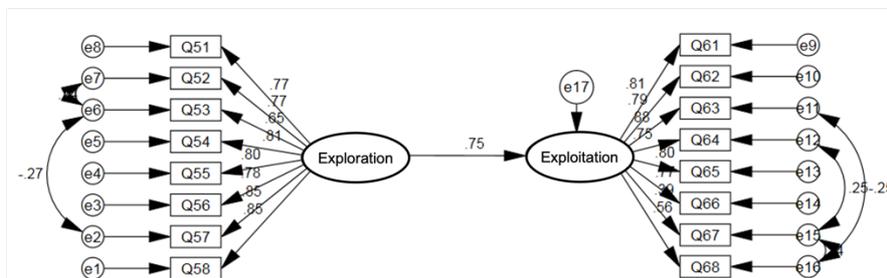
There were significant correlations among exploration, exploitation, managers' interaction, competitiveness, and ambidexterity. H1 argues the conflicts between exploration and exploitation. The data shows that exploration activities and exploitation activities have positive influence on each other ( $r=0.679$ ,  $P<0.01$ ), indicating that exploration and exploitation processes are positively related. H2, H3 and H4 examine to what extent interaction of managers at different levels influence exploration, exploitation, and ambidexterity. Interaction of managers at different levels tends to have positive influence on both exploration ( $r=0.550$ ,  $P<0.01$ ) and exploitation ( $r=0.649$ ,  $P<0.01$ ), supporting H2 and H3. As for H4, interaction of managers at different levels also has positive influence on ambidexterity ( $r=0.653$ ,  $P<0.01$ ) and H4 is supported. H5, H6 and H7 examine to what extent exploration, exploitation and ambidexterity influence the competitiveness of the organisation. The result indicates that ambidexterity has positive influence on bank competitiveness ( $r=0.601$ ,  $P<0.01$ ). H5 and H6

evaluation indicate that exploration ( $r=0.638$ ,  $P<0.01$ ) and exploitation ( $r=0.489$ ,  $P<0.01$ ) have positive influence on bank competitiveness respectively. Therefore, H5, H6 and H7 are all supported that high level of exploration, exploitation and ambidexterity contribute to competitiveness of organisation.

Next, the hypothesized paths were tested with structural equation modelling (SEM) using AMOS 25.0. SEM allows researchers to test theoretical hypothesizes regarding how concepts are theoretically linked and the directionality of significant relationships (Schreiber et al., 2006).

### *Impact of exploration on exploitation*

In order to study the impact of exploration on exploitation, the following path model is



established.

*Figure 4-3-1 Structure Equation Model of H1*

The data from this survey are brought into the following model for calculation, and the following calculation results are obtained:

| <i>Model Fit Index</i> | <i>CMIN/DF</i> | <i>RMR</i> | <i>RMSEA</i>                   | <i>GFI</i> | <i>AGFI</i> | <i>NFI</i> | <i>TLI</i> | <i>CFI</i> |
|------------------------|----------------|------------|--------------------------------|------------|-------------|------------|------------|------------|
| <i>Suggested Value</i> | <3             | <0.05      | ( <0.08,good <0.08,acceptable) | >0.90      | >0.90       | >0.90      | >0.90      | >0.90      |
| <i>Value</i>           | 2.175          | 0.030      | 0.076                          | 0.917      | 0.913       | 0.907      | 0.935      | 0.947      |

*Table 4-5-1 Model Fit of H1*

A good fit between the model and data means that the path coefficient calculated by the model can accurately reflect the impact of exploration on exploitation. The specific influence coefficient is shown in the following table:

|              |      |             | Estimate | C.R.   | P   |
|--------------|------|-------------|----------|--------|-----|
| Exploitation | <--- | Exploration | 0.749    | 10.253 | *** |

*Note: \* \* \* means P<0.001*

*Table 4-6-1 Path Analysis of H1*

### *Impact of managers' interaction on Ambidexterity*

In order to study the impact of managers' interaction on ambidexterity, the following path model is established.

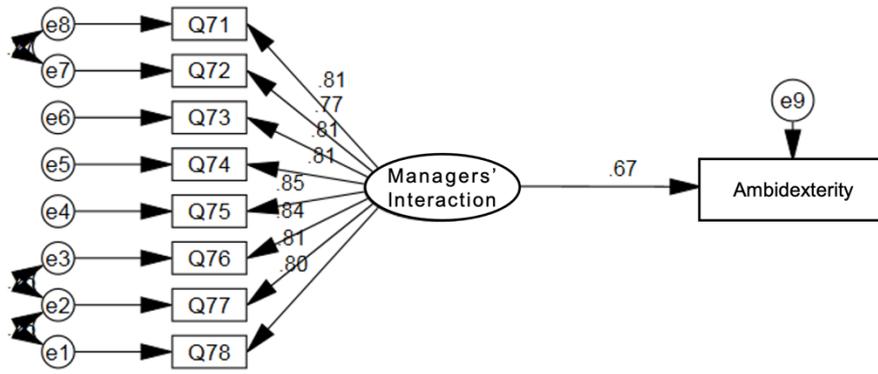


Figure 4-3-2 Structure Equation Model of H2

The data from this survey are brought into the following model for calculation, and the following calculation results are obtained:

| Model Fit Index        | CMIN/DF | RMR   | RMSEA                                       | GFI   | AGFI  | NFI   | TLI   | CFI   |
|------------------------|---------|-------|---|-------|-------|-------|-------|-------|
| <b>Suggested Value</b> | <3      | <0.05 | <0.08<br>( <0.05,good<br><0.08,acceptable ) | >0.90 | >0.90 | >0.90 | >0.90 | >0.90 |
| <b>Value</b>           | 1.855   | 0.039 | 0.065                                       | 0.956 | 0.918 | 0.968 | 0.978 | 0.985 |

Table 4-5-2 Model Fit of H2

A good fit between the model and data means that the path coefficient calculated by the model can accurately reflect the impact of managers' interaction on ambidexterity. The specific

influence coefficient is shown in the following table:

|               |      |                       | Estimate | C.R.   | P   |
|---------------|------|-----------------------|----------|--------|-----|
| Ambidexterity | <--- | Managers' interaction | 0.799    | 15.034 | *** |

*Note: \* \* \* means P<0.001*

**Table 4-6-2 Path Analysis of H2**

***Impact of managers' interaction on exploration***

In order to study the impact of managers' interaction on exploration, the following path model is established.

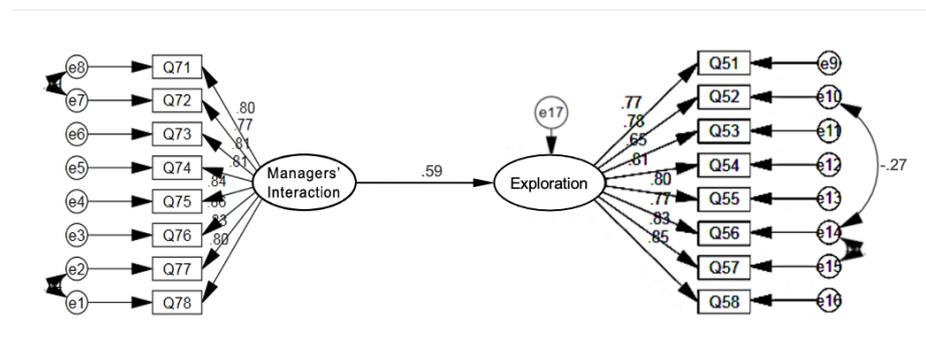


Figure 4-3-3 Structure Equation Model of H3

The data from this survey are brought into the following model for calculation, and the following calculation results are obtained:

| <i>Model Fit Index</i> | <i>CMIN/DF</i> | <i>RMR</i> | <i>RMSEA</i>                                | <i>GFI</i> | <i>AGFI</i> | <i>NFI</i> | <i>TLI</i> | <i>CFI</i> |
|------------------------|----------------|------------|---|------------|-------------|------------|------------|------------|
| <b>Suggested Value</b> | <3             | <0.05      | <0.08<br>( <0.05,good<br><0.08,acceptable ) | >0.90      | >0.90       | >0.90      | >0.90      | >0.90      |
| <b>Value</b>           | 1.825          | 0.034      | 0.063                                       | 0.912      | 0.908       | 0.958      | 0.968      | 0.985      |

Table 4-5-3 Model Fit of H3

A good fit between the model and data means that the path coefficient calculated by the model can accurately reflect the impact of managers' interaction on exploration. The specific influence coefficient is shown in the following table:

|             |      |                       | Estimate | C.R.  | P   |
|-------------|------|-----------------------|----------|-------|-----|
| Exploration | <--- | Managers' Interaction | 0.728    | 9.034 | *** |

Note: \* \* \* means  $P < 0.001$

Table 4-6-3 Path Analysis of H3

**Impact of managers' interaction on exploitation**

In order to study the impact of managers' interaction on exploitation, the following path model is established.

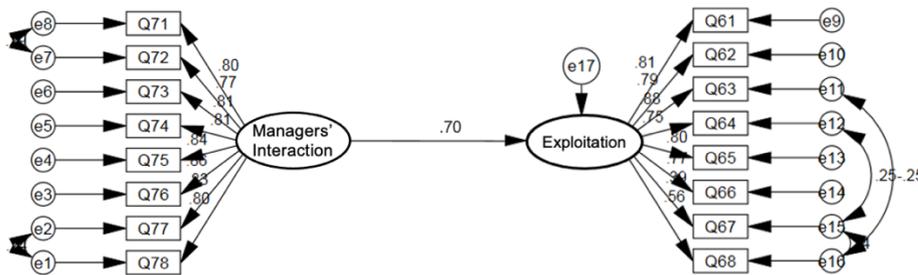


Figure 4-3-4 Structure Equation Model of H4

The data from this survey are brought into the following model for calculation, and the following calculation results are obtained:

| <i>Model Fit Index</i> | <i>CMIN/DF</i> | <i>RMR</i> | <i>RMSEA</i>                      | <i>GFI</i> | <i>AGFI</i> | <i>NFI</i> | <i>TLI</i> | <i>CFI</i> |
|------------------------|----------------|------------|-----------------------------------|------------|-------------|------------|------------|------------|
| <i>Suggested Value</i> | <3             | <0.05      | ( <0.05,good<br><0.08,acceptable) | ; >0.90    | >0.90       | >0.90      | >0.90      | >0.90      |
| <i>Value</i>           | 1.833          | 0.036      | 0.067                             | 0.921      | 0.918       | 0.938      | 0.967      | 0.975      |

*Table 4-5-4 Model Fit of H4*

A good fit between the model and data means that the path coefficient calculated by the model can accurately reflect the impact of managers' interaction on exploitation. The specific influence coefficient is shown in the following table:

|              |      |                       | Estimate | C.R.   | P   |
|--------------|------|-----------------------|----------|--------|-----|
| Exploitation | <--- | Managers' Interaction | 0.762    | 11.104 | *** |

*Note: \* \* \* means P<0.001*

*Table 4-6-4 Path Analysis of H4*

### *Impact of exploration on competitiveness*

In order to study the impact of exploration on competitiveness, the following path model is

established.

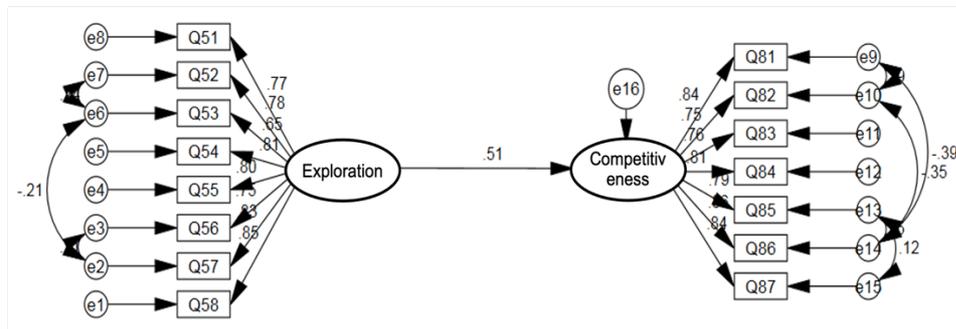


Figure 4-3-5 Structure Equation Model of H5

The data from this survey are brought into the following model for calculation, and the following calculation results are obtained:

| Model Fit Index        | CMIN/DF | RMR   | RMSEA                                       | GFI   | AGFI  | NFI   | TLI   | CFI   |
|------------------------|---------|-------|---|-------|-------|-------|-------|-------|
| <b>Suggested Value</b> | <3      | <0.05 | <0.08<br>( <0.05,good<br><0.08,acceptable ) | >0.90 | >0.90 | >0.90 | >0.90 | >0.90 |
| <b>Value</b>           | 1.967   | 0.032 | 0.069                                       | 0.906 | 0.908 | 0.931 | 0.965 | 0.965 |

Table 4-5-5 Model Fit of H5

A good fit between the model and data means that the path coefficient calculated by the model can accurately reflect the impact of exploration on competitiveness. The specific influence

coefficient is shown in the following table:

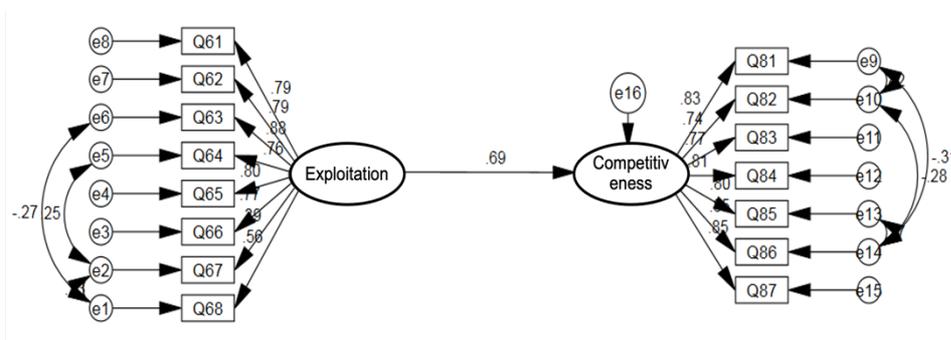
|               |      |             | Estimate | C.R.  | P   |
|---------------|------|-------------|----------|-------|-----|
| Ambidexterity | <--- | Exploration | 0.513    | 5.999 | *** |

*Note: \* \* \* means P<0.001*

**Table 4-6-5 Path Analysis of H5**

***Impact of exploitation on competitiveness***

In order to study the impact of exploitation on competitiveness, the following path model is established.



**Figure 4-3-6 Structure Equation Model of H6**

The data from this survey are brought into the following model for calculation, and the following calculation results are obtained:

| <i>Model Fit Index</i> | <i>CMIN/DF</i> | <i>RMR</i> | <i>RMSEA</i>                               | <i>GFI</i> | <i>AGFI</i> | <i>NFI</i> | <i>TLI</i> | <i>CFI</i> |
|------------------------|----------------|------------|--|------------|-------------|------------|------------|------------|
| <i>Suggested Value</i> | <3             | <0.05      | <0.08<br>( <0.05,good<br><0.08,acceptable) | >0.90      | >0.90       | >0.90      | >0.90      | >0.90      |
| <i>Value</i>           | 2.186          | 0.031      | 0.077                                      | 0.909      | 0.918       | 0.919      | 0.941      | 0.954      |

Table 4-5-6 Model Fit of H6

A good fit between the model and data means that the path coefficient calculated by the model can accurately reflect the impact of exploration on competitiveness. The specific influence coefficient is shown in the following table:

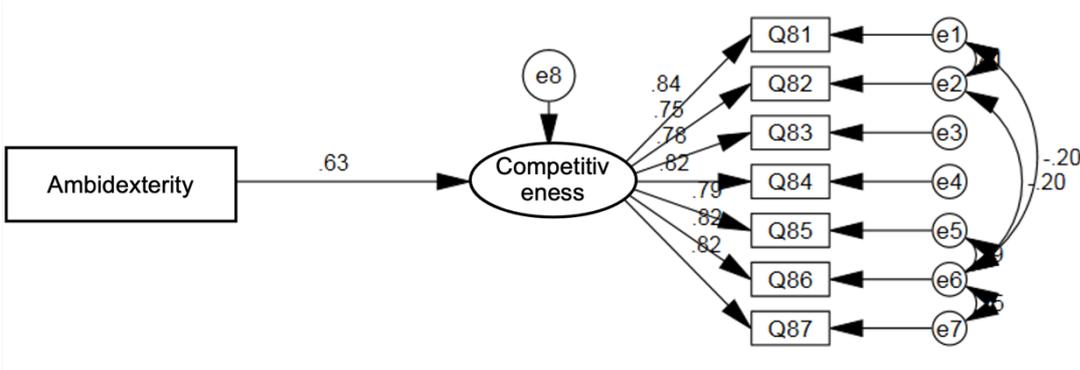
|                 |                   | Estimate | C.R.  | P   |
|-----------------|-------------------|----------|-------|-----|
| Competitiveness | <--- Exploitation | 0.691    | 6.909 | *** |

Note: \* \* \* means  $P < 0.001$

*Table 4-6-6 Path Analysis of H6*

***Impact of ambidexterity on competitiveness***

In order to study the impact of ambidexterity on competitiveness, the following path model is established.



*Figure 4-3-7 Structure Equation Model of H7*

The data from this survey are brought into the following model for calculation, and the following calculation results are obtained:

| <i>Model Fit Index</i> | <i>CMIN/DF</i> | <i>RMR</i> | <i>RMSEA</i>                   | <i>GFI</i> | <i>AGFI</i> | <i>NFI</i> | <i>TLI</i> | <i>CFI</i> |
|------------------------|----------------|------------|--------------------------------|------------|-------------|------------|------------|------------|
| <i>Suggested Value</i> | <3             | <0.05      | ( <0.08,good <0.08,acceptable) | >0.90      | >0.90       | >0.90      | >0.90      | >0.90      |
| <i>Value</i>           | 1.800          | 0.046      | 0.063                          | 0.966      | 0.918       | 0.977      | 0.980      | 0.989      |

Table 4-5-7 Model Fit of H7

A good fit between the model and data means that the path coefficient calculated by the model can accurately reflect the impact of ambidexterity on competitiveness. The specific influence coefficient is shown in the following table:

|                 |                    | Estimate | C.R.  | P   |
|-----------------|--------------------|----------|-------|-----|
| Competitiveness | <--- Ambidexterity | 0.625    | 9.598 | *** |

Note: \* \* \* means  $P < 0.001$

Table 4-6-7 Path Analysis of H7

Table 4-7 shows the results of the hypotheses testing. The result shows that exploration has direct and positive impact on exploitation ( $\beta = 0.749, p < 0.001$ ), which supports H1. In addition, managers' interaction has significant positive effects on ambidexterity ( $\beta =$

0.799,  $p < 0.001$ ), exploration ( $\beta = 0.728, p < 0.001$ ) and exploitation ( $\beta = 0.762, p < 0.001$ ). These results support H2, H3 and H4, respectively. Then, exploration ( $\beta = 0.513, p < 0.001$ ) and exploitation ( $\beta = 0.691, p < 0.001$ ) show direct and positive impact on competitiveness. These results support H5 and H6. Next, ambidexterity shows direct and positive impact on competitiveness ( $\beta = 0.625, p < 0.001$ ), which supports H7. Therefore, all these hypothesis paths are supported.

| Hypothesized Paths |     |                       | Estimate | P   | Results        |
|--------------------|-----|-----------------------|----------|-----|----------------|
| Exploitation       | <-- | Exploration           | 0.749    | *** | H1 (Supported) |
| Ambidexterity      | <-- | Manager's Interaction | 0.799    | *** | H2 (Supported) |
| Exploration        | <-- | Manager's Interaction | 0.728    | *** | H3 (Supported) |
| Exploitation       | <-- | Manager's Interaction | 0.762    | *** | H4 (Supported) |
| Competitiveness    | <-- | Exploration           | 0.513    | *** | H5 (Supported) |
| Competitiveness    | <-- | Exploitation          | 0.691    | *** | H6 (Supported) |
| Competitiveness    | <-- | Ambidexterity         | 0.625    | *** | H7 (Supported) |

*Table 4-7: Path Analysis Results*

#### 4.5 Summary of the Chapter

As showed in the sections above, all the seven hypothesis was supported, which indicated that the conceptual framework is also supported. Therefore, the results of Stage 1 could be concluded as follows:

Exploitation and exploration are positively related.

Managers' interaction has positive effect on exploitation, exploration, and ambidexterity.

Exploitation, exploration, and ambidexterity have positive effect on competitiveness.

In the next chapter (Chapter 5), the qualitative data at Stage 2 will be analysed. In the Chapter 6, the researcher will continue to discuss the results and findings on both Stage 1 (Chapter 4) and Stage 2 (Chapter 5).

# **CHAPTER 5**

## Qualitative Data Analysis

## 5.1 Introduction

In the previous chapter, the researcher proposed and analysed the quantitative data on Stage 1.

This chapter introduces the research results of qualitative data analysis. In order to capture the views provided by the research participants, quotations from managers at different levels that interviewed were proposed, analysed and explained. The purpose of this chapter is to analyse the data from interview and observation to seeks to address the research question:

How do managers at all levels interact with each other to generate organisational ambidexterity?

This chapter will analyse the qualitative data from perspectives of managers' activities upon interaction of managers at different levels that related to exploitation, exploration, and organisational ambidexterity. Table 5-1 presents the observed level of position, position, and manager level in the banks.

| Level of Position | Position   | Manager Level |
|-------------------|--|---------------|
| 1                 | President of Head Office   | Top           |
| 2                 | Vice President of Head Office  | Top           |
| 3                 | Head of Branch/Head of Department in Head Office                                       | Top           |
| 4                 | Vice Head of Branch/Vice Head of Department in Head Office                             | Top           |
| 5                 | Head of Core Subbranch/Senior Client Manager in Branch/Head of Department in Branch    | Top           |
| 6                 | Head of Subbranch/Client Manager in Core Subbranch/Vice Head of Department in Branch   | Top           |
| 7                 | Vice Head of Subbranch/Head of Department in Subbranch/Manager of Department in Branch | Middle        |
| 8                 | Vice Head of Department in Subbranch   | Middle        |
| 9                 | Client Manager in Subbranch  | Line          |
| 10                | Lobby Manager in Subbranch   | Line          |

*Table 5-1 Level of position, position, and manager level in bank.*

## **5.2 Managers' Exploitative Interaction**

March (1991) suggests that exploitation includes such things as efficiency, refinement, production, implementation, and execution. Manager's exploitative interaction will be discussed from problem solving, risk reduction, regular training, and implementation.

### **5.2.1 Problem Solving**

The data presented suggests that managers at different levels in the Chinese banking sector interact with each other when confronting problems in the daily business. Graesser and colleagues (2018) declared that problem solving requires managers at different levels to be collaborative and interact with each other, because in the modern world, most of the problems require the management team to combine team achievements with the individual knowledge of team members. Problem solving begins with problem recognition in the day-to-day businesses.

In daily business, there are often some problems, which may affect the success of the business or even increase the risk. Some of the interviewed managers described that the first step of finding problems is to understand and recognize the problems. As an example, a frontline manager who was the corporate client manager in subbranch noted that:

*“If we find difficulties in the daily business, for example, an online system problem. The problem makes us lose customers, which has threatened the business operation. We have to determine whether the problem is the problem of our self or a system or procedural problem, that is, we need to locate the problem, after that, we can improve them.” - HTB*

Similar to the above, there are also evidences which implies that line managers are the initiator of problem solving as an exploitation. A frontline manager who was the lobby manager in subbranch narrated that:

*“We have a particular platform for reporting problems in the online system on. Everyone can directly report a problem through the platform, such as problems on the accounting side, if we cannot solve it at the counter desk or at our level indeed. For example, we encounter a difficulty, we must report and confirm the existence of this problem. In that way, we can fix it.”- SXH*

In support of the above, another interview respondent, a middle manager who was the vice president of a branch noted that:

*“If the product needs to be upgraded, it always starts from the front-line manager. Their main role is to find problems in daily business, apply for improvement, and then we discuss what changes might work, such as how we can improve efficiency or control risks, or where we think there are loopholes.”- LY*

This suggests that exploitations initiative often comes from line managers. Line managers know more about what clients need for the business because they meet clients on a day-to-day basis. Moreover, they are the end users of the banking system, and they have direct contact with clients, and problems and defects in daily business are more easily detected by them. Hence the line managers often are the first to figure the problems, and they report the problems to higher managers to let the problems being solved. Additionally, when the top managers and middle managers recognize the problem reported from line managers, managers at different levels discuss how to make the changes to solve the problem. Exploitations as refinement and improvement initiate from line managers by problem recognition.

After that, a cause analysis of problem will be implemented by collaboration of managers at different levels. A middle manager who was the internal control manager in branch highlighted that:

*“When confronting a problem, we will analyse this problem, that is, the cause analysis. But in some particular case, the problem occurs at one professional business, we usually leave it to the professional department to do, because the professions have broad knowledge about how this problem could arise, the problem will be more specific to them, and then we are here to support and promote the solution we come up with.”- JM*

In support of the above statement, a top manager who was the internal compliance manager in head office highlighted that:

*“When receive a problem report, the head office will have the relevant system divided into different lines, and then we will discuss the issue with professional department managers to see how we can change, and then if we have a plan, we will give feedback to the front line. But there are some things that we can't change in a minute, we will tell the line manager what we have changed. There also are some things that we think can't be changed, so they have to keep it as it is.”- BXF*

This suggests that managers at each level had specific responsibilities for solving problems. To solve the problems occurs in the daily business, managers firstly seek the cause of the problem,

then they can solve the problem by handling it to the managers or department that have broad knowledge on that problem. Compared with the existing works, it can be comprehended similar to Graesser et.al. (2018)'s declaration that there are role differences among team members who undertake different tasks to solve different aspects of the problem. In other words, at the beginning of problem-solving procedure, top managers tend to leave the cause analysis of problem to managers in professional department. After that when the top managers generate a plan collaborating with managers at professional department, they will correspond with line managers to help them implement the change.

In summary, problems could occur anytime in daily business which raises the need for exploitation such as refinement and update, thus, managers at different levels interact with each other to solve the problems. This procedure includes problem recognition, problem analysis and discussion of solution. Every manager has his own responsibility in the process of solving problems, but their responsibilities are not independent between each other, they are closely linked in the process of solving problems, which requires managers at different levels to cooperate and interact with each other. According to the data, we find that line managers are the initiator of problem recognition, and the participants of problem analysis and discussion of solution. Middle managers, on the other hand, is more like a mediator between line managers and top managers, help analysis the problem and solve it. Top managers, as the leader, play the role of an organizer and decision maker to facilitate the interaction of managers at different levels and solve the problem.

### 5.2.2 Risk Reduction

According to the declaration of Popadiuk et al., (2009), to achieve organisational ambidexterity, risk aversion concerns need to be solved by risk reduction. Severgnini et al., (2019) declare that risk and uncertainty influence the way the organisation invests resources in exploration or in exploitation, and that risk moderates the direct effect of exploration and exploitation on performance and on decision making, amplifying, or reducing their effects. Thus, risk reduction is very important for organisations to achieve organisational ambidexterity. However, risk reduction is not achieved by a single manager or department, but by the cooperation of managers at different levels and departments. The data presented below shows that managers at different levels in the Chinese banking sector interact with each other to conduct constantly risk reduction.

Specially, speaking on how to reduce risk on a specific project, a middle manager who was the product manager in branch noted that:

*“If our bank must invest the money in the areas that the state wants to, managers at different levels need to discuss and figure out how to reduce potential risk happened in the investments, such as loans to the small entrepreneurs, because risk management for small entrepreneurs are different from that for big state-owned companies. Thus, we and other managers have to*

*generate a plan for risk management on loans to small entrepreneurs.”- LN*

Similar to that, some of the managers at subbranch emphasized that the risk reduction is realized by regular risk analysis meeting, in which managers at different levels attend and share their thoughts and knowledge about any specific business occurred recently. A middle manager who was the credit, internal plus integration manager at branch highlighted that:

*“At the time of the risk analysis review, a formal committee consisting of managers normally hold a meeting to discuss and assess the risk to offer the loan. Everyone can express your ideas on what risk do you think it has, and what solution you suggest solving the problem during the meeting. That’s because some risk has happened before and the managers that experienced that could share their experience about the risk. In addition, even some risk hasn’t happened before, it is still predictable based on the general knowledge and a discussion with other managers could draw our attention to the certain risk point.”- ZL*

Comparable to that, a frontline manager who was the personal finance manager at subbranch, is also responsible for the risk analysis before business completed and when new business coming explained that a risk analysis meeting is held with all managers in that subbranch every

week to better understand the risk and even reduce the risk. She noted that:

*“In fact, we have a risk analysis meeting every week, which is to carefully analyse some important documents issued by the branch or head office. And then, the leaders will take you to recognize and study the potential risk that may exist in existing business, and then the new business will also be explained to all managers to study, including the operation procedure of the business and the potential risk beneath it.” - ZLN*

This suggested that managers at different levels are meeting together and discuss the potential risk inside an ongoing business to reduce the risk of the business. During the risk analysis meeting, managers at different levels identify potential risks and classify the risk based on their experience and knowledge. After that, a discussion for the solution is conducted to let the managers share their view on the risks and brainstorm the best solution. Compared with the existing works, it can be comprehended consisting with Xia et al. (2018)'s research that summarized the four steps for risk management: Risk identification and classification, Risk analysis and assessment, Risk response and Risk control.

In addition, risk analysis meeting is not the only way that managers at different levels collaborate to reduce risk, when it comes to refinement of existing business, the head office need the information and suggestion from branches and subbranches, especially from middle

and frontline managers. A top manager who was the internal control compliance manager at head office noted that:

*“For the head office, the head office must control the risk to the minimum. However, the head office is not doing business in the market and does not contact with clients. If we start with unchanged compliance and regulations, there might be almost no business for the branches and subbranches to close. Currently, we need flexibility. We need to adjust the compliance of the business. We need to discuss with the managers of the departments at the bottom to study how to adjust. In this way, we can reduce the risk and improve the business.”- CC*

This suggested that risk control is the priority in banking sector, but strong risk control may lead to restriction to new business. To solve this problem, managers at different levels discuss the solution for balancing the risk control and business operation. Importantly, this procedure is achieved by the interaction of managers at different on levels, which is relevant with the idea of collaborative risk management (Friday et al., 2018). The term collaborative risk management is identified as a more representative description of interactive risk management arrangements (Friday et al., 2018), and according to their research, six capabilities relevant to collaborative risk management are identified: risk information sharing, standardization of procedures, joint decision making, risk and benefit sharing, process integration, and collaborative performance

systems.

In summary, risk reduction is the most important aspect in banking sector, thus, managers at different levels work continuously and cooperatively to improve risk control in the daily basis. Managers at different levels has their own responsibility to reduce and control the risk of business, and the managers in the regulation and compliance department need to set the last line of defence for the potential risks. As more and more advanced technologies and business models are injected into the banking sector, regulation and compliance will continue to broaden and deepen, following the steps of the banking sector. According to Harle et al., (2016), With the development of technology, customers' expectations are also increasing. Technology and advanced analytical technology are developing, and new risks are emerging. The risk function can help banks eliminate bias, but the pressure to reduce risk will continue. Thus, managers at different levels interact with each other to facilitate the improvement and update of risk management, which are considered as the exploitation of business in banking sector.

### 5.2.3 Regular Training

Tikhonov (2020) suggested that employees in many professional fields are faced with the need of continuous training to maintain their professional qualifications and solve the updated work tasks, while enterprises are forced to comply with the requirements of the times and reform the training system of enterprises. Banking sector is no exception. Managers at all levels need to keep pace with the times and update their knowledge and skills. The data presented below indicates that regular training activities have been held continuously, whether theoretical

knowledge training or business skills training. For example, a middle manager who was the vice president in subbranch noted that:

*“In principle, our operation line holds a training meeting for managers at subbranches every Tuesday night. New business can emerge every week and we need to update and get familiarise with the new development as well as assessing the possibility of implementing the new business. Which operation procedures should be paid particular attention to, or which processes have been changed in terms of the implementation are all sorted out by the trainings.”- LY*

This suggested that training activities are held regularly to strengthen the business skills of managers for existing business and the implementation of new developed business at subbranch level. Similar to above, a top manager who was the regional manager of international business department at head office added that:

*“We have requirements for branches. The human resources department must organize training on a regular basis. It is divided into different lines, such as accounting department, company business department and personal business department. If the business is a new launched product, the human resources department will organize all staff training. However, most of the*

*focus of training may be operational risk control. For example, if there is a problem in a certain business, how can we avoid it”- LMS*

Similar to that, while branches are trained by the head office, subbranches are trained by branches. A middle manager who was the product manager in branch highlighted that:

*“Subbranches receive training at the branch level, in general, a branch may choose one manager from a subbranch, such as a backbone, or he prescribes a person in a certain position to attend the training, and then the person returns to the subbranch and hold a second training. The vast majority of training is in this way. Others are mainly aimed at new business, such as what new business has been established, what did not exist before, and even some daily business that may have been done for so many years. Even some business has been doing for a long time, a review will be still beneficial.”-LN*

This explained how managers at human resource department organize training activities for existing business in each professional department and new launched business respectively. And the goal of the training is consistent with the Zhou et al. (2019) view of knowledge sharing: managers share the knowledge that learnt from previous experience of problem solving. Apart

from business skill training activities, theoretical knowledge trainings are held regularly as well.

A middle manager who was the personal business department manager in branch noted that:

*“Business operation is not the only key goal for the regular training, we also have the training sessions about such as banking professional knowledge, accounting knowledge, financial knowledge, economic knowledge and so on. We need to update the knowledge in the financial market, the regulation of central bank, and the requirement of government.” - ZJ*

This indicate that theoretical knowledge is also important to managers at banks among different levels. Knowledge is shared between line managers, middle managers, and top managers among the training activities. In addition, offline training session is not the only approach for managers at different levels to share knowledge, an online platform is also built for managers to learn and update knowledge. A middle manager who was the vice president in subbranch pointed out that:

*“There is also an online mass training. We have an app for bank training. The app is developed by the bank itself. It can do live broadcast, and then managers can watch the class. There are processes and key points of various business lines, as well as theoretical knowledge. If you don't have time to watch it now, there's a look back function. Some courses are compulsory to*

*study and require managers to sign in.”- AP*

This suggested that an online training platform is established for managers at different levels and departments to learn what they want to learn, as knowledge is shared in the online platform regardless of limitation of space and time. Some managers emphasized that this online training platform is even more efficient when a business has been changed or newly launched in the market. A middle manager who was the corporate business department manager at branch asserted that:

*“When refinements or new business appears, there will be training, which needs online training. What kind of business is this business, what kind of business this business is, what regulations the business should meet, and how the business process should be conducted, and then what the customer base is? New business needs to be put down to the market fastest, so it needs to be trained online quickly to familiarize all experience with new business”- ZXH*

In summary, the data above showed that managers at different levels should attend training when there is a new business or improvement. Thus, an implement of exploitation such as refinement or update is beginning with a training session that gathering managers at different

levels. The way of training is not only offline training, but also online training; the content of training is not only skill training, but also theoretical training. In the process of training, managers at all levels, whether from head office, branch or subbranch, or in any professional line, share knowledge and experience with each other. Regular training enables managers at all levels to enhance business ability and strengthen theoretical knowledge, so as to continuously improve the business quality of banks.

#### 5.2.4 Implementation

The improvement of core business and the removal of problems indicate that in the process of improving the banking business, managers at all levels are engaged in exploitative routine activities. Singh and colleagues (2020) suggested that the implementation of service innovation, which is different from other forms of implementation, is the smallest change in the implementation of current business and is an inevitable adoption process between innovation and users or clients. Therefore, user or client units and organisations are involved. Employees adapt to innovation in the implementation process and modify innovation in the implementation process. During the interviews, some managers shared their views on how to implement these business improvements and changes to ensure that the goal of banking business upgrading is achieved. These activities involve managers at all levels to ensure that the objectives initially set for the business are fully followed. This is achieved through mutual coordination and division of labour from top managers to line managers. The data provided supports this coordination of top managers, which is reflected in their ability to network with other managers at different levels to guarantee that business procedures are interrelated and achieve their goals.

A top manager who was the regional manager of International Business Department at head office highlighted that:

*“The top manager is to lead the lower managers to implement change and innovation. Because the bank structure is divided into the head office, branches and subbranches, and then layer by layer, and then the Beijing Branch is managing the 73 subbranches in Beijing, so the branch leader is to give orders from the superior to each department to each staff, and then the staff in each post are transmitting the information to other branches, whether you are the marketing department or the operation Department. It's the point-to-point conduction to the offline.”-*

*LMS*

Similar to the above, middle managers direct business improvement and improvement activities.

A middle manager who was the product manager at branch emphasized that:

*“The implementation starts with a top-down procedure. Basically, I do the overall arrangement of the implementation of the change or new business. First, I draw up a rough draft, set the theme. Second, I hold a meeting to discuss with other managers at those departments that associated with this business on how to implement it. Third, I arrange that who is responsible*

*for what tasks, and finally, I summarize it.”- LN*

This suggested that top managers overall arranged the implementation of the change and new business. Top managers in head office discuss with managers at departments related to the business and allocate the job for managers at different levels and departments to implement the change or new business. LN also points out that they usually hold a series of meetings to communicate the current stage and future goals and discuss the corresponding implementation with managers at different levels and departments.

Moreover, managers at subbranches are equally important during the implementation of the change, all managers are equally important to implement changes and new business, but they need to interact with each other. A middle manager who was the head of subbranch highlighted that:

*“If the branch requires the subbranch to implement, the subbranch will make a summary in the implementation process, for example, if there are any problems or things that are not smooth in the process, they can feed back upward, and then continue to push forward after the whole solution. So, in fact, if you find any difficulty, you can change it and report it directly to the above.”- GM*

This suggested that line managers at subbranch is interact with managers at higher levels during the process of implementation of the change. Communication with other managers about problems and difficulties is necessary to better implement the changes. This is supported by a middle manager who was the vice president at subbranch highlighted the communication between managers at both branch and subbranch. He narrated that:

*“Although every product has an administrative department, when it comes to implementation, the process of the change or new business always involves managers at different levels and departments. We hope everyone can understand each other and cooperate with each other. I think the communication among the people involved is very important.”- LY*

Similar to that, a middle manager who was the credit, internal plus integration manager at branch also noted that:

*“One business has one competent department, but when it is being implemented, such as the accounting line, its implementation may be different for different positions, but I hope everyone can understand each other, such as what you are doing, what I am doing, and where our communication points are. I think the whole communication is still very necessary. In the process of implementation, we will communicate with each other and say, for example, how to do the business process, what procedures your department should go through, and what*

*problems have arisen in the operation. We should also communicate in the specific implementation.”- ZL*

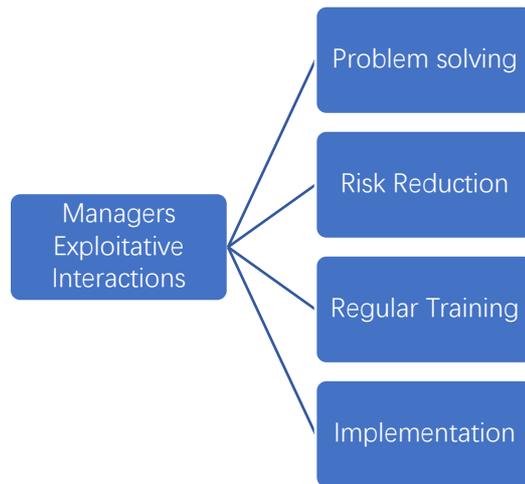
ZL emphasize middle managers and line managers are communicating with each other continuously during the implementation of the improvement of business. It is necessary that line managers feedback the problems and details of implementation with middle managers during the implementation of changes.

In summary, the data provided supports this coordination among managers at different levels when it comes to the implementation, which is reflected in the ability of managers at all levels to establish networks with other managers to ensure that business improvement and change processes are interconnected to achieve goals. Thus, as implementation of improvement and update are the final step of the exploitation, managers at different levels are interacting with each other under the condition of their own responsibilities Overall, the top management sets up the improvement goal, the middle level manager formulates the improvement details and division of labour, and the front-line management staff feedback problems.

### 5.2.5 Summary

For any improvement and innovation, the success of implementation is also the result of mutual adjustment and negotiation among parties with different or even conflicting interests (Cohen, et.al., 2004). According to the data, problem solving, risk reduction, regular training and implementation are the four exploitative interactions demonstrated by managers at different

levels during the process of business refinement and improvement in the Chinese banking sector. These interactions were inspected from the exploitative activities during the day-to-day bases. Managers at all levels not only have their own division of work in the interaction between managers related to exploitative activities, but also coordinate, communicate, and learn with each other to improve existing capabilities, processes and problems and deficiencies in day-to-day business. Although these improvements are not huge changes, the continuous improvement is to collect and solve problems in daily business, analyse and reduce risks, improve business ability and efficiency in regular training, and feed back problems and make continuous improvement in the process of implementing improvement. According to Singh et al., (2020), the implementation of service improvement is an inevitable adoption process between improvement and users. Therefore, user units and organisations are involved. Different from other forms of implementation, the changes of current business are very subtle. Managers at different levels adapt to innovation in the implementation process and modify innovation in the implementation process. In the continuous interaction between managers at all levels, the existing business is improved and innovated infinitely. These four kinds of exploitative activities among managers at all levels are proved by some elements conceptualized as interactions among managers at different levels. These interactions among managers will be discussed in detail later, including information exchange, knowledge sharing, common decision-making and corporate culture.



*Figure 5-1: Overview of theoretical categories for exploitative interactions*

### **5.3 Managers' Exploratory Interaction**

March (1991) point out that exploration includes what is captured in terms of search, variation, risk-taking, experimentation, flexibility, and innovation. Based on March's view, the exploratory interactions, activities, and attitudes of managers at all levels are introduced in this section. For many interviewees, with the development of China's banking industry, it is very important for banks to grasp the corporate and individual customer's needs and the synchronization of modern technology development. Specifically, the activities of managers at different levels include flexibility, market investigation and new product release. These activities are also influenced by the interaction among managers at different levels. The results are as follows.

### 5.3.1 Flexibility

Volberda (1996) defined flexibility as a function of the interaction between management capability responding to environmental change ("management task") and organisational capability implementing timely change ("organisational design task"). However, Hitler and his co-authors (1998) define flexibility as "the ability of an enterprise to act or respond quickly to the changing competitive environment in order to develop and / or maintain its competitive advantage." Therefore, flexibility is more related to organisation and market changes, whether managers have flexibility may affect the ability of the organisation to adapt change. According to the interviewees below, flexibility is an important aspect of interaction between managers at different levels. A corporate client manager in subbranch (line manager) emphasised that:

*“At the subbranch level, flexibility is very important, because the most advantage is not the product, but how you can do what others can't do. It's not how innovative you are, but what you can do, for example, is more in line with the needs and situation of customers, or what other banks can't do but you think of a way to do it.”- HTB*

In his view, giving flexibility to line managers could leave a space for line managers to adapt to the client' need and situation. In that way, changes could become comparative advantages as his word “do what others cannot do”. Middle managers such as a product manager in branch

also noted that:

*“Because flexibility means to adapt to the market, you can meet the needs of customers only when you reflect the market demand at the first time. In fact, customers need and hope that we have greater flexibility, because when customers come to do business, they need convenience and flexibility. In this way, at the level of product design, the flexible performance of the product becomes a comparative advantage, compared with other banks.” - ZJ*

Another middle manager who was the head of subbranch shared the similar view and emphasised that:

*“There will be some time that you can make your own decisions, but you can't break through in terms of compliance. Compliance is the premise and cannot be broken through. As for other aspects such as business directions, we (middle managers) can give the customer manager (line managers) some flexibility so that he can talk with clients. clients want the bank to be more flexible. If the line managers don't break through this compliance system, client managers could*

*grasp this flexibility in their own way.”- GM*

In their view, flexibility itself doesn't mean to create a brand-new product or service in the banking sector, but to adapt a product or service that other banks do not have. Therefore, the middle managers tend to give some flexibility to line managers and the line manager could customize the service that fulfils the clients' need and generate comparative advantages from flexibility.

However, following to the point stated by head of subbranch GM, the flexibility is not unlimited. Flexible changes in any position must follow the bank's compliance restrictions, a senior manager in head office who was the internal compliance manager added:

*“The flexibility of our position should be, for example, to make a decision by ourselves. However, except for the manager who is more flexible in doing business, any business, if you come out of the limitation of the compliance system, it must be a problem. The change of the business process operation is not allowed. Usually, even when the risk is controllable, you can't have compliance problems. We do not allow this, because the head office also has our internal audit. We firmly do not allow this.”- CC*

Consistent with the view of the internal compliance manager in head office, a middle manager who was the head of subbranch pointed out that:

*“Compliance with the system may be more, and compliance is more important, because this is the first premise, and then some changes can be made in case of flexibility. Flexibility is within the scope of their own decision-making, and cannot violate the compliance system, there will be some flexibility. Because each customer may be different, it is impossible to be stereotyped, there may be such and such special needs, which requires a certain degree of flexibility.”- LH*

Another middle manager who was the product manager in branch shared the similar view and noted that:

*“The flexibility of specific business, as a product manager, we have great flexibility, but he still needs to be on the basis of compliance. Therefore, these breakthroughs and innovations should be in line with the requirements of compliance and supervision.”- LN*

According to these managers' thoughts, flexibility is very important in generating innovations

and change, but on the basis of compliance and supervision. In other words, the flexibility given from higher level managers are under the circumstance of compliance regulation.

However, flexibility does not only mean to give a single manager flexibility to adapt to the clients' needs, but also a flexible interaction between managers at different levels when it comes to decision making. One of the middle managers who interact with other managers when making decisions was the vice head of subbranch, and he noted:

*“Flexibility means that when the superior needs to make decisions and when the specific business needs to be handed over to other managers, the superior manager will not be completely handed over to a certain manager. Usually, I will not. It is more about the operation of the middle manager, the implementation of the front-line manager and the supervision of the superior manager. I may let the line managers to make their own decisions for some small details, but I still have to join the decisions making for the important ones.”- AP*

In his view, when it comes to decision making, the middle managers will give the line manager flexibility, but he will follow the procedure and discuss with the line manager. That is the flexible interaction between middle manager and line manager.

Consistent with the view of vice head of subbranch, a line manager who was the personal client

manager in subbranch highlighted that:

*“Sometimes we can make our own decisions. Yes, middle managers also make decisions together. Generally speaking, they have more experience. For example, an operations manager makes decisions because he has more experience, or a branch president, usually two people. We put forward suggestions directly because they have more experience, so they should have more flexibility in compliance control than us.”- HSB*

In other words, the higher level that manager is, the more flexibility he or she has. Therefore, there is an important procedure for managers to interact and convert flexibility to changes. This procedure includes joint decision making and knowledge sharing. A middle manager who was the corporate business department manager in branch also highlighted that:

*“Generally, the middle managers will be more experienced, such as the operation manager to make decisions. You can tell the operation manager your suggestion. Because the operation manager has more experience, then he should be more flexible than us in terms of norms. Then, from the perspective of a front-line client manager, she certainly wants more flexibility.”- ZXH*

In sum, flexibility is very important in the exploratory activities in the banking sector. According to the quotation from these managers at different levels in Chinese banking sector, flexibility, firstly is the scope within which a manager can decide and implement change, and every manager has its flexibility based on what position he or she at. It can be said that flexibility is the endorsement of managers engaging into exploratory activities. On the other hand, flexibility is also an interaction between managers at different levels, in which managers at different positions and levels discuss with each other and make decisions. In this process of interaction, every manager's flexibility is fully utilized, even amplified. Therefore, an improved plan of exploration will be engaged.

### 5.3.2 Market Investigation

Market investigation is also an important managers' exploration activity. This kind of exploration related interaction of managers endorsed by knowledge sharing and information exchange is essential for the new product/service and business of banks, especially at the beginning. Mom and colleagues (2009) believe that one of the important manager's exploration activities is search for new possibilities with respect to product/service, process and market. The following findings are consistent with these statements. Based on the judgment and prediction of the current and future market, managers at all levels can adjust the bank products and services according to the market reaction and changes. For example, a senior manager who was the regional manager of international business department in head office describes why

they have to conduct market investigation first and assess whether to take the next step based on the results of the investigation:

*“If we want to open a new institution, for example, we now want to open a new bank in Norway. The application for the establishment of the institution is really under the guidance of our department. We need to do some market research and feasibility study in the early stage, including the connection with compliance department’s supervision and local policy supervision in the future. This was achieved by the coordination of compliance department in the head office and the local branch in Europe. It is very necessary to go ahead of these processes, because a new institution must meet the needs of the market in order to build smoothly and reduce risks.”- LMS*

Obviously, for senior managers, the opening of new markets requires prior market investigation. This kind of market investigation needs the cooperation of managers of other departments, managers at different levels exchange information and share knowledge with each other, so as to facilitate the research and evaluation before opening the market. Consistent with the top manager’s view, a middle manager who was credit, internal plus integration manager in branch added that:

*“Because the managers in head office does not directly contact customers and does not fully understand the market, they may make decisions based on macro data. However, when developing products, if the head office does not understand the market, it is not easy to make decisions. Therefore, branches and subbranches need to raise demand. Whether you are a regional product, a local product, or a national product, you need to raise demand from various places, whether from customers or branches. These demands are summed up by market investigation conducted by branches or subbranches respectively.” - ZJ*

From the data of observation and interview, top managers, as decision-makers, need to do market investigation first when they are carrying out exploration activities. Market investigation needs not only the macro data that senior managers have, but also the information and day-to day experience of middle-level and even front-line managers. Therefore, in the process of market research, managers at different levels exchange information and share knowledge, and interact with each other to obtain a more complete market investigation. This highlights the importance of exploration activities among managers at all levels. Senior managers' decision-making on exploratory activities needs the data and experience of middle-level and front-line managers. Similar views are also mentioned in interviews with middle managers and front-line managers, such as a middle manager who was the vice head the subbranch pointed out that:

*“Some of the corporate business needs to be changed. For example, a certain type of enterprise will need a different service provided by the bank. Maybe other types of enterprises will not be involved. Of course, there will not be too many. But it mainly depends on the needs of customers. For example, if the head office is aware of the change of market, or the head office wants to investigate the market change to see if he needs any new products, he will ask for the information of some customers from our subbranch. There are some surveys, there are some workshop or meetings. It is similar to a research meeting to collect information. They are deciding whether the product needs to be changed”- AP*

A frontline manager who is the lobby manager in subbranch added that:

*“We are like this: the branch will go to the front-line subbranches to do surveys from time to time and will send some surveys to our subbranches to put forward some optimization suggestions. Whether the need for change is systematic, institutional or product, we are encouraged to make some suggestions. Finally, there will be a reward mechanism for these suggestions. For example, if your suggestions are adopted, they may give you some bonus points or extra performance rewards. The managers of front-line branches are encouraged to make suggestions on optimization or market changes.”- SXH*

From the above description of branch managers and subbranch managers, in the market investigation, from the senior manager of the head office to the middle manager of the branch and the front-line subbranch manager, market investigation is carried out from top to bottom, and manager at every level plays an important role in the process of market investigation. And the interaction between managers at different levels, also directly improve the quality of market investigation, so that banks grasp a big picture of market with higher quality, which helps the decision-making of products, processes, and market exploration.

In sum, market investigation is the first and most important step in the process of opening the market and developing new systems and products for banks. In the process of market investigation, managers at all levels, head offices, branches and subbranches interact with each other, exchange information and share knowledge, to more comprehensively and accurately grasp the market dynamics and the changes that banks need to make. Consisting with Mom et al. (2009), cross-functional interface offers an opportunity to managers to refine their existing knowledge by acquiring knowledge from their own knowledge base. In that way, this kind of knowledge sharing and information exchange help managers at different levels to search for new opportunities to open new market and explore new technologies or product through the process of market investigation. Such interaction is very important to the exploratory activities of managers at different levels in bank, which determines the direction and strategy of banks to change.

### 5.3.3 New Product Release

Consistent with Mom et al. (2009), another managers' explorative activity is focusing on the renewal of products, service, or process. Additionally, this kind of renewal of product includes product that is introduced for the first time in the banking sector, and the product that is introduced for the first time in the bank but has been introduced for the first time into banking sector by other banks. According to the findings, the process of release the new product is important but not simple for the bank. In this process, normally the new product is introduced by a top-down procedure, in which, interaction of managers at different levels are very important to successfully release the new product. New product pilot is the most frequently mentioned by managers at different levels, such as a regional manager of international business department in head office (top manager) pointed out:

*“If a new product is to be released by the head office, a branch will be selected first and then subbranches to do a pilot on the new product. Then a summary will be reported on the pilot process and shared with the head office. For example, what problems or unsmooth processes exist in the implementation of the new product, the subbranch needs to feedback to the branch or head office. Then, in the process of the pilot, the subbranches and branches need to regularly report the process of the pilot of the new products. After the problems in the pilot process are solved, the head office will consider whether the next step is to comprehensively implement or other strategies according to the specific situation.” - LMS*

This top manager at the head office described the process of how a top-down interaction between managers at different levels leads to the new product release by a pilot at subbranches. The next two quotes, taken from a middle manager and a frontline manager also highlight that middle and frontline managers also interact during the pilot process in order to conduct the new product release. A middle manager who was the head of subbranch highlighted that:

*“New products generally come down from the head office level, which means that our subbranches are responsible for the specific implementation of the new product. The head office will consult us, and the subbranches will feedback the problems and situations in the process of new product pilot. We rarely take the initiative to develop a product, because the research and development of the new product is not at our level, but the implementation is at our level, and we are responsible for proposing amendments.”- LH*

A frontline manager who was the personal finance manager at subbranch also mentioned that:

*“Generally speaking, if the head office wants to launch a new business, or if there is a new*

*business in the branch, it will first go to our branch for testing, and the formal implementation will only be implemented after passing the test in our subbranch. Our branch is also the first branch in Beijing to implement new business. Generally, new business comes to us for pilot before formal implementation.”- QX*

Then, in the process of new product releasing, the branch will organize training to let the pilot branch managers to learn the features of new products and the corresponding compliance requirements of the new products. For example, a middle manager who was the credit, internal plus integration manager at branch pointed out that:

*“When the head office needs branches and subbranches to implement new products, there will be relevant training for new products. We need to train the relevant branch managers, what kind of business this is, what kind of product this is, what regulations this product should comply with, and how to do this product. And then the operation process of these products and its audience are all here to be learnt. Therefore, the implementation of new products of the head office should be accompanied by the training of new products.”- ZL*

In other words, middle managers play an important role in training frontline managers for the

new product release. In that way, middle managers drive the process of interaction between top and frontline managers. The information and knowledge of new product flows from top to bottom through the interaction that driven by middle managers. This finding supports the view of the existing literature that middle managers are most capable of promoting organisational change because they can access and share information. For example, Floyd and lane (2000) pointed out that middle managers act as a hub through which most strategic information flows in the organisation. However, middle managers are not the only one to conduct this form of interaction, according to the findings, top managers also find their way to interact with frontline managers. When it comes to the training related to new product release, top managers adapt technology to interact with frontline managers. A middle manager who was the vice head of subbranch highlighted that:

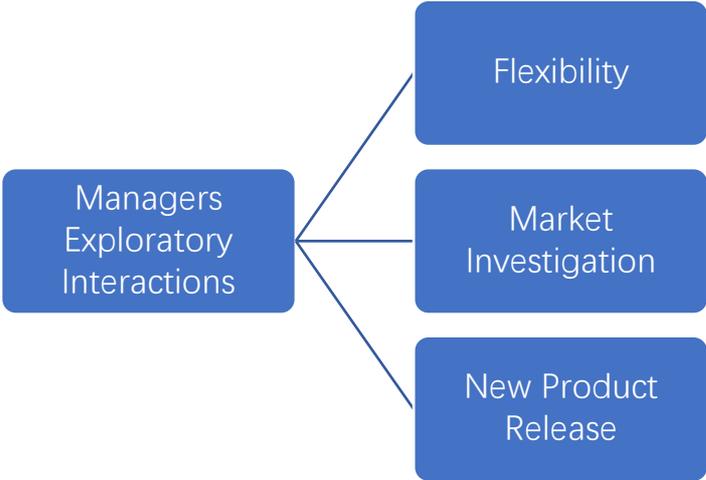
*“For example, when a subbranch conducts a new product pilot, the information of this new product is on the online system. The managers of the pilot subbranch need to learn this new product, because the product needs the actual operation of the subbranch managers to complete. There are also some stress tests, such as our branch managers doing this business together and doing it all at the same time. There are also two kinds of training activities related to new products, which are meetings and online learning rooms. Online room is our bank's own developed online system, it can do live broadcast, you can see, you can also look back.”- AP*

In sum, the data provided supports the coordination of managers at different level in new product release, which is reflected in the process of establishing interaction between managers at all levels and other managers, to ensure the information exchange of new products release process and achieve the exploration. There are knowledge sharing from top to bottom and information exchange from bottom to top. Managers at all levels interact within their overall responsibilities. Top managers develop new products, middle managers formulate detailed implementation for new product pilot, and front-line managers give feedback.

#### 5.3.4 Summary

The data shows that flexibility, market investigation and new product release are the three exploratory interactions among managers at different levels in the banking industry in China. These interactions are investigated from the exploratory activities of the daily base. Managers at different levels not only have their own division of labour in the interaction between managers related to exploration activities, but also coordinate, communicate, and learn from each other to ensure the continuous exploration of the market and development. Higher flexibility gives managers at different levels the willingness to explore new possibilities. Market investigation enables managers at different levels to integrate their knowledge and experience, grasp market trends, and communicate with each other. In the process of new product release, managers at different levels communicate with each other and learn from each other to promote new products more smoothly. In the continuous interaction of managers at different levels, opportunities of new business and new market have been continuously explored and developed. These three kinds of exploration activities of managers at different

levels are proved by the factors of interaction between different levels of managers.



*Figure 5-2: Overview of theoretical categories for exploratory interactions*

**5.4 Managers’ Ambidextrous Interaction**

Raich and Birkinshaw (2008) propose that organisational ambidexterity involves the conflicting goals such as flexibility and efficiency, stability and adaptation, exploration and exploitation.

Scholars like Birkinshaw and Gibson (2008) likewise define organisational ambidexterity from an organisation perspective as the ability of an organisation to combine exploitation and exploration related activities in a single business unit. Thus, from a business unit or managers at different levels perspective, organisational ambidexterity is achieved by the interaction of managers at different levels. In the last two sections, the researcher analysis the exploitative and exploratory interaction of managers at different levels respectively and interprets the managers' interaction that relate to both exploitation and exploration. At the same time, managers at different levels show exploitation related activities and exploration related activities. In this section, the researcher interprets that interaction of managers at different levels plays a very important role in the realization of organisational ambidexterity. It is important that the managers interviewed and observed demonstrate their ability to interact with other managers and resolve conflicts between exploitation and exploration. From the interviews, managers emphasized how they collaborate with each other and dealt with this kind of conflicts. Managers at different levels show three ambidextrous activities, including brainstorming, encourage change, and task allocation. Managers choose knowledge sharing and corporate culture from the toolkit of interaction among managers, so that these activities can be realized.

#### 5.4.1 Brainstorming

Brainstorming was an ambidextrous activity which managers at different levels interact with each other. From the interviews, managers at all levels often had brainstorming through both formal and informal meetings. In the bank's daily business, managers at different levels turn to encourage their teams to brainstorm when facing problems. A comment on brainstorming is

that although brainstorming may not be more efficient than individual thinking, groups may be motivated and ideas from group interaction may receive more support than ideas from individuals (Furnham, 2000). In other words, brainstorming is an interactive process of information exchange and knowledge sharing through managers. When managers get together to discuss ideas, they usually think about it before a meeting, where information, knowledge and ideas are exchanged and possibly evaluated. At a subsequent group meeting, the issue may be reassessed, where a second idea can be shared and a final decision made (Thompson and Choi, 2006). The research interpretations are consistent with prior arguments that managers at different levels conduct brainstorming and continuously explore and exploit.

A front-line manager who was a corporate client manager in subbranch highlighted that how he participates in the brainstorming in the daily business:

*“Basically, we communicate frequently, and we can communicate about any business. The atmosphere in the bank subbranch encourages us to solve problems together. If needed, we can have a meeting to discuss the problems and the head and vice head of subbranch also participate in the meeting sometimes. Our team will help each other to find a way to do business when you are facing challenges. As long as one can accomplish the business, other managers will try their best to help him. We consider and discuss different ways to solve the problem and we find the best way to go. Brainstorming is an atmosphere in which people can exchange knowledge, experience and ideas at any time.”-HTB*

Similar to above, another frontline manager who was the corporate manager at subbranch share the similar view:

*“Brainstorming, I think it's a step-by-step process, that is, when you are in the business process, when you have problems, and the similar problem could have been encountered by other managers. When other managers encounter this problem, did they solve the problem and how did they solve the problem? In that case we managers at the subbranch will brainstorm and discuss the problem. Is there any similar problems happened before and how did we solve it? We share our experience on the similar problem, we share the ideas of the solution of the problem, whether we optimize the problem or we need to find a new way of doing the business. We consider and discuss all the options to solve the problem and then we make a decision.”-*

*LL*

These quotes above suggests that frontline managers and middle managers interact with each other on a daily basis, building an open atmosphere for them to brainstorm in order to suggest new ideas and solve problems. In an open atmosphere, managers not only share their existing experience and knowledge on the problem, but managers at different levels also raise new ideas about changing and innovating for the problem, then managers at different levels discuss all the options to solve the problem, which is seen as an ambidextrous interaction between middle

managers and frontline managers.

In addition to above, a middle manager who was the internal, credit plus integration manager at a branch told the researcher that:

*“There are two cases about brainstorming:*

*For example, a client manager of a sub-branch thought that a specific business couldn't be done. Then the manager of that business line at branch believed that the business could be done in other ways. Then, they share their view on the specific business, and the business implementation can be more flexible. The manager at sub-branch can't do it within the scope of sub-branch client manager because they have not done that business in a similar situation. After communicating with the branch manager, the higher-level manager may be able to help the subbranch manager do the business in an alternative business mode.*

*It is also possible that the business is not a single line business, for example, the business consists of both personal business line and corporate business line. In that case, managers of different business lines need to communicate and discuss together and give an integration plan for this business. In that case, managers of different business lines need to brainstorm, give solutions according to the specific situation of client, and managers of each business line should cooperate with each other.”-ZL*

The quote above suggested the two ways of brainstorming between managers at different levels in order to pursue exploitation and exploration. One is the brainstorming between managers at different levels but in a single business line, the middle and frontline managers share their existing knowledge on how that business have been done in the past, and consider alternative ways to do that business, which is new to the way of doing that business. This kind of brainstorming considers both exploitative and exploratory solution of a specific business, enlarges the flexibility of the business and leads to exploitation. The other one is the brainstorming between managers at different levels but in different business line, the managers at different business lines and different levels brainstorm to find a way to do a business that consist of two business lines. The managers consider amend the business in the scope of their business line, and then brainstorm with managers in other business line and integrate two business line into one business. This kind of brainstorming creates new business by amending their existing business and integrating and leads to exploration.

in addition to above, the data also shows that top managers play an important role to organize and manage the interaction between managers at different department and levels. A top manager who was the regional manager of international business department at head office highlighted that:

*“Sometimes the managers at head office come down to the branch when the head office needs to update or develop a new business. If it is to be used in practice, it needs many departments to collaborate. For example, there is a corporate business from the corporate business department, but you may need the financial market department, the accounting department, the compliance department, and any other departments to participate in this business. The head office will go to each department of the branch to solicit opinions. Then the branch will state demands and suggestions, some of which are delivered from the sub-branch. We need to analyse the existing business process and what need to change, by communicating with branches and subbranches. Then there are various problems in the process of new business implementation, and managers at different levels and departments should continue to pool their wisdom to improve the business.”-LMS*

The quotation above consists with Smith and Tushman (2005), who suggested that top managers should allocate resource and organisational design decisions to balance long-term and short-term outcomes. Based on what this top manager said, top managers allocate the managers at related departments to brainstorm in an ambidextrous way. The top managers have a larger scope than middle and frontline managers, so top managers communicate with the middle and frontline managers to refine and even create new business. An important point is that the refinement and innovation of the existing business need evaluation and analysis of both existing business process and new business process. This process is achieved by brainstorming of managers at different levels on both new business development and refinement, and the

brainstorming is integrated by the top manager but implemented by middle and frontline managers. Following this point, another top manager who was the internal compliance manager at head office explained why top managers need to achieve by this way:

*“The head office must control the risk to the minimum, but they are not in the market, they do not land to subbranches. if frontline managers do business according to the unchanged compliance, there may be almost no business to do. In this case, you need flexibility, you need to adjust your compliance, and this is related. At this time, brainstorming is very important. How to balance flexibility and compliance and maximize the flexibility of the business on the premise of maximizing compliance, all of which require managers of different levels and departments to brainstorm and then, senior managers to make the final decision of change.”-*

CC

Balancing flexibility and compliance is the challenge of managers at different levels to achieve organisational ambidexterity. In order to make the decision of change, based on the top manager, a brainstorming that include managers at top, middle and frontline managers are conducted to generate the best decision of change. In other words, the brainstorming between managers at different levels is necessary for both exploration and exploitation, because both existing business process and new business process need to be considered to generate the decision of

change. Smith and Tushman (2005) classified the definition of ambidextrous decision-making into distributive decision-making and collaborative decision-making. In their view, distributive ambidextrous decision-making involves the allocation of resources between existing products and innovation, and over time, when they support two products, they are balanced. However, collaborative ambidextrous decision-making recognizes the synergy of these opportunities, linkages and synergies that may arise in exploitation and exploration activities. The quotation above supports Smith and Tushman (2005)'s argument on ambidextrous decisions.

To sum up, the above data provide evidence for many examples of managers at different levels showing and encouraging brainstorming. In order to reinforce the above proposition, managers at different levels point out that brainstorming plays a very important role in organisational ambidexterity, no matter short-term and long-term goals, compliance and flexibility, business improvement and business innovation. Long term continuous brainstorming can make exploration activities and exploitation activities alternate, so as to achieve organisational ambidexterity. From the above data, it can be concluded that if managers at different levels do not brainstorm or allocate their teams creative freedom in the daily business, business performance will stagnate, and long-term goals will not be achieved.

#### 5.4.2 Encourage Change

In the process of organizing ambidextrous activities, another activity that managers at all levels show is to encourage change. Senior manager improves team capabilities by working with middle and front-line managers and encourages teams to discover the possibility of change.

Senior managers provide the middle and front-line managers with the opportunity to propose new business improvement or innovation direction based on existing business, and fully bear the responsibility of encouraging change. Middle managers strive to ensure that their knowledge and the knowledge of their teams are always ahead of their competitors (Awojide, 2015). At this stage, the daily interaction between middle-level managers and front-line managers also shows that they attach importance to improving their professional field technical proficiency and mastering new technologies and knowledge. As the connection between senior managers and front-line managers, middle managers promote the realization of organisational ambidexterity by encouraging for change.

A middle manager who was the vice head of subbranch highlighted that:

*“We encourage managers to make changes in their daily business, and then in the morning meeting or weekly meeting, we will let them talk about the problems in the business and how to solve them, so that other people will know how to solve them when they encounter these problems. I think the corporate culture of bank hopes that the front-line managers to innovate, but you have to innovate within the scope of compliance, so some things are strictly prohibited, you can't go beyond. If you don't touch these bottom lines, the bank will encourage managers to innovate and give them a certain range of decision-making power.”-AP*

From what he said, middle managers interact with frontline managers by encouraging them to communicate and share knowledge for change. Middle managers encourage frontline managers to share their existing knowledge and experience of solving problems with middle and frontline managers, which is an interaction of middle and frontline managers to conduct exploitation. Besides, middle managers also encourage frontline managers to innovate when they encounter problems. In other words, middle managers encourage frontline managers for change, in an ambidextrous way. In addition to that, a middle manager who was the corporate business department manager in branch pointed out that:

*“The bank hopes the front-line managers to innovate. The bank has rules and regulations, and they will give you a red line to abide by. You can't cross this red line. The red line can be compliance, accounting, legal and so on. Within this red line, managers at the subbranch can innovate, put forward ideas and opinions. Some products were initiated by line managers. For example, ETC, which we mainly promote now, is started by a subbranch manager in Beijing, he went to talk about cooperation with the express company. This is an innovation. Then it will have a reward mechanism. The managers of front-line subbranches can make suggestions on the system, which is the online system. For example, if your suggestion is adopted, the head office will give you some bonus points or extra monetary rewards. Our work is mainly to accomplish business and bring revenue to the subbranches. These suggestions and innovations are always encouraged for accomplishing business.”-WY*

In his view, front-line managers could make suggestions on the business and new product, while middle managers realize the ideas that put forward by the front-line manager. At the meantime, middle managers not only encourage front-line managers to search for new opportunities on business and product, but also communicate with frontline managers by emphasizing the red line that all the changes must obey. Middle managers and frontline managers interact with each other in an ambidextrous way by considering both possibilities of change and existing compliance red line that they must obey.

Meanwhile, the quotation above also mentioned that top managers participate in this process of encouraging for change. The top managers use the online system to communicate with frontline and middle managers and create a reward system to encourage middle and frontline managers, making them be willing to search and suggest new opportunities for change. A top manager who was the internal compliance department manager at the head office pointed out that:

*“The head office must control the risk to the minimum, but it also needs to try its best to improve and innovate. Sometimes you need flexibility, making it necessary to adjust your compliance. It's all related. It's balanced, flexible, and compliant, right. The head office needs middle and frontline managers to improve, innovate and expand their business as much as possible under the premise of compliance, so as to bring profits to the bank. This requires the head office to*

*balance flexibility and compliance and make adjustments when communicating with middle and frontline managers.”-CC*

In other word, top managers are the one who decide when to exploit and when to explore. However, the top managers need to consider both improvement and innovation and make decision based on the interaction with middle and frontline managers. According to the quotation above, the top managers at head office have the responsibility to control risk, so they adjust the compliance based on the change that middle and frontline managers suggest. They need to consider both the change of business and the risk of adjustment of compliance. In other words, top managers are supporting the change raised from middle and frontline managers in an exploitative way. Thus, the interaction of top, middle and frontline managers encourage change in an ambidextrous way. An ambidextrous manager should build up an open corporate culture for middle and frontline managers to interact with the top managers. This is similar to the contextual ambidexterity, which means that the tension of exploitation and exploration is solved at the individual level of top managers by creating an open context for managers at different levels (Gibson and Birkinshaw, 2004). Thus, in an open context, managers at different levels are interacting with each other more frequently, leading to organisational ambidexterity.

Besides that, a middle manager who was the product manager in branch explained how they shift from exploration to exploitation in a very short time:

*“We often ask the manager of the subbranch to share the situation of new business with us. Then, for our product innovation and some subsequent updates, it will be very necessary to communicate with the front-line managers. The feedback from the front-line managers determines the direction of business innovation and improvement upon our related branch department. Therefore, it is necessary for us to encourage front-line managers to exchange their practical problems and suggestions with us.”-LN*

Right after the beginning of implementing the new business at subbranch, the managers at subbranch also need to report the situation of the new business and also make suggestions on how to improve it based on the frontline experience. This is consisted with the term of sequential ambidexterity, which is achieving organisational ambidexterity by swift between exploitation and exploration (O’Reilly and Tushman, 2013). The middle managers and frontline managers interact via the new business implementation, because frontline managers are encouraged to raise any problems and thoughts of solution while implementing the new business. In addition, the interaction swift between exploitation and exploration.

In the interview, some middle managers stressed the importance of training and developing staff skills. A middle manager who was the personal business department manager at branch highlighted that:

*“Our bank encourages job rotation and job change. For example, when I go to this position, you go to that position, and everyone take turns to study on other position for a period of time. Because relatively speaking, in the bank, it should be relatively single line business after you actually contact the business of one position. For example, if you are a personal business manager, your business must revolve around this circle. Maybe there will be very few cross-border businesses to the corporate business line, but there will be a lot of business relating to the corporate business line. So, we encourage job rotation, managers of different positions understand the corresponding business process, so as to facilitate the cooperation between managers in different business lines. You never gain all the information and knowledge before you really do it, that’s the reason we rotate positions.”-ZJ*

A position rotating between managers is an interaction between managers to share knowledge and experience, in order to develop managers’ skills and knowledge. At the individual level, managers rotate position between others to consolidate existing knowledge and add new knowledge and skills to themselves, which is achieved by encouragement for change by middle managers.

In sum, managers at different levels encourage each other to search for opportunities of change, whether it's new business prospects or the direction of business improvement. The realization

of organisational ambidexterity requires the interaction among managers in such a way of knowledge sharing and open corporate culture. Without such an interaction that encourages change, banking business improvements and new business innovation may be stagnated.

#### 5.4.3 Task Allocation

Task allocation is a kind of ambidextrous activities that generating from managers at different levels interacting and cooperating with each other. In the bank's daily business, task allocation presents a top-down direction. Top managers show the ability of initial task allocation. One of the most easily identified activities in the process of two kinds of innovative activities is that top managers allocate tasks to middle managers. on the other hand, middle managers need to complete the tasks assigned by top managers and then allocate the tasks to the level of front-line managers. Previous studies have argued that flexible managers must manage contradiction and conflicting goals (Smith and Tushman, 2005) and think paradoxically (Gibson and Birkinshaw, 2004). Middle managers perform multiple roles (Floyd and lane, 2000) and perform multiple tasks (Awojide, 2015). Some scholars also believe that ambidextrous managers have both short-term and long-term orientation, and that individuals are very challenging in exploitation and exploration (e.g., O'Reilly and Tushman, 2004; Gupta et al., 2006). The results are constant with the previous view, which is that senior managers allocate resources and tasks to middle managers, and middle managers can play a variety of roles and participate in a variety of organisational activities. Importantly, the results support the view that managers' interaction at different levels, especially for task allocation, is an important source of organisational ambidexterity.

A top manager who was the regional manager of international business department at the head office highlighted that:

*“Task allocation is generally from top to bottom. Generally, it is from the head office to the branch and from the branch to the subbranch. A branch is to manage all the subbranches in Beijing. The head office gives the branch task indicators, and then the branch allocates them to all the subbranches in Beijing. For example, the new business ETC that we are working on now is that the branch gives each subbranch its task indicators. The branches are having a meeting to decide how many clients each manager should have this month. In this way, the branch that fails to complete the assessment will be fined. Task allocation requires that the branch as an intermediate node of communication, the subbranch needs your help to communicate, and the head office needs you to delegate the assigned tasks to the branch. Because there are too many subbranches in Beijing, there are more than 100 subbranches and business departments. The head office can't take charge of all the subbranches. It needs the centralized management of the branches.”-LMS*

In the process of spreading ETC project, which is a new business for the bank, top managers allocate the tasks to middle managers. middle managers, on the other hand, are in charge for the task implementation and task allocation to managers at subbranches. This kind of task

allocation enable managers at different levels to know what their job in the whole project is and shared the same objective of spreading the new business. Middle managers are regarded as the intermediate node of this interaction of managers when it comes to the task allocation. To achieve the task allocation, middle managers interact with both top managers and frontline managers.

In addition to above, a middle manager who was the product manager at branch explained the role of middle managers in task allocation:

*“Upload and release mean to transmit the following suggestions from bottom to the top and then transmit the above decisions from top to the bottom. So, in fact, I think the management deployment function of Beijing Branch is the function of upload and release, which is equivalent to a dual role of the middle managers as an intermediate node of communication. The subbranch needs your help to communicate, and the head office needs you to delegate the assigned tasks to the subbranch. The head office needs the branches to implement the long-term goals, and the subbranches need you to assign short-term tasks.”-LN*

According to the quotation above, middle managers as an intermediate node of communication, generating the ambidextrous interaction with top and frontline managers by considering and organizing both long-term and short-term goals. By balancing the long-term and short-term

goals, the interaction of managers at different levels fosters organisational ambidexterity.

Similar to that, a middle manager who was the credit, internal plus integration manager at branch pointed out that:

*“When the business encounters problems or needs to be improved, the frontline manager will report to the branch directly through the online system. Then, the branch acts as an intermediary, a transmitter, and reports to the head office. Then the head office makes decisions. Then the branch becomes the executor, the branch manager can be the client manager. Because sometimes, when a branch manager really needs to make a new product, he is also playing the role of client manager. He also talks with clients in the market, so that he knows the client’s need. Branches can also be innovator. But in that case, they are creating new products according to the clients.*

*The head office is always the innovator, and the branches and subbranches are just the executors. For example, if the head office analyses the financial market and says what products we should make, they will launch this product, and he will tell you how to do it. Then he will write clearly about the compliance part of the system, how you should do it, how to implement it, and what part of the market it is targeting.”-ZL*

In her view, top managers are always the creator or decision maker, they allocate tasks directly to the middle managers. On the other hand, middle managers played multiple roles: they could be innovator, decision maker, and implementor. Middle managers interact with top and frontline managers, shifting between their multiple roles in order to achieve both long-term and short-term goals ambidextrously. This is consistent with Awojide (2015), who believe that ambidextrous middle managers conduct multitasking in order to pursue both exploitation and exploration. Scholars also propose that ambidextrous organisations should set a supportive corporate culture to encourage managers to make their own judgments as to how to best divide their time between the conflicting demands of exploitation and exploration (see Gibson and Birkinshaw, 2004; O'Reilly and Tushman, 2013).

Regarding to the short-term goals, a frontline manager who was the corporate business manager at subbranch describe how they interact with middle managers to discuss the task allocation of their subbranch:

*“Take the ETC business as an example, the head office gives branches a business goal for a quarter, and the Beijing branch will communicate with subbranches to set a monthly business goal for subbranches. Every Monday morning meeting of our branch, the head of our subbranch will allocate tasks for a week. Whether it's a new business or a business to be promoted this week, we will allocate tasks to every client manager and link them with performance. Because the subbranch's task goals are assigned by the branch, the subbranch's*

*task should be allocated to each client manager. At the meeting, we can also discuss how to allocate business tasks, and finally the subbranch president will make a decision.”-HSB*

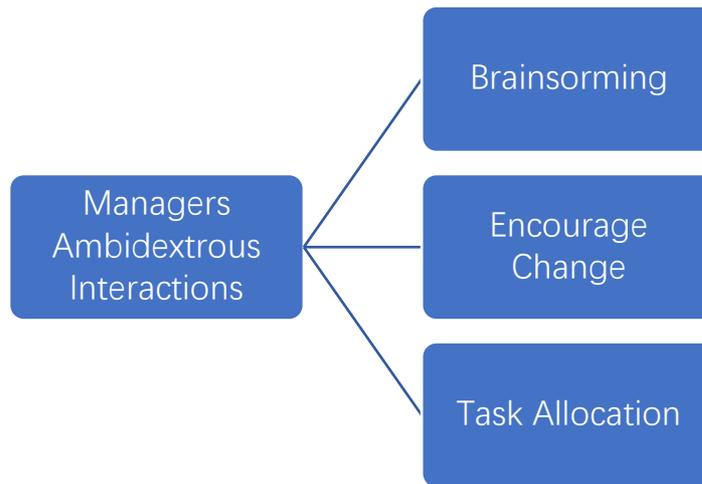
In other words, top managers interact with middle managers to set a long-term goal to promote, the middle and frontline managers interact with each other to set the specific short-term business goals for each manager according to the tasks allocated by the branch. This data indicates how middle managers play the role of task allocator and be an intermediate node between top managers and frontline managers in an ambidextrous way. Managers at different levels interact ambidextrously with each other to achieve long-term goals by divide it into more specific short-term goals. In that case, managers at different levels achieve both long-term and short-term goals through ambidextrous interaction.

In sum, the above results show that managers can participate in task allocation and coordinate organisational ambidexterity through these activities. These data and observations of managers at different levels show that managers who are good at interacting with other managers and have a strategic understanding of organisational goals are more able to coordinate organisational ambidexterity. Task allocation is an important interactive activities of managers at different levels to coordinate organisational ambidexterity. This represents the development of this theory, because the existing research cannot prove why different levels of managers can coordinate organisational ambidexterity. In addition, the previous research has not clearly pointed out how managers shape organisational ambidexterity through the interaction between

managers. Managers at different levels can use organisational culture and information exchange as tools to complete exploration and exploitation simultaneously. Allocating tasks to managers at different levels, ensuring information consistency, fully interacting, and encouraging managers to decide their own roles in changing the business are all used to facilitate ambidextrous activities

#### 5.4.4 Summary

According to the data, brainstorming, encouraging for change and task allocation are three binary interactions of managers at different levels in the process of business refinement and innovation. These interactions are investigated from the exploitation and exploration of daily bases. Managers at all levels not only have their own division of job in the interaction between managers involved in exploitation and exploration activities, but also coordinate, communicate, and learn from each other to improve existing capabilities, processes and innovations and promote new businesses and products. Managers at all levels find opportunities for innovation in improvement and find problems and improve when promoting new businesses. In the continuous ambidextrous interaction of different levels of managers, the existing business has been improved and innovated infinitely. The ambidextrous activities between the three different levels of managers is proved by the elements of interaction between managers at different levels.



*Figure 5-3: Overview of theoretical categories for ambidextrous interactions*

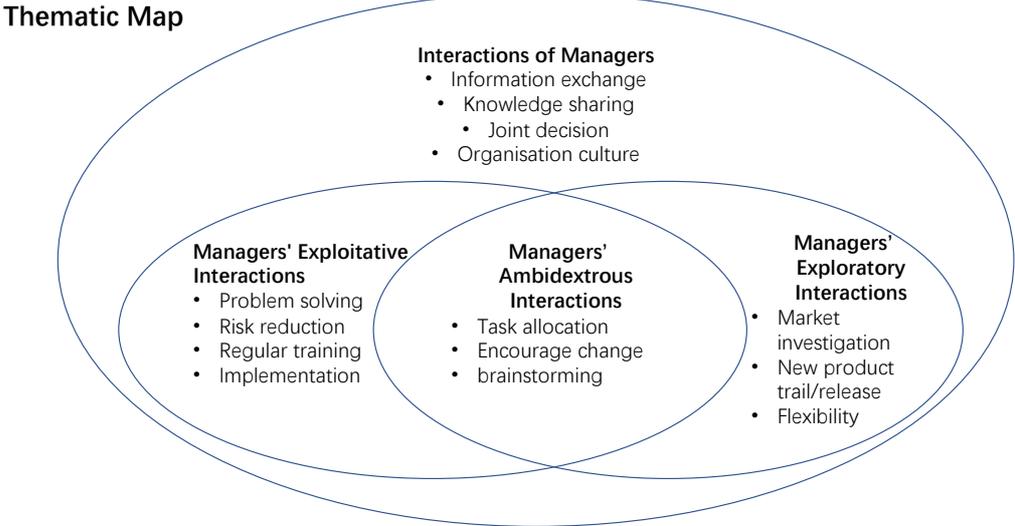
## **5.5 Chapter Summary**

In order to achieve the purpose of Stage 2 in this study, that is, by investigating the interactive activities of managers at different levels and, how these activities are formed, so as to expand the understanding of organisational ambidexterity, the researchers conducted a qualitative analysis of the interview data. In this chapter, we explore the interaction between managers at different levels in the banking sector. The results reveal the activities and activities of managers at different levels, as well as the interactions that managers at different levels use to promote organisational ambidexterity. As shown in the figure below, the figure describes the exploitation related activities of managers at different levels, exploration related activities of managers at different levels, and ambidextrous activities of managers at different levels.

Based on the Figure 5-4, detailed research framework showed the four types of interactions

among managers are the driving forces behind the exploratory, exploitative, and ambidextrous interactive activities of managers at different levels, which includes information exchange, knowledge sharing, joint decision-making, and corporate culture. Therefore, the interaction between managers shapes the exploitation, exploration, and organisational ambidexterity activities of managers at different levels in the banking industry.

In the chapter 6, the researcher will discuss the results in detail in the discussion chapter. findings and outcomes in both chapter 4 and chapter 5 will be discussed in the light of the existing literature on organisational ambidexterity, and managers’ interaction.



*Figure 5-4: Detailed research framework*

# CHAPTER 6

## Discussion

## 6.1 Introduction

This research is conducted in three stages to address the following aims:

Stage 1: explore the relations between interaction of managers at different levels, organisational ambidexterity, and competitiveness.

Stage 2: explore how managers interact with each other and foster organisational ambidexterity.

Key findings of two stages of the research have been presented according to the aims.

Stage 3: theoretically integrate the outcomes of both Stage 1 and Stage 2.

The reason of conducting three-stage research is that in order to explore “how” managers interact with each other and foster organisational ambidexterity, there is a need to explore “to what extent” managers’ interaction contribute to exploitation, exploration and organisational ambidexterity (see Stage 1). Then based on the outcomes of stage 1, the researcher further explores the managers’ activities upon interaction of managers that foster organisational ambidexterity (see stage 2). Importantly, the outcomes of Stage 1 and Stage 2 are integrated at Stage 3 to generate a fuller understanding of the research outcomes, more specifically whether exploration and exploitation conflict with each other.

Chapter 4 and 5 has presented the data analysis of Stage 1 and Stage 2. This chapter presents key findings and discuss them in a larger context using extant literature. This chapter first presents the findings in Stage 1 (Section 6.2) and then presents the findings in Stage 2 (Section

6.3). Additionally, Stage 3 (Section 6.4) is also presented to discuss the integration of the outcomes of both Stage 1 and Stage 2.

## **6.2 Outcomes of Stage 1**

At Stage 1, based on the existing literature, this research empirically developed a conceptual framework between interactions of managers, organisational ambidexterity, and competitiveness. Within the context of Chinese banking sector, the research focus on the interaction of managers at different levels and organisational ambidexterity. In addition, this research aims to explore the effect of organisational ambidexterity on firm competitiveness in the Chinese banking sector. This research proposed an organisational ambidexterity conceptual framework of managers' interaction in the context of Chinese banking industry, and tested it empirically, focusing on the interaction between managers at different levels. Therefore, the Stage 1 of research results confirm that organisational ambidexterity is achievable in China's banking industry, and organisational ambidexterity may lead to the improvement of bank competitiveness. The result shows that ambidexterity will improve the competitiveness of enterprises, and exploratory and exploitative activities will positively affect the competitiveness. The result also shows that the interaction between managers at different levels directly affects the exploitation, exploration, and organisational ambidexterity, and then, exploitation, exploration and organisational ambidexterity directly affect the competitiveness of organisation. Although the literature of ambidexterity has expanded over the years, the organisational

ambidexterity is a remaining critical challenge for both scholars and managers.

This Stage 1 of research potentially contributes to knowledge of ambidexterity and managers' activities in the following aspects.

### 6.2.1 Exploitation and Exploration

Firstly, this research examines the confliction between exploration and exploitation. The result shows that exploitation and exploration are positive related, which indicates that exploitation and exploration are not conflicted, but complementary.

Exploitation and exploration are two innovation process related to organisational ambidexterity that scholars see conflict, tension and trade-offs (March, 1991; Yi et al., 2006; Andriopoulos and Lewis, 2009; Nosella et al., 2012). Scholars like March (1991) and Andriopoulos and Lewis (2009) argue that in an environment of limited resources, organisations face a trade-off in allocating these resources either to exploration or exploitation activities, and ambidexterity is the ability of organisation to solve the tensions (limitation of resource for either exploitation or exploration) between exploration and exploitation. However, Lavie et al. (2010), suggest that the distinction of exploration and exploitation is often a matter of degree instead of a kind, and exploration-exploitation concepts should be viewed as a continuum rather than a choice between discrete options. Thus, exploitation and exploration are not in an "either or" relation but a "more or less" relationship. Also, Mathias et al. (2017) suggest that comparing with sequential and simultaneous balance of exploration and exploitation, simultaneous balance of

exploration and exploitation has stronger positive influence on effect of ambidexterity on firm performance. Thus, ambidexterity that view exploitation-exploration as “more or less” is more effective on firm performance than ambidexterity that view exploitation-exploration as “either or”.

The outcomes in Stage 1 supported the claim of “more or less” relationship over the “either or” relationship by confirming that exploitation and exploration are complemented. In addition, there might be an interplay between exploration and exploitation that makes these innovation process (exploitation and exploration) could enhance simultaneously and leading to organisational ambidexterity, based on the argument of Mathias (2017). The outcomes of Stage 2 will also explain this assumption, based on the complemented relationship founded between exploitation and exploration.

### 6.2.2 Interaction of Managers and Ambidexterity

Second, this research confirms the contribution of interaction of managers on organisational ambidexterity. The outcomes shows that interaction of managers at different levels are positive related to exploitation, exploration, and organisational ambidexterity. Previous research has little attention to interaction of managers at different levels in organisational ambidexterity, and this research found that interaction of managers at different levels has essential influence on ambidexterity. Previous scholars has confirmed that information exchange (one aspect oof interaction of managers at different levels) has positive influence on innovation (Gong et al., 2013), knowledge sharing (one aspect oof interaction of managers at different levels) is

considered to have essential effect on organisational change (Vuori and Huy, 2016; Heyden et al., 2017), joint decision (one aspect of interaction of managers at different levels) is considered to have direct influence on strategy quality (Raes et al., 2011), organisation culture (one aspect of interaction of managers at different levels) is a tool for middle managers to encourage line managers to initial change, leading to organisational ambidexterity (Awojide, 2015). There is little overreaching research that provide a relation between interaction of managers at different levels (considering all four aspects of interaction of managers) and organisational ambidexterity. This research further explores the effect of interaction of managers at different levels (consist of information exchange, knowledge sharing, joint decision, and organisation culture) on exploitation, exploration, and organisational ambidexterity. Therefore, based on Chinese banking sector, outcomes extend the existing literature by suggesting the contribution of interaction of managers at different levels on exploitation, exploration, and organisational ambidexterity.

### 6.2.3 Organisational Ambidexterity and Competitiveness

Finally, this research confirms the contribution of organisational ambidexterity on competitiveness at Stage 1. The outcomes show that exploitation, exploration, and organisational ambidexterity have positive effect on competitiveness in the Chinese banking sector. The findings broaden existing knowledge on the consequences of the organisational ambidexterity on the competitiveness of the enterprise. Although numerous research has argued that ambidexterity has positive impact on firm competitiveness, such impact could differ to industries or context (O'Reilly and Tushman, 2013). Thus, this research explored the impact of

exploration, exploitation, and ambidexterity in Chinese banking sector, which fulfil the potential theoretical contribution of research in this context. Junni et al. (2013) find that organisational ambidexterity is more important in service and high-technology sectors, because of the elevated level of environmental dynamism in knowledge-intensive service firms and in high-technology industries. Úbeda-García et al. (2016) also found empirical evidence that positively relates organisational ambidexterity and performance. organisational ambidexterity is an essential element in the generation of competitive advantages and, consequently, of business competitiveness (Úbeda-García et al. 2016). These findings build on established research, especially those done by scholars such as Junni et al., (2013) and Úbeda-García et al. (2016) by extending that ambidexterity is also important in banking sector, and besides of organisational ambidexterity, exploitation, and exploration themselves are also essential element in generation of competitiveness.

#### 6.2.4 Summary of Outcomes of Stage 1

The research design at Stage 1 combines the literature focusing on the interaction between managers at different levels and organisational ambidexterity, establishes a comprehensive conceptual framework of organisational ambidexterity, and reveals the internal relationship between organisational ambidexterity and the interaction between managers at different levels and the competitiveness of organisations. In addition, the research established the complementary relationship between exploitation and exploration in practice. The researcher developed a conceptual model (see Figure 6-1) based on the existing literature to test these relationships, thereby responding to the research gap in exploring the compounding effect of

interaction of managers at different levels and organisational ambidexterity. This conceptual model implies that managers' interaction and organisational ambidexterity are becoming more and more imperative. As shown in the figure, the competitiveness of enterprises, exploration and exploitation, organisational ambidexterity, and the conceptualization of the interaction between managers at different levels are all affected each other.

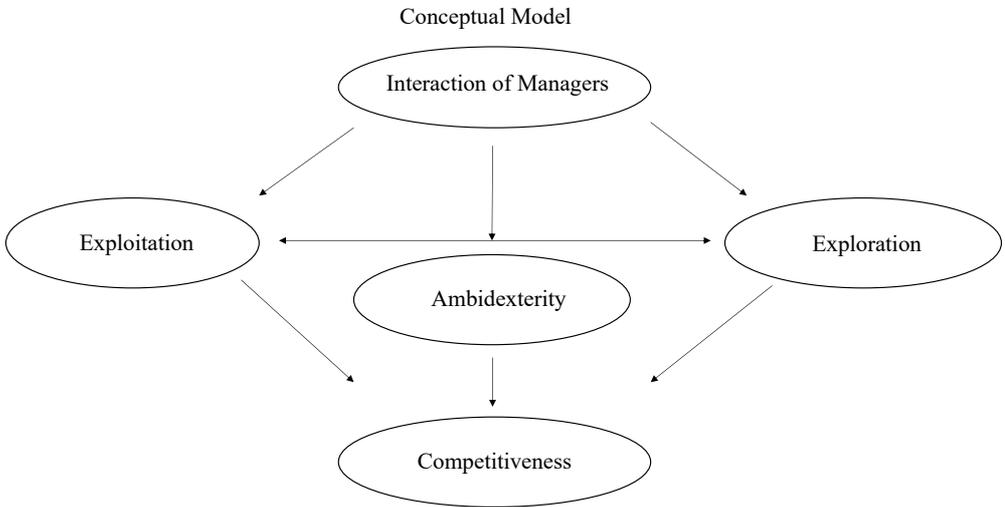


Figure 6-1: Conceptual Model

Moreover, the outcomes of Stage 1 built a foundation for Stage 2, which explain how managers' interactions may enable the concurrent pursuit of exploration and exploitation in the banking sector. Thus, further studies are needed to identify the nuances by which these managerial activities occur and how they ensure improved competitiveness. Also, prior studies on

managers' role on ambidexterity have mainly focused on the activities of top or middle managers alone. Thus, little has been engaged in the interaction of managers at different levels in this area. Previous research on interaction of managers at different levels focus on the strategy initiation and implementation process and knowledge flow among them. Further, Stage 2 is to explore how managers at different levels interact and foster organisational ambidexterity. Indeed, in the next section, the researcher will present the findings in Stage 2 and discuss them in extant literature.

### **6.3 Outcomes of Stage 2**

The aim of Stage 2 is to explore how managers at different levels interact with each other to facilitate organisational ambidexterity. In specific, the researcher will discuss how the managers interact to foster exploitation, exploration, and organisational ambidexterity. Thus, this section will be separated by exploitative interaction, exploratory interaction and ambidextrous interaction.

#### **6.3.1 Managers' Exploitative Interactions**

March (1991) suggests that the refinement and improvement of their processes, products, and capabilities (engaging in exploitative activities) is the way by which an organisation could exploit its current capabilities and assets. Mom et al. (2007) suggest that the essence of exploitation activities is creating variety in experience. Greve (2007) believes that exploitation

are incremental innovations and are designed to meet the needs of existing customers or markets. Pelagio and Hechanova (2014) emphasise that exploitation is generally employed at the latter stages of innovation when focus is on implementing and commercializing new ideas. Suzuki (2014) suggests that exploitation is the use and refinement of existing knowledge within an organisation's internal domains. Similar to the above existing works, the qualitative analyse in Stage 2 uncovers some exploitative activities of managers at the micro level. However, different from previous studies, this research reveals the exploitative activities of managers from the perspective of interaction between managers at different levels. These interactions contribute to the organisational renewal and refinement of product and service.

In the Chinese banking sector, the major strategic intent behind the exploitative interaction of managers was problem solving, (i.e., problem recognition, problem analysis and problem solution process), risk reduction (i.e., risk control in the changing market and technology), regular training (i.e., update and refinement of knowledge of managers), and implementation (i.e., completing process of updates and refinement of product and service). This suggests that exploitative activities of managers are not completed by a single manager, but by the managers' activities upon interaction of managers at different levels, which are problem solving, risk reduction, regular training, and implementation.

### *Problem solving*

Based on the interview data (Section 5.2.1), the problem-solving procedure includes problem recognition, problem analysis and discussion of solution. Every manager has his/her own

responsibility in the process of solving problems, but their responsibilities are not independent between each other, they are closely linked in the process of solving problems, which requires managers at different levels to cooperate and interact with each other.

The outcomes of the qualitative data show that line managers are the initiator of problem recognition, and the participants of problem analysis and discussion of solution. Previous conceptual and case studies in the field of strategy research illustrate that line managers are directly confronted with new technological developments, unexpected problems, and changing market conditions and customer demands (Branzei et al., 2004). Based on that, Kim et al. (2014) emphasize that line managers should be encouraged to initiate process improvement and even innovation. This research finds that, line managers have more experience of recognizing unexpected problems, and those problems could be shared with middle and top managers, to analysis in the next step.

Middle managers, on the other hand, is more like a mediator between line managers and top managers, help analysis the problem and solve it. Burgess et al. (2015) argue that middle managers have a critical influence on organisational ambidexterity, by spanning boundaries through linking activities, adjusting strategy from their position, and managing change with frontline employees (Floyd and Wooldrige, 2000). Similar with the above argument, the middle managers interact with both line managers and top managers to analysis and solve the problem.

Top managers, as the leader, play the role of an organizer and decision maker to facilitate the interaction of managers at different levels and solve the problem. This finding is related to the

statement that high priority strategic themes require senior managers to translate them into executable goals for middle managers. At the same time, the middle managers should coordinate with the front-line managers and report the implementation progress to the senior manager in order to take corrective actions (Ethiraj and Levinthal, 2004). Although Heyden et al. (2017) argue that middle managers are initiators of change and top managers are executors of change, this research finds that line managers are also the initiator of change, and the executor of change by managers' interaction at different levels.

### *Risk Reduction*

Pandey and Sharma (2009) suggest that risk reduction is one of the most important characters of exploitation. In the banking sector, risk reduction is the most important aspect, thus, managers at different levels work continuously and cooperatively to improve risk control in the daily basis. Managers at different levels has their own responsibility to control and reduce the risk of business, and the managers in the regulation and compliance department need to set the last line of defence for the potential risks.

According to Harle et al., (2016), with the development of technology, customers' expectations are also increasing. Technology and advanced analytical technology are developing, and new risks are emerging. As more and more advanced technologies and business models are injected into the banking sector, product and service are updated and refined continuously, and regulation and compliance must be broadened and deepen continuously. The risk reduction needs managers to help banks eliminate bias, but the pressure to reduce risk never lose because

risk reduction is an managers' exploitative activities in daily basis. Thus, managers at different levels interact with each other to facilitate the improvement and update of risk management, which are considered as the exploitation of business in banking sector.

The finding (Section 5.2.1) supported existing literature such as Pandey and Sharma (2009)'s statement that exploitation is risk-avoiding in nature, and O'Reilly and Tushman (2004)'s suggestion that cost reduction and profit maximisation is regarded to be the scope of exploitation. Also, the finding added that risk reduction itself is an exploitative activity of managers which is conducted by interaction of managers at different levels. The findings show that line and middle manager have regular risk analysis meeting to share their knowledge of potential risk on a daily basis. Line managers confront with clients at frontline, and they experience the potential risks, then they have meeting and discuss with middle managers to reduce the possibility of fault and problem. This interaction between line and middle managers aims to reduce the risk of existing business with the consideration of refinement and updating of that business. In addition, as line and middle managers interact with each other regularly for daily business, top managers also interact with middle managers to make the decision on the top level, such as regulation and compliance relating to the exploitative between line and middle managers. In this case, an exploitation from interaction of line and middle managers is followed by another exploitation from interaction of middle managers and top managers. One exploitative interaction is accomplished with another exploitative interaction, thus forming a chain reaction. Indeed, this kind of chain reaction is generated by continuously interaction of managers at different levels to reduce risk and generates exploitation.

### *Regular Training*

Simsek et al. (2009) believe organisational ambidexterity epitomizes the development of a whole organisation geared to exploitation through a procedure of organisational learning. Lavie et al. (2010) find that in earlier studies, learning, improvement, and acquisition of new knowledge that occurs along the same trajectory as the old one are central to exploitation. *Suzuki* (2014) also claimed that exploitation is the use and refinement of existing knowledge within an organisation's internal domains. Baskarada et al. (2016) suggested that training and knowledge management are the two key organisational mechanisms that leaders use to promote exploitation. This research confirms that banking sector is no exception. Managers at all levels need to keep pace with the times and update their knowledge and skills via organisational learning activities. The finding (Section 5.2.1) indicates that regular training activities have been held continuously, including theoretical knowledge training and business skills training.

The outcomes showed that managers at different levels attend regular training, especially when there is a new business or improvement. Thus, exploitative activities such as refinement or update is beginning with a training session that gathering managers at different levels. This suggests that training is a activities that managers at different levels exploit. although a. few literatures have focussed on exploitation from the aspect of training, this research find that training is exploitative activities that involves managers at different levels. In addition, the regular training is a way of knowledge sharing via interaction of managers at different levels. Previous researchers also affirm that managers at different levels should share knowledge with each other in both bottom-up and top-down way (Wei et al., 2011; Zhou et al., 2019). Regular

training lets managers to strengthen their existing knowledge of current business, and training for new business and business change help the managers to review and lean the knowledge and skill of business change. The way of training is not only offline training, but also online training; the content of training is not only skill training, but also theoretical training. In the process of training, managers at all levels, whether from head office, branch or subbranch, or in any professional line, share knowledge and experience with each other. Regular training enables managers at all levels to enhance their business ability and strengthen theoretical knowledge, so as to continuously improve the business quality of banks. The findings illustrated that exploitation was achieved by interaction of managers at different levels via regular training activates. And the goal of the training is consistent with the Zhou et al. (2019) view of knowledge sharing: managers share the knowledge that learnt from previous experience of problem solving.

### *Implementation*

March (1991) believed that exploitation is associated with implementation and execution. Ethiraj and Levinthal (2004) suggested that middle managers and top managers should interact with each other during the process of implementation. Raes et al. (2011) also highlighted that implementation need interaction between top and middle managers especially in decision making, but line managers are still undervalued. Implementation is the last step of managers' exploitative activities, and it requires interaction of managers at different levels.

The findings (Section 5.2.1) supported the interaction among managers at different levels when

it comes to the implementation, which is reflected in the ability of managers at all levels to establish networks with other managers to ensure that business improvement and change processes are interconnected to achieve goals. Based on the interviews, top and middle managers interact with each other to allocate jobs and setting the goals, while middle and line managers interact with each other to share the problems and difficulties in the process of implementation. This indicates the information exchange and knowledge sharing process during the interaction of managers to implement the change. In addition, the communication between line managers and middle managers is particularly important in the process of implementation of exploitation, and the problem solving in the process of implementation itself is an exploitative activitie in the process of implementation of changes. Thus, as implementation of improvement and update are the final step of the exploitation, managers at different levels are interacting with each other under the condition of their own responsibilities. Overall, the findings showed that the top management sets up the improvement goal, the middle level manager formulates the improvement details and division of labour, and the front-line management staff feedback problems.

In sum, scholars suggest that in order to flourish, the organisation should continuously improve its existing products and services, and continuously output incremental innovation and improvement in order to improve operational efficiency and provide better services to clients (March, 1991; O'Reilly and Tushman, 2004). The research results determine that the development of interactive activities between managers at different levels, such as problem solving, risk reduction, regular training, and implementation, are necessary for the successful

improvement of services and the improvement of the organisation's short-term competitiveness. The carefully planned improvement and interaction activities cover important areas of the business. Moreover, these exploitative interactions are generated by the combination of information exchange, knowledge sharing, and joint decision. The results show that it can realize risk control, product and service upgrading, and improve clients' satisfaction through continuous interaction between managers. Besides, the next section will present the managers' exploratory interaction.

### 6.3.2 Managers' Exploratory Interactions

Relating to March (1991)'s statement that exploration includes things captured by terms such as search, variation, risk taking, experimentation, flexibility, discovery, and innovation, Mom et al. (2007) summarize that the essence of exploitation activities is creating reliability in experience. Greve (2007) describes exploration as the innovations that involved the development of new technology that is 'new to the firm', and exploitation as all other types of innovations. Suzuki (2014) defines exploration as the search for and pursuit of new knowledge within an organisation's external domains. Pelagio and Hechanova (2014) suggest that exploration is related to experiment, divergent thinking, and creativity, which is the ability to discover in the early stages of the innovation process, including generating new ideas and concepts. Comparing with the statements in above literature, the outcome in qualitative analysis discloses some exploratory activities of managers at the micro level, especially the interaction of managers at different levels, which contribute to the organisational renewal and innovation.

## *Flexibility*

Volberda (1996) defined flexibility as a function of the interaction between management capability responding to environmental change ("management task") and organisational capability implementing timely change ("organisational design task"). Hitler and his co-authors (1998) define flexibility as "the ability of an enterprise to act or respond quickly to the changing competitive environment in order to develop and / or maintain its competitive advantage." Boer and During (2001) suggested that flexibility is a driver of process innovation. March (1991) concluded that exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, and innovation. Following on the that statement, according to the suggestion of Raisch and Birkinshaw (2008), organisational ambidexterity requires managers to achieving the opposite objectives of exploration and exploitation, flexibility and efficiency, stability, and adaptation. In their view, flexibility refers to exploration and opposite to efficiency that refers to exploitation. Therefore, in order to meet the needs of clients, managers must act in a manner consistent with the innovation and adaptation strategy. These activities include innovation, adaptability, leadership and encouraging change.

Some of the activities found in this research are similar to the existing literature, while others are new, but built on the existing knowledge of organisational ambidexterity. For example, scholars such as Benner and Tushman (2003) and he and Wong (2004) clearly state the view

that exploration is meant to meet the needs of emerging clients or markets. The findings (Section 5.2.2) showed that flexibility is a very important exploratory activity in the banking sector. According to the findings, flexibility, firstly is the scope within which a manager can decide and implement change, and every manager has its flexibility based on what position he or she at. The higher level the managers is, the more flexibility they can be. It can be said that flexibility is the endorsement of managers engaging into exploratory activities. The line managers need more flexibility adapt to the client' need and situation, so that line managers could adapt changes. In that case, explorations begin from the changes at line managers' level and the flexibility that line managers are given drives the change. The findings also showed that flexibility itself doesn't only mean to create a brand-new product or service in the banking sector, but also to adapt a product or service that other banks do not have. Middle managers arrange flexibility for this kind of change, the middle managers give flexibility to line managers, and the line manager could customize the service that fulfils the clients' need and do "what others cannot do". Top managers, on the other hand, are considering from a higher level, they both give middle managers flexibility and set the red line of risk control and compliance.

On the other hand, flexibility is an interaction between managers at different levels in which managers at different positions and levels discuss with each other and make decisions. This flexible interaction is similar with joint decision process, which is a specific set of managerial practices that involve the delegation of discretion and responsibility down the hierarchy to provide team members with increased authority in the execution of their tasks (Guo and Wang, 2017). Gao et al. (2011) suggested that joint decision making will facilitate knowledge

integration and team creativity because it encourages members to invite and consider other members' different perspectives and opinions. In this research, the findings showed that joint decision is generated from interaction of managers. In this process of interaction, every manager's flexibility is fully utilized, even amplified. Therefore, an improved plan of exploration will be engaged.

### *Market Investigation*

Previous research has stated that innovation doesn't only include new product, service, or technologies, but also include extension of customers and market (Benner and Tushman, 2003: Danneels, 2002). Based on that, market investigation, as an innovative activity aims to search the possibility if extension of clients and market. This is similar with previous scholars' view such as Mom and colleagues (2009) who believe that one of the important manager's explorations share activities is search for new possibilities with respect to product/service, process, and market.

The finding (Section 5.2.2) shows that market investigation is the first and most important step in the process of opening the market and developing new systems and products for banks. In the process of market investigation, managers at all levels, head offices, branches and subbranches interact with each other, exchange information and knowledge, to more comprehensively and accurately grasp the market dynamics and the changes that banks need to make. Top manager, as a decision maker, need to conduct the market investigation first to conduct exploration, but top managers only have the macro data of the market. The middle

managers both collect data and information from line managers and share the information and data with top managers to analysis the market. Branzei et al. (2004) believe that line managers are thought to be directly confronted with new technological developments, unexpected problems, and changing market conditions and customer demands. Thus, line managers exchange information of market change with middle and top managers to help them conduct market investigation. Top managers, on the other hand, encourage managers at different levels to search the possibility of change, and share knowledge with middle and line managers to better understand the changing market. This finding is consisting with Mom et al. (2009), cross-functional interface offers an opportunity to managers to refine their existing knowledge by acquiring knowledge from their own knowledge base. In that way, this kind of knowledge sharing and information exchange help managers at different levels to search for new opportunities to open new market and explore new technologies or product through the process of market investigation. Such interaction between managers is very important to the exploratory activities of managers at different levels in bank, which determines the direction and strategy of banks to change.

### *New Product Release*

According to Mom et al. (2009), one of managers' explorative activities is focusing on the renewal of products, service, or process. Scholars like Benner and Tushman (2003) suggested that units that engage in exploration pursue new knowledge and develop new products and services for emerging customers or markets. Kim et al. (2014) suggest that lower-level managers may require top management's support for the success of any autonomous initiatives

in new product or technology development. On the one hand, senior managers work with others throughout the organization to identify effective ways to create new business or develop new products (Hornsby et al., 2009; Glaser et al., 2015). Indeed, existing literature suggested that managers at different levels hold different roles to accomplish the new product development. But little has been mentioned about the interaction of managers in the new product development process. This research finds that managers at different levels interact in the process of new product release.

The data provided (Section 5.2.2) supports the coordination of managers at different level in new product release, which is reflected in the process of establishing interaction between managers at all levels and other managers, to ensure the information exchange of new products release process and achieve the exploration. In specific, the data showed that there is a top-down interaction process between managers at different levels leads to the new product release by a pilot at subbranches. The aim of the pilot at subbranches is to test the practicability of the new product and explore the potential problems. In addition, middle and frontline managers shared information and knowledge about the new product and learn from the pilot. In other words, middle managers play an important role in training frontline managers for the new product release. In that way, middle managers drive the process of interaction between top and frontline managers. Top managers, act as a supervisor in the process of new product release, and they interact with middle and line managers to gain information about the new product released.

The findings consisted with previous scholars who suggest that in order to achieve

ambidexterity, managers at different levels should share knowledge with each other in both bottom-up and top-down way (Wei et al., 2011; Zhou et al., 2019), and who suggest that high-quality information exchange “is indispensable in that it allows team members to share their knowledge and past experiences and exchange and discuss ideas” (Hülshager et al., 2009). There are knowledge sharing from top to bottom and information exchange from bottom to top. Managers at all levels interact within their overall responsibilities. Top managers develop new products, middle managers formulate detailed implementation for new product pilot, and front-line managers give feedback. This interaction is from top-down knowledge decentralization to bottom-up information transmission, giving managers at all levels sufficient knowledge and information to deal with the release of new products, so as to achieve exploration and innovation.

Overall, the current research results show that exploration activities are necessary when the market changes or adjusts. These activities aim to ensure that the organisation could remain competitiveness in dynamic market environment by keep tracing and meeting the changing requirements of clients. Essentially, as emphasized earlier, managers at all levels who demonstrate these exploratory interactive activities shape and promote their interactive actions and activities through information exchange, knowledge sharing and joint decision-making.

### 6.3.3 Managers’ Ambidextrous Interactions

Scholars such as Smith and Tushman (2005) believe that ambidextrous managers need the ability to manage contradictory and conflicting goals. As Gupta et al. (2006)'s argument, individuals play a decisive role in the balance between exploitation and exploration. Moreover, Mom et al. (2009) proposed three individual abilities of ambidextrous managers, including dealing with contradictions, multitasking, refining, and updating knowledge, skills and professional skills. Therefore, Raisch et al. (2009) believe that the possibility of simultaneous exploitation and exploration poses many challenges for managers to solve.

Research shows that senior managers are more likely to undertake both developmental and exploratory activities because the shared vision and emergency rewards of the senior team are related to the company's ability to combine high-level exploration and exploitation (Jansen et al. 2008). Jansen et al. (2008) pointed out that the common vision and substitute reward of the senior team are related to the company's ability to combine high-level exploratory innovation and exploitative innovation. Managers are rather vital in achieving organisational ambidexterity, senior managers and top management teams are thought to need to focus on the combination of exploration and exploitation and take appropriate risks, are heavily emphasis in research in this area (Tushman, O'Reilly, 2012).

On the other hand, middle managers are also believed to contribute to organisational ambidexterity. Burgess et al. (2015) argue that middle managers have a critical influence on organisational ambidexterity, by spanning boundaries through linking activities, adjusting strategy from their position, and managing change with frontline employees. Awojide (2015) argues that middle managers' exploitative activities are alignment and guide refinement; middle

managers' exploratory activities are innovativeness, adaptability and leading and encouraging change; middle managers ambidextrous activities are multitasking, swift decision making, developing others and creativity.

According to the statement of Mom et al. (2009), three characteristics of ambidextrous managers, which include dealing with contradictions, multitasking, refining, and updating knowledge, skills and professional skills. This research is consistent with the assertion of ambidextrous managers in the above research (Smith and Tushman, 2005; Jansen et al. 2008; Mom et al., 2009; Burgess et al., 2015; Awojide, 2015). However, the findings find that this possibility of managers conduct both exploitation and exploration exist in the interaction between managers at different levels. Indeed, this research further contributes to the theory of organisational ambidexterity, especially at the analysis level of manager's interaction. The results show that when dealing with the conflict between exploitation and exploration activities, both top, middle, and line managers need to interact, discuss, and make decisions based on the possibility of these two activities, so as to make the best decision suitable for the situation. Specifically, the results show that managers at different levels can participate in interactive activities through brainstorming, encouraging change, and allocating tasks, to coordinate organisational ambidexterity at the micro level.

### *Brainstorming*

The finding (Section 5.2.3) suggests that frontline managers and middle managers interact with each other on a daily basis, building an open atmosphere for them to brainstorm in order to

suggest new ideas and solve problems. In an open atmosphere, managers not only share their existing experience and knowledge on the problem, but managers at different levels also raise new ideas about changing and innovating for the problem, then managers at different levels discuss all the options to solve the problem, which is seen as an ambidextrous interaction between middle managers and frontline managers. This knowledge sharing and organisation culture between managers at different levels is consistent with the claims of knowledge sharing as a social interaction culture, involving the exchange of employee knowledge, experiences, and skills through the whole department or organisation (Lin, 2007). This research finds that combining knowledge sharing and organisation culture, managers at different levels brainstorm on the options between exploitation and exploration, thus achieve an ambidextrous interaction. This means that the brainstorming is a cultural motivated knowledge sharing interaction considering both exploitation and exploration. Then, the ambidextrous interaction in form of brainstorming may end with either exploitation or exploration in practice.

Another way of brainstorming between managers at different levels aims to create a new business by combining existing business lines. This means the outcome of brainstorming has been ensured to be an exploration, but it needs exploitation to achieve that. The findings showed that managers brainstormed on the existing business and amend it to fit the other business for the new business. This interaction in form of brainstorming achieves an exploration in an exploitative way, making it an ambidextrous interaction. Similar to above, motivated by organisation culture, managers share knowledge and exchange information to explore in an exploitative way. In this way, interaction of managers at different level not only solve the

confliction between exploitation and exploration, but also explained the interplay of exploration and exploitation (results in Stage 1) which were indicated that these innovation process could enhance simultaneously, supporting the argument of Gupta et al. (2006) and Mathias (2018).

Another salient finding is that top managers are the motivator and decision maker in brainstorming. The research results are consistent with the views of Smith and Tushman (2005), who suggest that senior managers should allocate resources and organisational design decisions to balance long-term and short-term results. The top management assigns the managers of relevant departments to brainstorm in a flexible way. Top managers have a larger scope than middle-level and front-line managers, and top managers have to balance the flexibility and compliance, so top managers communicate with middle-level and front-line managers to make decisions on either improve or create new business. The important point is that the refinement and innovation of existing business needs brainstorming to evaluate and analyse, then a joint decision was conducted by top managers' brainstorming activities with middle and even line managers. Smith and Tushman (2005) classified the definition of ambidextrous decision-making into distributive decision-making and collaborative decision-making. In their view, distributive ambidextrous decision-making involves the allocation of resources between existing products and innovation, and over time, when they support two products, they are balanced. However, collaborative ambidextrous decision-making recognizes the synergy of these opportunities, linkages and synergies that may arise in exploitation and exploration activities. The finding showed that a joint decision interaction between managers at different levels contributes to an ambidextrous decision, in which managers at different levels brainstorm

to analyse the possibilities of both exploitation and exploration.

The findings provide evidence for many examples of managers at different levels showing and encouraging brainstorming. In order to reinforce the above proposition, managers at different levels point out that brainstorming plays a very important role in organisational ambidexterity, no matter short-term and long-term goals, compliance and flexibility, business improvement and business innovation. Long term continuous brainstorming can make exploration activities and exploration activities alternate, so as to achieve organisational ambidexterity. Brainstorming is a knowledge sharing process that motivated by organisation culture and followed by joint decision. Managers at different levels interact with each other in brainstorming to think ambidextrously, decide ambidextrously, and act ambidextrously. It can be concluded that if managers at different levels do not brainstorm or allocate their teams creative freedom in the daily business, business performance will stagnate, and long-term goals will not be achieved.

### *Encourage Change*

The outcomes (Section 5.2.3) showed that during the implementing the new business at subbranch, the line managers at subbranch need to report the situation of the new business and make suggestions on how to improve it based on the frontline experience. This process is a refinement when implementing a new business achieved by interaction between line managers and middle managers, which is an exploitation in the process of exploration. This is consisted with the term of sequential ambidexterity, which is achieving organisational ambidexterity by

swift between exploitation and exploration (O'Reilly and Tushman, 2013). This research extended that sequential ambidexterity is achieved by interaction of managers at different levels. Frontline experience gives the line managers first-hand information about the new business and line managers exchange it with middle managers.

The findings showed that middle managers encourage line managers to share knowledge and experience with middle managers and other line managers when encountering problems. This is an interaction of middle and frontline managers to solve problems in an exploitative way. Besides, middle managers also encourage frontline managers to communicate with other managers to share the innovative ideas of change. This is an interaction of middle and line managers to solve problems in an exploratory way. Thus, middle managers interact with line managers by encouraging change to search for the possibility of both exploitation and exploration. Importantly, since problem solving is an exploitative activity, if it ends with an innovative idea such as a new business, indicating that exploitation also could be done in an exploratory way. At the meantime, middle managers not only encourage line managers to search for new opportunities on business and product, but also communicate with line managers by emphasizing the red line that all the changes must obey. This finding supported Awojide (2015)'s claim that middle managers use cultural toolkits to encourage line managers to be innovative and search for new possibilities. The research extended that the organisation culture motivated middle and line managers to exchange information and share knowledge, so that they consider the possibility of both exploitation and exploration.

The top managers use the online system to communicate with frontline and middle managers

and create a reward system to encourage middle and frontline managers, making them be willing to search and suggest new opportunities for change. In addition, the top managers at head office have the responsibility to control risk, so they adjust the compliance based on the change that middle and frontline managers suggest. Top managers need to consider both the change of business and the risk of adjustment of compliance. In other words, top managers are supporting the change raised from middle and frontline managers in an exploitative way. Thus, the interaction of top, middle and line managers encourage change in an ambidextrous way. An ambidextrous manager should build up an open organisation culture for middle and line managers to interact with the top managers. This is similar to the contextual ambidexterity, which means that the tension of exploitation and exploration is solved at the individual level of top managers by creating an open context for managers at different levels (Gibson and Birkinshaw, 2004). This research extended this claim that managers at different levels interact with each other to build an organisational culture that encourage changes. In addition, Havermans et al. (2015) argue that contextual ambidexterity is conceptualized at the individual and group level, rather than at the organisational level. They also highlighted that contextual ambidexterity generated from individual and group level has the advantages that adaptation of the entire subsystem is facilitated and that individuals are encouraged to use their own judgment in exploitative and exploratory activities. This research explained that the contextual ambidexterity is generated by managers' interaction that encouraged changes, supporting and extending the claim of contextual ambidexterity is generated from individual and group level and adapted by the entire subsystem from Havermans and colleagues (2015). This research also suggested that a open organisation culture was built by managers at different levels that

motivate managers to interact with each other to exchange information and share knowledge.

According to Cao et al. (2010), the extensive network could allow the CEO to timely obtain rich information about the internal and external environment of the organisation. Therefore, compared with the CEO with less extensive network, a more comprehensive and deeper understanding of the exploitation and exploration options of the organisation is obtained by the CEO with extensive network (Cao et al., 2010, in other word, interaction of managers at different levels. This research suggested extensive information exchange between managers at different levels contributes to organisation's ambidextrous orientation because top managers need rich information to make the decision. Awojide (2015) extended this assertion to middle managers, he suggested that middle managers leverage internal network to ensure that the ambidextrous strategies were being properly implemented. This research further extends this research to interaction of managers at different levels. The findings showed managers at different levels encourage each other to search for opportunities of change, whether it's new business prospects or the direction of business improvement. The realization of organisational ambidexterity requires the interaction among managers in such a way of open organisation culture motivating information exchange and knowledge sharing. Without such an interaction that encourages change, banking business improvements and new business innovation may be stagnated.

### *Task Allocation*

The research results (Section 5.2.3) of Stage 2 show that the vision of managers at all levels is consistent through interaction, but the specific work of managers at all levels and departments still needs interaction to coordinate. The task allocation is generally from top to bottom, which is from head office to branch then to subbranch. The findings of this research reveal that top managers interact with middle managers to set a long-term goal to promote, the middle and frontline managers interact with each other to set the specific short-term business goals for each manager according to the tasks allocated by the branch. In the process of spreading ETC project, which is a new business for the bank, top managers allocate the tasks to middle managers. Middle managers, on the other hand, are in charge for the task implementation and task allocation to managers at subbranches. This kind of task allocation enable managers at different levels to know what their job in the whole project is and shared the same objective of spreading the new business. Mom et al (2009) indicate that ambidextrous managers have characteristics of multitaskers—fulfil multiple roles and conduct multiple different tasks within a certain period of time, both refine and renew their knowledge, skills. This research extended that middle managers play the role of multitaskers to orientate both short-term and long-term goals by allocating tasks to line managers. Middle managers are regard as the intermediate node of interaction of managers when it comes to the task allocation. To achieve the task allocation, middle managers interact with both top managers and frontline managers to balance both short-term and long-term goals.

Another finding is that top managers are always the initiator or decision maker, they allocate tasks directly to the middle managers. On the other hand, middle managers played multiple

roles: they could be innovator, decision maker, and implementor. Middle managers interact with top and frontline managers, shifting between their multiple roles in order to achieve both long-term and short-term goals ambidextrously. This is consistent with Awojide (2015), who believe that ambidextrous middle managers conduct multitasking in order to pursue both exploitation and exploration. This research extends Awojide (2015)'s statement by indicating the multiple roles played by middle managers in the interaction between top managers and line managers. The case study reveals the interaction between top and middle managers is a knowledge sharing process to set the short-term and long-term goals; while the interaction between middle and line managers is a joint decision process to allocate the specific tasks to line managers. Scholars propose that ambidextrous organisations should set a supportive corporate culture to encourage managers to make their own judgments as to how to best divide their time between the conflicting demands of exploitation and exploration (O'Reilly and Tushman, 2013). This research extended that middle managers are motivated by the organisation culture to joint decision with line managers on how to best divide long-term goals into short-term goals. This research finds that managers at different levels interact with each other to achieve long-term goals by divide it into more specific short-term goals. In that case, managers at different levels achieve both long-term and short-term goals through ambidextrous interaction.

In sum, managers participate in task allocation and coordinate organisational ambidexterity through these activities. These data and observations show that managers who are good at interacting with other managers and have a strategic understanding of organisational goals are

more able to coordinate organisational ambidexterity. Task allocation is an important interactive activity of managers at different levels to coordinate organisational ambidexterity. In that way, managers interact with each other to divide long-term goals into short-term goals so as to pursue both long-term and short-term goals. Fang et al. (2010) argue that exploration and exploitation can be successfully managed through semi-autonomous subunits with a small fraction of cross-group links such as inter-team liaison roles, personnel rotation, or interdivisional task forces. Similar to above claim, this research further extended that task allocation as an ambidextrous interaction, transits the long-term goals into short-term goals, and links them. This represents the contribution of structural ambidexterity theory because the existing research cannot explain how different levels of managers can separate exploitation and exploration and coordinate structural ambidexterity. In addition, previous literature has confirmed the importance of integrative mechanisms in structural ambidexterity (Carmeli and Halevi, 2009; Jansen et al., 2009), and suggest that the pursuit of structural ambidexterity could be to a large extent a leadership issue than simply a structural one (Jansen et al., 2009; Heracleous et al., 2017). However, the previous research has not clearly pointed out how managers shape integrative mechanisms in structural ambidexterity through a leadership solution. Therefore, this research fills the gap by illustrating that the interaction between managers could combine exploitation and exploration by allocating tasks, thus achieve a integrative structural ambidexterity. Managers at different levels can use organisational culture, knowledge sharing and joint decision as tools to foster exploration and exploitation simultaneously. Allocating tasks to managers at different levels, ensuring information consistency, and encouraging managers to decide their own roles in changing the business are

all conducted to facilitate ambidextrous activities by interaction.

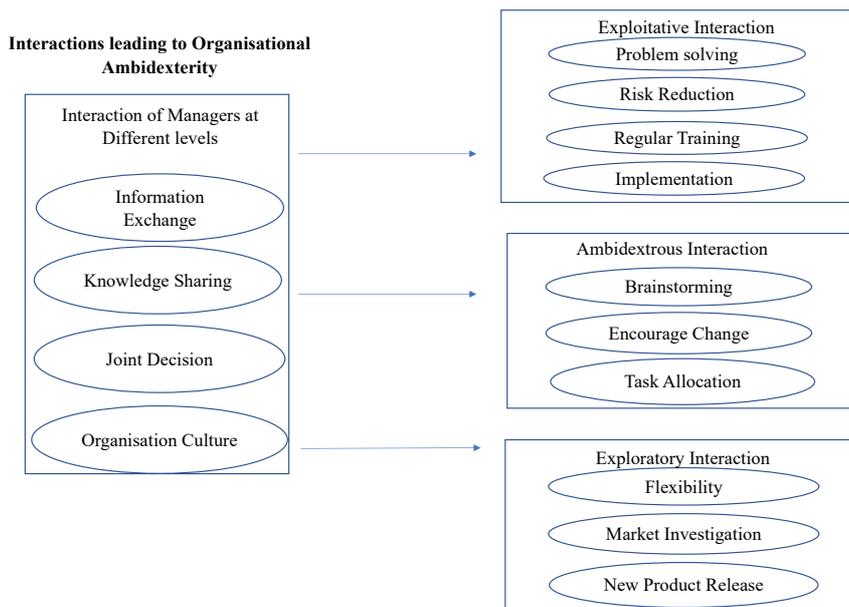
### *Summary of outcomes in ambidextrous interaction*

The outcomes showed that brainstorming, encouraging change and task allocation are three binary interactions of managers at different levels in the process of pursuing both business refinement and innovation. These interactions are inspected from the combining exploitation and exploration on a daily basis. Managers at different levels not only have their own division of jobs in the interaction between managers involved in exploitation and exploration activities, but also coordinate, communicate, and learn from each other to improve existing capabilities and process, innovate, and promote new businesses and products. The research is consisting with the characters of ambidextrous managers stated by previous scholars (Mom et al, 2009; O'Reilly and Tushman, 2013; Awojide, 2015). Managers at different levels find opportunities for innovation in the process of improvement and find problems and improve when promoting new businesses. In that way, managers not only solve the confliction between exploitation and exploration, but also make the two innovation processes complement each other. Consisting with the view of scholars who find that conceptualizing exploration and exploitation may consist with the tendency of organisations to transit from exploration to exploitation and vice versa over time (Brunner et al., 2006; Lavie et al., 2010), this research extended that the transit from exploration and exploitation and vice versa is conducted by ambidextrous interactions between managers at different levels and the interaction makes exploration and exploitation complement each other in the transit. In the continuous ambidextrous interaction of managers at different levels, the existing business has been improved and innovated infinitely,

complementing the new business development and release. The ambidextrous interaction between managers at different levels is constructed by the fundamental ways of interaction between managers, which are information exchange, knowledge sharing, joint decision, and organisation culture.

#### 6.3.4 Summary of outcomes of Stage 2

In Figure 6-1 the researcher summarized the exploitative, exploratory, and ambidextrous interactive activities of the managers at different levels. One important contribution this research makes at stage 2 is identifying specific interactive activities between managers at different levels. As can be seen in Figure 6-1, ten specific interactive activities were generated from the outcomes of stage 2. These interactive activities between managers enable organisational ambidexterity in practice. Importantly, this research identified the unique activities of interaction conducted by managers at different levels in the process of pursuing exploitation, exploration, and organisational ambidexterity in details. In addition, it could be summarized that ambidextrous interactions of managers combine exploitation and exploration in several ways: considering the possibility of both exploitation and exploration; doing exploitation in an exploratory way; doing exploration in an exploitative way. The research further proves the importance of manager's interaction at different levels, especially in the coordination process of organisational ambidexterity. Therefore, in the next section (Section 6.4), the researchers will summarize the outcomes of both stage 1 and stage 2.



*Figure 6-1: Overview of outcomes of Stage 2*

#### 6.4 Stage 3: Theoretical Integration

In this section, the researcher will discuss the theoretical integration of the outcomes of both quantitative and qualitative stage. Firstly, the positive relationship between exploitation and exploration that confirmed in the Stage 1 provides a further unsolved problem that how exploitation and exploration become implemented other than conflicted. Following with the outcomes of Stage 2: ambidextrous interactions of managers combine exploitation and exploration in several ways: considering the possibility of both exploitation and exploration; doing exploitation in an exploratory way; doing exploration in an exploitative way. In other words, ambidextrous interactions of managers emphasize on the combination of exploitation

and exploration, which might be the explanation of how exploitation and exploration become implemented. Secondly, with the confirmation of positive relationship between interaction of managers, exploitation, exploration and ambidexterity at Stage 1, the outcomes of Stage 2 provide fuller understanding of the contribution of interaction of managers to exploitation, exploration, and ambidexterity, which either Stage 1 or Stage 2 could not make alone.

## **6.5 Summary of Chapter**

This research explores the relationship between manager's interaction and organisational ambidexterity through two stages of research. In the stage 1, the researcher explored the relationship between exploitation and exploration activities, the interaction between managers and organisational ambidexterity, and the relationship between organisational ambidexterity and competitiveness through quantitative analysis. In the stage 2, the researcher identified how managers at different levels achieve organisational ambidexterity through interaction through qualitative analysis.

Importantly, combining the outcomes of both stage 1 and stage 2 at stage 3, this research confirmed the conceptual model that illustrating the inner relationship between managers' interaction, organisational ambidexterity, and organisation competitiveness, also, added explanation of the relationship between managers' interaction and organisational ambidexterity by determining how managers at different levels interact to promote exploitation, exploration,

and ambidexterity. Overall, as the nature of this research is exploratory, the outcomes of stage 2 added further explorations based on the outcomes of stage 1. In addition, the outcomes of stage 2 on how managers interact ambidextrously seems to add explanation to the complemented relationship between exploitation and exploration from outcomes of stage 1 in some way. This research outcomes as a whole further prove the importance of interaction between managers at different levels, especially in the coordination process of organisational ambidexterity. Thus, in the next chapter (Chapter 7), the researcher presented some conclusions drawn from the research. The contribution to both theory and to practitioners will be emphasized, and the limitations and suggestions for future research will be put forward.

# CHAPTER 7

## Conclusion

## **7.1 Introduction**

In the last chapter, the researcher summarized the outcomes of this research with emphasizes on their importance and compared them with the arguments in the previous literature. This research expands the knowledge on how to establish organisational ambidexterity through manager's interaction at different levels in the organisation. This study focused on the micro basis of organisational ambidexterity, especially the interactive activities of managers at different levels related to innovation and organisational ambidexterity. In brief, this study has important contributions to theory and practice.

## **7.2 Theoretical Contribution**

This study expands knowledge on how to build organisational ambidexterity in an organisation. The core focuses of this research is on the micro basis of organisational ambidexterity, especially the interaction of managers at different levels, and how these interactions contribute to exploitation, exploration, and ambidexterity. This research makes an important contribution to the theory.

This study explored the evidence to support that the ambidexterity of organisation is achievable by the interaction of managers at different levels. During the interactive activities between managers, organisations not only obtain the ability of exploitation and exploration, but also obtain the ability of integrating, combining, and transiting exploitation and exploration, so as

to achieve ambidexterity, especially in banking organisations. This research has made essential contributions in two key theoretic discipline. These contributions included the contribution to the theory of ambidexterity and the contribution to the theory of managers' interaction. Thus, these important contributions are briefly summarized and then discussed further in the next sections.

### 7.2.1 Contributions to Ambidexterity Theory

Scholars believe that trade-off and confliction is to define the relationship between exploration and exploitation (March, 1991; Yi et al., 2006; Andriopoulos and Lewis, 2009; Nosella et al., 2012). However, Lavie et al. (2010) suggest that the distinction of exploration and exploitation is often a matter of degree instead of a kind, and exploration-exploitation concepts should be viewed as a continuum rather than a choice between discrete options. This research focusses on the relationship between exploitation and exploration since previous research view the relationship as a trade-off or confliction because of limited resource. The outcomes of Stage 1 (see section 6.2.1) extended this theory that exploitation and exploration are not conflicted but complementary in the Chinese banking sector. Indeed, the finding shows that a complementary relationship between exploitation and exploration is possible in Chinese banking sector. Lavie and colleagues (2010) view exploitation and exploration as a “more or less” rather than “either or” relationship, but even a “more or less” relationship still can't explain how exploitation could complement exploration or vice versa, because of the limited resource. Indeed, the outcomes of Stage 2 further extended this finding of Stage 1 by showing that ambidextrous interaction of managers combine exploitation and exploration in several ways: considering the possibility of

both exploitation and exploration; doing exploration in an exploitative way: doing exploitation in an exploratory way. Considering the outcomes of Stage 1 and Stage 2 at Stage 3, the integration of exploitation and exploration during the ambidextrous interactions of managers at various levels explains how exploitation and exploration could be complemented. In other word, managers interact ambidextrously to make exploitation or exploration support and complement another. Mathias et al. (2017) suggest that comparing with sequential and simultaneous balance of exploration and exploitation, simultaneous balance of exploration and exploitation has stronger positive influence on effect of ambidexterity on firm performance. This indicates that simultaneous balance of exploitation and exploration is more effective on competitiveness than sequential balance. This research extends their argument by illustrating ambidextrous interaction of managers at different levels could combine exploitation and exploration and make them complemented, resulting in a higher level of simultaneous between exploitation and exploration.

Moreover, Scholars like Geert et al. (2010) and Goosen et al. (2012) conduct multi-sector investigation and determine that organisational ambidexterity has positive effect on firm performance, but the data is from numerous different sectors, making it difficult to indicate the effect of organisational ambidexterity in a certain sector such as the banking sector. Thus, the results of the consequences of ambidexterity may be differential in different sectors or countries (Tushman and O'Reilly, 2013). In addition, effects of exploitation and exploration on competitiveness are also missed in the previous literature. Therefore, this research fills the gap of the effect of exploitation, exploration, and ambidexterity on organisation competitiveness.

The result of Stage 1 (Section 6.2.3) shows that exploitation, exploration, and ambidexterity have positive effect on organisation competitiveness in Chinese banking sector.

Furthermore, this research contributes to the knowledge of managerial ambidexterity by focusing on the interaction of managers at different levels. Although numbers of scholars have studied the managers' activities so as to achieve organisation ambidexterity, what is missing from existing research is a clear statement of specific management activities, which may help explain how exploration and production are carried out simultaneously (O'Reilly and Tushman, 2011). Prior research focus on the managerial solution of ambidexterity is either focus on top or middle managers' activities. Thus, this research fills the gap by exploring the interaction of managers at different levels that relating to exploitation, exploration, and ambidexterity. The results of Stage 1 (Section 6.2.2) illustrate the positive effect of interaction of managers on exploitation, exploration, and ambidexterity. Further, the outcomes of Stage 2 suggest how managers at different levels interact to foster exploitation, exploration, and ambidexterity.

In specific, the Stage 2 illustrate four exploitative interactions (Section 6.3.1), which are problem solving, risk reduction, regular training, and implementation. These exploitative interactions all aim to facilitate refinement and update of existing business and knowledge. Through these exploitative interactions, managers coordinate with other managers and pursue exploitation continuously. The results of Stage 2 show that these interactions of managers can realize risk control, product and service refinement, knowledge updating, and improve clients' satisfaction through continuous interaction between managers.

The Stage 2 also illustrate three exploratory interactions (Section 6.3.2), which are flexibility, market investigation, and new product release. These exploratory interactions all aim to facilitate new business and knowledge. Through these exploratory interactions, managers coordinate with other managers and pursue exploration continuously. The research findings show that exploratory interaction is necessary when the market changes or adjusts. Exploration is generated from these exploratory interactions to meet the changing needs of customers and emerging market, so as to ensure that the competitiveness remains in the organisation in the confront of dynamic market environment.

Essentially, the Stage 2 also illustrate three ambidextrous interactions (Section 6.3.3), which are brainstorming, encourage change and task allocation. These ambidextrous interactions all aim to complete the business or change that either exploitative or exploratory interactions may not complete solely. The findings of Stage 2 show that ambidextrous interaction of managers combine exploitation and exploration in several ways: considering the possibility of both exploitation and exploration; doing exploration in an exploitative way: doing exploitation in an exploratory way. Through these ambidextrous interactions, managers coordinate with other managers to combine exploitation and exploration, considering possibilities of both, complement one with the other (exploitation complement exploration, or exploration complement exploitation).

At stage 3, the researcher discussed the integration of the outcomes of stage 1 and stage 2. the positive relationship between exploitation and exploration that confirmed in the Stage 1 which provides a further understanding of ambidexterity that how exploitation and exploration

become implemented other than conflicted. Following with the outcomes of Stage 2: ambidextrous interactions of managers could integrate exploitation and exploration in three ways. In other words, ambidextrous interactions of managers emphasize on the integration of exploitation and exploration, which might be the explanation of how exploitation and exploration become implemented. This research contributes to the theory of simultaneous balance of exploitation and exploration (e.g., O'Reilly and Tushman 2011; Kusumastuti et al., 2015; Mathias et al., 2017). Organisational ambidexterity was regarded as a capacity of organisation to simultaneously pursue exploitation and exploration (O'Reilly and Tushman 2011; Kusumastuti et al., 2015; Mathias et al., 2017). This research confirmed that ambidextrous organisation has the capacity to pursue exploitation and exploration simultaneously, because managers interact ambidextrously so as to solve the tension of exploitation and exploration by makes them complemented. It is possible that organisational ambidexterity is not only rely on the solo role of top or middle managers, but managers at different levels could also interact with each other to foster organisational ambidexterity.

#### 7.2.2 Contributions in the Field of Interaction of Managers Theory Relating to Ambidexterity

Another important contribution of this research is that it uncovers the aspects of interaction of managers to foster exploitative, exploratory, and ambidextrous interactions. Four aspects of interaction of managers at different levels contribute to strategy, organisation change, and innovation has been discussed by previous scholars, which are information exchange, (bottom-up and top-down) knowledge sharing, joint decision, and organisation culture (Mom et al., 2007; Raes et al., 2011; Kim et al., 2014; Awojide, 2015; Vuori and Huy, 2016; Heyden et al., 2017;

Zhou et al., 2019). Previous literature related to interaction of managers at different levels focus on the strategy initiation (Kim et al., 2014) and strategy implementation process (Heyden et al., 2017) and knowledge flow (Mom et al, 2007, 2019) among them. The findings of Stage 2 extended the theory of managers' interaction that exploitative, exploratory, and ambidextrous interactions of managers are all generated from four aspects of managers' interaction: information exchange, knowledge sharing, joint decision, and organisational culture.

The outcomes (Section 6.3.1) show that exploitative interactions of managers at different levels are generated by the combination of information exchange, knowledge sharing and joint decision. Scholars argue that top and middle managers should share knowledge to facilitate exploitation and exploration (Mom et al., 2007). Saari et al. (2015) argue that innovation can be initiated from lower-level managers and even employees because they have more chance to interacting with clients. This research extended that top, middle and line managers interact exploitatively by exchanging information, sharing knowledge and joint decision. Moreover, the outcomes (Section 6.3.2) show that exploratory interactions of managers at different levels are also generated by the combination of information exchange, knowledge sharing and joint decision.

Information exchange is regarded to be vital to innovation (Gong et al., 2013). Also, knowledge sharing is regarded to be important to exploitation and exploration (Mom et al., 2007). Information exchange and knowledge sharing of managers at different levels is argued to have impact on innovation formulation and implementation that may leads to ambidexterity (Raes et al., 2011), organisational change initiation and execution (Heyden et al., 2017) and exploitation

and exploration (Mom et al., 2007). The findings of Stage 2 illustrate that information exchange and knowledge sharing are often combined to achieve exploitative and exploratory interactions. This research supported the arguments of scholars such as Smith et al. (2005) and Hülshager et al. (2009) who suggest that high-quality information exchange allows team members to share their knowledge and past experiences and exchange and discuss ideas, increases the rate of innovation. Guo and Wang (2017) believe that team members involved in joint decision-making are more likely to have intrinsic motivation and continue to participate in innovation efforts and teamwork, such as sharing unique information, finding alternatives, making novel attempts and coordinating their actions. Underpinned with their argument, the findings of Stage 2 also illustrate that managers combine joint decision with information exchange and knowledge sharing and thus, facilitate exploitative and exploratory interactions. This finding also extended the argument that joint decision of managers at different levels is thought to be crucial for both strategy formulation and strategy implementation (Raes et al., 2011).

Importantly, the outcomes of Stage 2 (Section 6.3.3) show that ambidextrous interactions of managers at different levels are generated by the combination of information exchange, knowledge sharing, joint decision, and organisation culture. Thus, organisation culture is the key aspect of interaction of managers to achieve ambidextrous interaction. This research also contributes to the theory of organisation culture that organisation culture is a key aspect that combined with information exchange, knowledge sharing, and joint decision. Organisation culture is regarded as an important factor that fostering organisational ambidexterity (Lin et al., 2010). In addition, organisation culture is considered to be a tool to facilitate ambidexterity

used by both top managers (Zacher and Rosing, 2015) and middle managers (Awojide, 2015). This research illustrates that organisation culture is one of the four aspects of managers' interaction that generate ambidextrous interactions. Furthermore, Wang and Noe (2010) argue that an organisational culture is a key environmental factor for knowledge sharing; Gong et al. (2013) also mention that an open organisation culture contribute to the quality of information exchange among managers; organisation culture will also contribute to the participation of managers at different levels towards joint decision making (Guo and Wang, 2017). Similar with the motivative effect of joint decision on information exchange and knowledge sharing, organisation culture motivate the other three aspects of managers' interactions, thus fostering organisational ambidexterity. Thus, this finding may explain that why organisation culture is on top of the other three aspects of managers' interactions. In addition, this research extended that an integration and combination of four aspects of managers' interaction help managers to interact ambidextrously.

### **7.3 Practical Implications**

This research has implications for practitioners and managers. The results of early studies show that the ambidextrous organisations have the ability to pursue exploitation and exploration at the same time, and achieve sustainability and excellent performance in the long run (e.g., Gupta et al., 2006; Jansen et al., 2008). The existing research also shows that the capacity of an organisation to conduct exploration and exploitation simultaneously is a key character in the

organisation's successful competition in the long term (Raisch and Birkinshaw, 2008). Conversely, the challenges of implementing exploitation and exploration span different organisations and industries.

Firstly, due to the different vitality of the industry, this research believes that different strategies may be needed to improve the competitiveness of the organisation under different circumstances and conditions. In the banking industry, this research recommends effective interactions of managers at different levels and departments.

Secondly, this research reveals positive effect of exploration, exploitation, and ambidexterity on organisation competitiveness in Chinese Banking Sector. This finding has important implications for varies of managers in the banking sector wanting to improve the ability to pursue both exploration and exploitation, in order to enhance enterprise competitiveness. This research also has practical contribution as this research draws attention from practitioners on ambidexterity and strengthens the significance of interaction among managers in order to enhance organisational competitiveness.

Third, from the perspective of management, this study emphasizes the interaction of managers at different levels and finds that managers can coordinate the ambidextrous interaction through the integration and combination of the four aspects of the interaction between managers, so as to realize ambidextrous interaction. It is important that the identified aspects and activities of interaction be included in the regular training programs for managers at different levels of the banking industry.

## **7.4 Limitations and Future Research**

Some limitations of this research are worth discussing, and its limitations need to be taken into account in the research results. As different data collection methods and samples were utilized in each stage of this study, the discussion of limitations is broken down by stages.

First, the quantitative data had a sample size of 202, and all of the participants are from the three state-owned banks in China. Therefore, there could be a differential result with larger sample size, or on those non-state-owned banks in China. However, the aim of Stage 1 is to explore the relationship of concepts within the scope of managers' interactions and organisational ambidexterity for the stage 2.

Secondly, the thematic analysis of qualitative data is worth discussing. The researchers used NVivo 12 software to analyse the transcribed interview data after the initial thematic analysis. Through qualitative data analysis, as far as the researcher know, this research systematically describes the interaction of managers at different levels in the process of achieving organisational ambidexterity for the first time. However, because the researchers used qualitative methods to explore three cases in China's banking industry, and the selected research objects are all state-owned banks, the researchers were unable to expand the results to other research context or population.

Thirdly, the context of this research is limited to banking organisations in China. Thus, the

generalisability of the research is worthy of attention. Although the study only focuses on three large banking organisations in the Chinese banking industry, the results may also help us understand the organisational ambidexterity of large enterprises in other industries. However, it should be noted that the goal of mix-method studies such as this study is not to create a generalized theory, but to obtain more understanding the organisational ambidexterity of the organisation from the perspective of the selected people.

Fourth, both quantitative and qualitative data are translated from Chinese to English, which could cause transcription and translation bias.

A future research suggestion for other researchers is to focus on how the management of small and medium-sized enterprises and other industries in China different from the banking industry can interact and coordinate the organisational ambidexterity. Researchers may also pay attention to how the interaction of managers at different levels in coordinating ambidextrous activities can help organisations improve their long-term competitiveness.

## **7.5. Conclusion**

This research is an insightful mix-method research to illustrate how managers at different levels in the Chinese banking sector interact with each other by combining various aspects of managers' interactions so as to coordinate the ambidexterity. This research aims to deepen the understanding of how organisational ambidexterity is achieved, especially by managers'

interaction. Scholars like Nosella et al. (2012) believe that the trend of future research in ambidexterity may be the regression of structural solution of ambidexterity, with the original nature of ambidexterity as a capacity.

This research draws a conclusion and shows that at the organisational level, organisational ambidexterity is an essential ability that can be used to maintain or improve the competitiveness of the organisation, so as to expand our understanding of organisational ambidexterity. At the managerial level, managers at different levels should promote organisational ambidexterity through interactive activities, combine exploitation and exploration. In sum, the researcher hopes to expand their understanding of organisational ambidexterity by generating these important insights. Of course, more research is needed.

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## Appendix

### Appendix A: Participant Information and Consent Form for Survey

#### Participant Information and Consent Form

I am PhD student from Nottingham Trent University, UK and I am doing a research project about *How Ambidexterity leads to Innovation in order to Improve Competitiveness: Cases in Chinese Banking Sector*.

The survey has 34 questions which are mainly about your perceptions of managers' behaviours related to innovation, interaction of managers at different levels and bank's competitiveness. The survey will take about 4-5 minutes to complete.

Your participation is completely voluntary, and the data collected will be treated in confidence and anonymous. The data will not be shared with anyone outside the university. You do not have to answer any questions you would rather not, and all your answers are completely confidential. You are free to withdraw from the survey at any point and if you wish a copy of the research results or if you have any questions about the project, you can email a request to me: [hongji.liu2015@my.ntu.ac.uk](mailto:hongji.liu2015@my.ntu.ac.uk).

If you have any questions about the project, you can contact the person below:

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## **Appendix B: Questionnaire**

### **How Ambidexterity leads to Innovation in order to Improve Competitiveness: Cases in Chinese Banking Sector**

I am PhD student from Nottingham Trent University, UK and I am conducting a research project on *How Ambidexterity leads to Innovation in order to Improve Competitiveness: Cases in Chinese Banking Sector*.

The survey has 34 questions which are mainly about your perceptions of managers' behaviours related to innovation, interaction of managers at different levels and bank's competitiveness. The survey will take about 4-5 minutes to complete.

Your participation is completely voluntary, and the data collected will be treated in confidence and anonymously. The data will not be shared with anyone outside the University. You do not have to answer any questions you would rather not, and all your answers are completely confidential. You are free to withdraw from the survey at any point and if you wish a copy of the research results or if you have any questions about the project you can email a request to me: [hongji.liu2015@my.ntu.ac.uk](mailto:hongji.liu2015@my.ntu.ac.uk).

Please confirm that you are going to voluntarily participate the survey.

Yes  No

Thank you for sharing your opinions, it is greatly appreciated.

## **Questionnaire**

### **Participant Background**

**What is your gender?**

Male  Female

**What is your position in the bank?**

Employees  Line Manager  Middle Manager  **Top**  
**Manager**

Strongly agree    Agree to some extent    Neither agree or disagree    Disagree to some extent    Strongly disagree

|  |   |   |   |   |   |
|--|---|---|---|---|---|
| <b><i>Exploration</i></b>  |   |   |   |   |   |
| <b><i>To what extent that</i></b>  |   |   |   |   |   |
| Managers organize or participate in learning activities.   | 1 | 2 | 3 | 4 | 5 |
| Managers encourage employees to learn new skills and knowledge.  | 1 | 2 | 3 | 4 | 5 |
| Managers accept ideas that have potential for future customers but may not succeed in current market.  | 1 | 2 | 3 | 4 | 5 |
| Managers create a culture that encourage employees to share ideas with colleagues and managers.        | 1 | 2 | 3 | 4 | 5 |
| Managers have long-term plan.  | 1 | 2 | 3 | 4 | 5 |
| Managers are willing to generate/develop new partners.   | 1 | 2 | 3 | 4 | 5 |
| Managers search for new possibilities with respect to product/service, process and markets.            | 1 | 2 | 3 | 4 | 5 |
| Managers conduct staff training for existing product/service.  | 1 | 2 | 3 | 4 | 5 |
| <b><i>Exploitation</i></b>   |   |   |   |   |   |
| <b><i>To what extent that</i></b>  |   |   |   |   |   |
| Managers evaluate diverse options of existing product/service in order to improve it (problem search). | 1 | 2 | 3 | 4 | 5 |
| Managers conduct customer survey for solution to existing problems                                     | 1 | 2 | 3 | 4 | 5 |
| Managers undertake activities that enhance current market experience.                                  | 1 | 2 | 3 | 4 | 5 |
|  | 1 | 2 | 3 | 4 | 5 |

|  |   |   |   |   |   |
|--|---|---|---|---|---|
| Managers encourage employees to conduct social interaction.                                |   |   |   |   |   |
| Managers regularly engage activities to improve efficiency of operations.                  | 1 | 2 | 3 | 4 | 5 |
| Managers emphasize a high diversity when developing new products.                          | 1 | 2 | 3 | 4 | 5 |
| Managers primarily focus on achieving short-term goals.                                    | 1 | 2 | 3 | 4 | 5 |
| Managers strengthen the relationship with existing partners.                               | 1 | 2 | 3 | 4 | 5 |
| <b><i>Managers' interaction</i></b>  |   |   |   |   |   |
| <b><i>Please choose the degree of:</i></b>   |   |   |   |   |   |
| To what extend that managers at different levels share knowledge with each other.          | 1 | 2 | 3 | 4 | 5 |
| The frequency of communication among managers at different levels.                         | 1 | 2 | 3 | 4 | 5 |
| To what extend that higher managers give managers at lower level freedom to make decision. | 1 | 2 | 3 | 4 | 5 |
| The quality of information exchanged among managers at different levels.                   | 1 | 2 | 3 | 4 | 5 |
| Culture for new or different ideas among managers at different levels.                     | 1 | 2 | 3 | 4 | 5 |
| To what extend that multi-level managers are involved in the decision-making process.      | 1 | 2 | 3 | 4 | 5 |
| Efficiency of decision-making from bottom to top.  | 1 | 2 | 3 | 4 | 5 |
| Efficiency of strategy implementation from top to bottom.                                  | 1 | 2 | 3 | 4 | 5 |
| <b><i>Competitiveness</i></b>  |   |   |   |   |   |

|  |   |   |   |   |   |
|--|---|---|---|---|---|
| My bank has a continuously growth on total sales.                  | 1 | 2 | 3 | 4 | 5 |
| My bank has a continuously growth on total profit.                 | 1 | 2 | 3 | 4 | 5 |
| My bank has a continuously increase on customer satisfaction rate. | 1 | 2 | 3 | 4 | 5 |
| My bank has a continuously growth on market share.                 | 1 | 2 | 3 | 4 | 5 |
| My bank has a continuously growth on staff satisfaction rate.      | 1 | 2 | 3 | 4 | 5 |
| My bank has a continuously growth on staff retention.              | 1 | 2 | 3 | 4 | 5 |
| My bank has continuously improvement on operation efficiency.      | 1 | 2 | 3 | 4 | 5 |
|  |   |   |   |   |   |

**(Please circle your answer)**

**Thank you again for sharing your opinions.**

### **Appendix C: Participant Information Sheet for Interview**

#### **Participant Information Sheet**

I am PhD student from Nottingham Trent University, UK and I am conducting a research on *How Ambidexterity leads to Innovation in order to Improve Competitiveness: Cases in Chinese Banking Sector.*

Thank you for agreeing to consider participating in this research project. Before you decide whether to grant us an interview, it is important that you understand the reason why this research

is being carried out, and what your participation will involve. I would be grateful if you would take time to read the following information carefully and discuss it with colleagues or other people if you wish. Please feel welcome to get back to me if anything is unclear, and to take as much time as you need to decide whether or not to take part.

### **What is the purpose of the study?**

This research aims to explore how managers at different levels interact in order to foster ambidexterity. The interview is mainly about the actions and behaviours among managers at different levels relating to innovation process. I will require 60 to 90 minutes for each interview.

### **Who is running this study?**

The project is running by Hongji Liu, a PhD student in Nottingham Trent University, and supervised by Profess Weili Teng and Dipo Awojide from Nottingham Trent University.

### **Who is funding this study?**

The study is self-funded by Hongji Liu.

### **Why have I been chosen to take part?**

I am asking you to give me an interview, because your bank is one of our cases. I would like to interview you as a manager. You will be one of up to 8 people interviewed in your bank.

### **Do I have to take part?**

Your participation is entirely voluntary, you are free to take part or not, as you choose.

If you do decide to take part, you will be given this information sheet to keep, and you will also be asked to sign a consent form. You will still be free to withdraw at any time: this includes the right to withdraw your interview from the study after it has taken place.

If you decide not to take part, or to withdraw at any stage, you will not be asked to give me any reasons.

**What do you want me to do?**

I would like you to take part in an interview lasting approximately an hour. It will take place in your workplace and will be arranged at a time convenient to yourself. The topics to be covered are set out on the attached sheet. The interview will be carried out by Hongji Liu, following a pre-set schedule.

I will ask for your written permission to tape the interview, to ensure that the information you give me is accurately recorded.

**What will happen to the information I give in my interview?**

The tape of your interview will be transcribed. I will then analyse the information and feed it into my results.

The transcripts will be fully anonymised before they are archived. Any information that identifies you or your organisation, or that gives any clues to your identity, will be removed. We are confident that these precautions will ensure that no-one will be able to trace your transcript back to you or your organisation.

**How will you protect my confidentiality and anonymity?**

The tape and transcript will be handled only by me, in line with data protection principles and our approved research protocol. Hard copies of research notes are kept in locked filing cabinets, and electronic files are kept on password protected computers which are not accessible to any other university staff.

The tape of your interview will be stored in a password file in my personal computer, and the relevant files will be stored for 5 years.

You will not be named or otherwise identified in any publication arising from this project unless your role forms part of a narrative that is already in the public domain (for example, if you were the named author of a published document or gave evidence to a public inquiry relevant to the study). No unpublished opinions or information will be attributed to you, either by name or position.

I will exercise all possible care to ensure that you and the organisation you work for cannot be identified by the way I write up my findings.

**What are the possible disadvantages and risks in taking part?**

The main cost to you will be the time needed to be interviewed. The main risk is that you might give us information that is detrimental to you or your organisation, or that runs counter to data protection laws.

I am confident that the arrangements described above will prevent any of your information being shared with anyone outside the research team. For this reason, I believe that the risk of detriment is very low.

The interviewer will not seek information about identifiable patients, clients or colleagues, or access to files about patients or clients.

**What are the possible benefits?**

I hope that you will find the interview interesting and will take satisfaction from helping to develop knowledge of this important topic. I also hope that you will find the results of the project helpful to your work.

**What will happen to the results?**

I will write up the results in thesis of my PhD project.

**How can I find out more about this project and its results?**

I will send a copy of the executive summary to all my interviewees, so you will be able to read about our findings.

**Who is responsible if anything goes wrong?**

This project is being administered on behalf of the ESRC by Nottingham Trent University. NTU is therefore responsible for the conduct of the project.

**If you have any questions about the project, you can contact the person below:**

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Email: [weili.teng02@ntu.ac.uk](mailto:weili.teng02@ntu.ac.uk)

Thank you for sharing your opinions, it is greatly appreciated.

**Appendix D: Interview Consent Form**

**Interview Consent Form**

**Title: *How Ambidexterity leads to Innovation in order to Improve Competitiveness: Cases in Chinese Banking Sector***

This is an informed consent form in respect of the above project. Please read and confirm your permission to being interviewed for this research by ticking against each item in the last column, signing and dating the form.

I, \_\_\_\_\_ confirm that (please tick):

|   |   |  |
|---|---|--|
| 1 | I have read and understood the information contained in the information sheet dated 5 <sup>th</sup> July 2018   |  |
| 2 | I have been given the opportunity to ask questions about the research   |  |
| 3 | I understand that my participation is voluntary and that I have the right to withdraw my participation at any time without giving any reasons and I will not be penalized for withdrawing |  |
| 4 | The procedures regarding confidentiality and anonymity have been explained to me (e.g. use of pseudonyms)   |  |
| 5 | The use if the data in research, publications, archiving and sharing has been explained to me   |  |
| 6 | I consent to the interview being recorded on the understanding that the recording will be disposed of as per the terms in the information sheet   |  |
| 7 | I agree to participate in this research   |  |

\_\_\_\_\_  
 Participants' name                      Signature                      Date

\_\_\_\_\_

Participants' name

Signature

Date

## Appendix E: Interview Questions

### Interview Questions

| Bank | Position | Age | Year in this bank | Year in banking industry |
|------|----------|-----|-------------------|--------------------------|
|      |          |     |                   |                          |

### Information Exchange 信息交换

Did you exchange information with other managers?

*您与其他经理交换信息吗？*

What kind of information are exchanged between you and other managers?

*您会与其他经理交换什么种类的信息？*

How did you exchange information with other managers?

*您是如何与其他经理交换信息的？*

With whom you exchange information very often, why?

*您与谁交换信息最为频繁，为什么？*

### Knowledge Sharing 知识共享

Knowledge sharing is a social interaction, involving the sharing of knowledge, experiences, and skills through the whole department or organization.

*知识共享是一种社交互动，包括知识，经验和技术在部门或企业中共享。*

Do you share knowledge with other managers?

*您与其他经理共享知识吗？*

Are there any formal or informal activities for knowledge sharing?

*有没有正式或非正式的活动关于共享知识？*

Is there a culture that encourage knowledge sharing?

*有没有一种鼓励知识共享的氛围？*

### **Joint Decision 共同决策**

Do you have the chance to join the decision-making process?

*您有机会参与共同决策吗？*

Could you provide some examples on how managers at different levels participate joint decision?

*您可以提供一些实例有关于不同级别经理共同决策吗？*

Under what situation managers will be asked to join decision making? How it is managed?

*在何种情况下经理会参与共同决策？ 又是如何具体安排的？*

What is your role in the process? Any challenges?

*您在共同决策中是什么角色？ 有没有什么困难？*

### **Organisation Culture y 企业文化**

How do you describe the organisation culture of your bank, open or close? Why?

*您如何评价银行的文化环境，是开放的还是封闭的？为什么？*

What kind of managers 'interaction is encouraged in your bank and what is not?

*在您的银行银行哪些经理间互动是被鼓励，哪些不被鼓励？*

How does the organisation culture influence your work?

*这样的氛围环境是如何影响您的工作的？*

### **Ambidextrous Behaviours 双元性创新**

Is there any product/service/process refinement or update in your bank?

*您的银行有没有产品或服务的升级或是改进？*

Do you collaborate with other managers when conducting refinement or update, how?

*您与其他经理合作进行产品或服务改进和更新吗？如何合作的？*

What is your role in the process? Any challenges?

*您在过程中是什么角色？ 有没有什么困难？*

Is there any product/service/process innovation or big change in your bank?

*您的银行有没有产品或服务的创新或是巨大改变？*

Do you collaborate with other managers when conducting innovation or big change, how?

您与其他经理合作进行产品或服务创新和大改进吗？如何合作的？

What is your role in the process? Any challenges?

您在过程中是什么角色？有没有什么困难？

Any learning or training activities? how is it managed?

有没有什么学习或者培训的活动？是如何组织的？

How do you manage the time and resources for activities for refinement and innovation? Is it one by one or combined?

您是如何管理关于改进和创新活动的的时间和资源分配的？是分别进行还是同步进行？

How do you manage flexibility and efficiency?

你是如何管理侧重灵活性或是高效率的？

How do you describe the impact of managers' interaction on innovative activities?

您如何评价经理间互动对创新活动的影响？

## Appendix F: Data Output in SPSS

ambidexterity 输出文件.spv [文档 1] - IBM SPSS Statistics 查看器

```
DATASET ACTIVATE 数据集1.  
SET BASETEXTDIRECTION=AUTOMATIC TABLERENDER=light ROWSBREAK=100 SUMMARY=None TOLERANCE=1 CELLSBREAK=10000 TLook=None Printback=  
h Unicode=Yes TFit=Both.  
RELIABILITY  
  /VARIABLES=Q51 Q52 Q53 Q54 Q55 Q56 Q57 Q58  
  /SCALE('ALL VARIABLES') ALL  
  /MODEL=ALPHA.
```

**Scale: ALL VARIABLES**

Case Processing Summary

|                       | N   | %     |
|-----------------------|-----|-------|
| Cases Valid           | 202 | 100.0 |
| Excluded <sup>a</sup> | 0   | .0    |
| Total                 | 202 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbac<br>h's Alpha | N of<br>Items |
|----------------------|---------------|
| .925                 | 8             |

```
RELIABILITY  
  /VARIABLES=Q61 Q62 Q63 Q64 Q65 Q66 Q67 Q68  
  /SCALE('ALL VARIABLES') ALL  
  /MODEL=ALPHA.
```

**Reliability**



Home Create Data Analyze Query Explore Layout View

Open Get info Edit Paste Merge Clipboard Format Paragraph Styles Editing

DATA Files Ambidexterity Brainstorming Summary Reference

CODES Nodes

CASES Cases Case Clas...

NOTES Memos Annotations Memo Links

SEARCH Queries Query Res... Node Matr... Sets

MAPS Maps

OPEN ITEMS

Ambidexterity corporate culture Implement Problem Solving Brainstorming

Files

Ambidexterity

Brainstorming

Encourage for change

Task allocation

Competitive advantage

Compliance

corporate culture

performance appraisal

team work

efficiency

exploitation

Implement

Problem Solving

risk management

training

practical training

theoretical training

exploration

Flexibility

Market investigation

New product release

Impact of Managers' Inte...

Information exchange

cooperate

joint decision-making

joint decision meetings

knowledge sharing

formal knowledge-sha...

Files\CC

1 reference coded, 1.78% coverage

Reference 1: 1.78% coverage

你如果是公司有条件发生的问题，比如说你是你贷后没有做，贷后的话在银行的话是授信运行部来管理，就是授信运行部要对你客户经理操作的发生的问题进行一个处罚，处罚的标准是我们来定的，当然也是总行各个部门集思广益下的相关的制度，然后我们部门来运用，然后我把这个制度给你找相应的条目，然后进行扣罚，然后汇总到我向我汇报，报过来之后我就要汇总全行的整体情况。

Files\HTB

4 references coded, 2.09% coverage

Reference 1: 0.42% coverage

有困难大家都帮你想办法，目的是做成业务。只要你能把这业务做成，大家都会尽全力帮你想办法。随时集思广益，对是。这个氛围可以。

Reference 2: 0.54% coverage

政治任务、红色任务，你必须得完成的哇，友集集思广益，帮你想办法，但剩下的你就自己把自己想办法，然后你要是有时候。不会！虽然说这业务不挣钱，但是如果你业绩不够，他赔钱啊！

Reference 3: 0.59% coverage

周一是说上周的情况和这周的计划，然后每天是说昨天的情况和今天的计划，然后你如果说的昨天的情况或者上周的情况

Home Create Data Analyze Query Explore Layout View

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SEARCH Queries Query Res... Node Matr... Sets

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Ambidexterity corporate culture Implement Problem Solving Brainstorming

Files

Ambidexterity

Implement

Encourage for change

Task allocation

Competitive advantage

Compliance

corporate culture

performance appraisal

team work

efficiency

exploitation

Implement

Problem Solving

risk management

training

practical training

theoretical training

exploration

Flexibility

Market investigation

New product release

Impact of Managers' Inte...

Information exchange

cooperate

joint decision-making

joint decision meetings

knowledge sharing

formal knowledge-sha...

Files\CC

4 references coded, 9.50% coverage

Reference 1: 1.92% coverage

我们的岗位主要比如说全行的专业经营单位的考核评价，还有人员的差错积分，我们是这两块的管理都是在我们这儿来管理，但是具体的去实施去运用，比如说你犯了错误了，然后要给你进行处罚，这个都是根据我们下发的制度，然后由专业去进行处理，然后专业会在每个季度把它相关的处罚的东西提交到我们这里，然后我们只是运用统计全行的处理结果，然后发通报这种形式专业是每个专业比如说就像我刚才跟你说的

Reference 2: 1.69% coverage

一直到他发文正式实施那天，所有的流程咱们都要监控，然后特别是从这系统回来，他不是要报备总行，总行是不是提出意见了，咱们一定要监管，如果总行提出意见之后，咱们还要监督他是否按照总行意见去执行，如果他没执行，那是什么原因没有执行。还是内部跟总行他们已经沟通好了，要让他在他在发文之前在办文说明里头进行一个解释，所有全流程咱们都要管着。

Reference 3: 1.68% coverage

咱们整个制度就是比如说咱一开始就是操作系统的一开始工作的时候，什么叫一开始工作？您刚入职在后来才有的，背我不是跟你说，08年才有的部门像这些系统可能是一样，一几年14三年13年的样子才搭建的，然后一直到现在的是用可能对运行可能都会有需要不断改进的地方，他是具体怎么改进，您能了解这个不了解，因为这个事总行端的改建实施，

Reference 4: 4.21% coverage

我们对肯定是法律上是保驾护航，但是我刚才那个姐姐也说了，他主要是我们分行一级主要是发的话下为制度，我们的依据都是总行总行的相关的上位制度相关的办法，然后我们这种叫实施细则，比如说总行给你一个理论性的框架性的一个东西，你要和做业务分行具体怎么做细化下来，是这样的。因为每个分行情况不一样，他