UNDERSTANDING PLATFORM BUSINESS, PLATFORM ADOPTION AND PLATFORM COMPETITION WITHIN THE CONTEXT OF BIG DATA: CASE STUDIES IN CHINA

A thesis submitted to The University of Manchester for the degree of Doctor of Business Administration in the Faculty of Humanities

2018

SHENGLEI QIAN

MANCHESTER BUSINESS SCHOOL

TABLE OF CONTENTS

LIST OF TABLES		
LIST OF FI	GURES	
LIST OF AF	BREVIATIONS	
ABSTRACT	Γ9	
DECLARA	ГІОN 11	
COPYRIGH	IT STATEMENT 12	
DEDICATIO	DN13	
ACKNOWI	LEDGEMENTS 14	
CHAPTER	1: INTRODUCTION15	
1.1	Aspiration of Adopting Platform Business15	
1.2	Platform Adoption in Big Data Context17	
1.3	Platform Competition and Competitive Advantages	
1.4	Research Aim and Questions	
1.5	Research Design23	
1.6	Thesis Structure	
CHAPTER	2: PLATFORM BUSINESS: ESTABLISHEMENT, ADOPTION AND	
COMPETIT	TION	
2.1	Platform Business Model27	
2.1.1	Business Model Conceptions	
2.1.2	Platform Business Model	
2.1.3	Systematic Nature of Platform	
2.1.4	Platform and Innovation	
2.1.5	Platform Enterprise	

2.2	Platform Establishment: Envelopment Strategies	45
2.2.1	Envelopment of Complements	45
2.2.2	Envelopment of Weak Substitutes	47
2.2.3	Envelopment of Unrelated Platforms	49
2.3	Platform Diffusion: Big Data Context	52
2.3.1	Technology-based Platform Business	52
2.3.2	Platform in Big Data Context: SaaS	55
2.3.3	Adoption of Technological Platform	58
2.4	Platform Competition: Constructing Competitive Advantage	70
2.4.1	Business Model and Comparative Advantage	70
2.4.2	Platform and Interoperability	77
2.4.3	Platform Competition	80
2.5	Research Gaps, Aim and Questions	83
2.5.1	Gaps in Current Platform Studies	83
2.5.2	Research Aim and Questions	86
CHAPTER	3: CONCEPTUAL FRAMEWORK	
3.1	Introduction	87
3.2	Primary Theoretical Perspectives	
3.3 Platform Establishment and Diffusion		94
3.4 Competitive Advantages of Platform		96
3.5	Promoting Platform Dynamics: Strategies	98
3.6	Conclusion	
CHAPTER	4: RESEARCH DESIGN	
4.1	Introduction	
4.2	Philosophical Perspective	
4.3	Research Methodology	106
4.3.1	Qualitative Case Study	106
4.3.2	Data Collection	
4.3.3	Data Analysis	111
4.3.4	Ethical considerations	112

.4	RESEARCH QUALITY	113
4.4.1	Internal validity and data analysis	113
4.4.2	External validity and Reliability	115
.5	CONCLUSION	117
APTER	5: CASE STUDY 1 – The VJ	118
.1	Introduction	118
.2	Background of VJ	118
.3	Core Businesses of VJ	120
5.3.1	Practical and actual preliminary planning	
5.3.2	Rapid selling from marketing agencies	
5.3.3	Meticulous Property Management	124
5.3.4	Innovative and Flexible Financial Investment	
5.3.5	Intelligent and mobile Internet	126
.4	Core Platforms of VJ	128
5.4.1	VJ Trading Platform	
5.4.2	VJ operating platform	
5.4.3	Service Platform	129
.5	How VJ Platforms Established and Diffused	130
5.5.1	The development of Group and Platform	130
5.5.2	The Business Channel and Profit Mode of VJ's Platform	132
5.5.3	Information Technology Supported Business	134
.6	Competitive Advantages of VJ Platforms	136
.7	Conclusion	138
APTER	6: CASE STUDY 2 – The GEC	141
.1	Introduction	141
.2	Background of GEC	141
.3	The Platform Business Model of GEC	143
.4	Dynamics of GEC's Platform Business	146
6.4.1	Strategic Exploration Period – Problematization	146
6.4.2	Strategic growth Period – Intersegment	148
	4 4.4.1 4.4.2 5 APTER 1 2 3 5.3.1 5.3.2 5.3.3 5.3.4 5.3.5 4 5.4.1 5.4.2 5.4.3 5 5.5.1 5.5.2 5.5.3 6 7 APTER 1 2 3 4 6.4.1 6.4.1 6.4.2	4 RESEARCH QUALITY 4.4.1 Internal validity and data analysis 4.4.2 External validity and Reliability 5 CONCLUSION APTER 5: CASE STUDY 1 – The VJ

6.4.3	Strategic Maturity Period – Enrolment	150
6.5	GEC Competitive Advantages	
6.6	Conclusion	
CHAPTER	7: FINDINGS AND DISCUSSIONS	158
7.1	Introduction	158
7.2	Patterns and Characteristics of Platform Business Model	160
7.2.1	Patterns of Platform business	160
7.2.2	Characteristics of Successful Platform Organization	165
7.3	Driving Factors and Mechanism of Platform Strategy	170
7.3.1	Pressure from Market Integration	171
7.3.2	Pressures from Industrial Integration	172
7.3.3	Pressures from Data Expansion	173
7.4	Dynamics of Platform Establishment and Diffusion	176
7.4.1	Problematization: how should a platform business service be chosen?	178
7.4.2	Interessement stage: how should a platform is established?	
7.4.3	Enrolment stage: how should network effects be exploited?	187
7.5	Constructing Competitive Advantages for Platform	
7.5.1	Constructing competitive advantages during platform dynamics	
7.5.2	Maturity Stage: How should the business ecosystem be competed?	
7.6	Conclusion	199
CHAPTER	8: CONCLUSION	200
8.1	Research Review	200
8.2	Revisit Research Questions	204
8.3	Research Contributions	209
8.3.1	Contributions to Platform Studies	210
8.3.2	Contributions to Actor-Network Theory	213
8.3.3	Practical contribution	216
8.4	Research Limitation	217
8.5	Further Research	219
REFEREN	CE	220

APPENDIX 1: INFORMATION PAGES AND CONSENT FORMS	. 234
APPENDIX 2: EXAMPLE OF PRE-INTERVIEW QUESTIONNAIRE	. 239
APPENDIX 3: SAMPLE INTERVIEW TRANSCRIPTS FOR VJ CASE	. 240
APPENDIX 4: SAMPLE INTERVIEW TRANSCRIPTS FOR GEC CASE	248

Word count: 75,600

Main text Including tables and footnotes Excluding preliminary pages, references and appendix

LIST OF TABLES

Table 2.1 Diversified definitions of business model	. 27
Table 4.1: Comparison of positivism, interpretivism, and critical realism.	105
Table 4.2 Interview Information in GEC	108
Table 4.3 Interview approaches in GEC	108
Table 4.4 Interview Information in VJ	109
Table 4.5 Interview approaches in VJ	109
Table 6.1: The chronology of VJ Development	119

LIST OF FIGURES

Figure 3.1: Conceptual framework of platform establishment and diffusion	37
Figure 5.1: VJ's 2017 revenue from operation12	20
Figure 5.2: VJ's 2017 revenue from sales12	21
Figure 5.3: VJ's management systems and platform 12	26
Figure 5.4: VJ's business channels and profit mode13	32
Figure 6.1: Decoration Industrial Chain in China14	41
Figure 6.2: GEC's Platform Business	13
Figure 6.3: GEC's Profit Mode	14

LIST OF ABBREVIATIONS

ANT	Actor-Network Theory
API	Application Programming Interface
B2B	Business to Business
CAGR	Compound Annual Growth Rate
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GSEs	Government Sponsored Enterprises
ICT	Information and Communication Technology
IPR	Intellectual Property Rights
IPO	Initial Public Offering
MOC	Ministry of Commerce
MTE	Major Technological Equipment
MNE	Multi National Enterprise
OBM	Own Brand Manufacturing
ODM	Own Design Manufacturing
OEM	Own Equipment Manufacturing
PaaS	Platform as a Service
PE	Price-to-Earnings Ratio
ROI	Return On Investment
SaaS	Software as a Service
SDK	Software Development Kit
SME	Small and Medium Enterprise
SNS	Social Network Service
SOE	State-Owned Enterprise
VC	Venture Capital
UI	User Interface
UX	User Experience

ABSTRACT

Recent years have witnessed the rapid emergence and expansion of platform organizations. It is witnessed that many industrial leading enterprises have taken great efforts to transform and upgrading into platform organizations, and to adopt platform business strategy to consolidate the leading place in the market. For instance, amongst the top 15 'billion-dollar' enterprises, 11 of them are platform providers, including Apple, Google, Amazon and Facebook, etc. In recent years' China, with well-adopted platform business strategies, many traditional industry leading enterprises have achieved better performance in the market, e.g. SAIC¹ hatched internet-based carsharing platform, PingAn² hatched many internet-based fin-tech platforms including Lufax, Health Cloud and Bill Pass. However, apart from industrial leading enterprises, it is also find that many new entrants and some less competitive market participators also gradually catch up with the frontiers by adopting appropriate platform strategies, especially with big data techs.

In academic field, platform business research also became an attractive research field when exploring innovative business models or strategies. The phenomena of platform business blooming have attracted massive interests from management research scholars (Evans and Schmalensee, 2008, Boudreau, 2010, Eisenmann et al., 2011, Gawer and Cusumano, 2014). Nevertheless, existing studies on platform business are most likely to focus on industrial leading enterprises and to analyse platforms in static manner, such as interpreting how a succeed platform operates and how platform strategy contributes to the enterprise's development. Nevertheless, as more and more enterprises are willing to transform and upgrading into platform enterprise, thus more dynamic studies are required to understand how a platform enterprise or a platform strategy is actually constructed, and how a platform business is successfully diffused in practice. In addition, how to construct competitive advantages for the platform that diffused in

¹ SAIC: SAIC Shanghai Automotive Industry Corporation

² PingAn: Ping An Insurance Group Company of China Ltd

platform competition also needs further studies. At last, compared with most existing studies, the understanding of platform construction, adoption and competition should be extended in the big data context in where the current businesses lived in. Therefore, by adopting two in-depth case studies from China, a conceptual framework is developed to bridge the research divides. Both documentary research and semi-structured interviews were conducted. Through qualitative case study, both theoretical contribution and practical implications are given in this thesis.

Keywords: Platform Business; Platform Dynamics; Platform Competition; Big Data Context; China

DECLARATION

This thesis is submitted to The University of Manchester for the degree of Doctor of Business Administration in the Faculty of Humanities. I, Shenglei Qian, hereby, declare that no portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institution of learning.

COPYRIGHT STATEMENT

- The author of this thesis (including any appendices and/or schedules to this thesis) owns certain copyright or related rights in it (the "Copyright") and s/he has given The University of Manchester certain rights to use such Copyright, including for administrative purposes.
- Copies of this thesis, either in full or in extracts and whether in hard or electronic copy, may be made only in accordance with the Copyright, Designs and Patents Act 1988 (as amended) and regulations issued under it or, where appropriate, in accordance with licensing agreements which the University has from time to time. This page must form part of any such copies made.
- iii. The ownership of certain Copyright, patents, designs, trademarks and other intellectual property (the "Intellectual Property") and any reproductions of copyright works in the thesis, for example graphs and tables ("Reproductions"), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property and/or Reproductions.
- iv. Further information on the conditions under which disclosure, publication and commercialization of this thesis, the Copyright and any Intellectual Property and/or Reproductions described in it may take place in available in the University IP Policy (see http://documents.manchester.ac.uk/display.aspc?DocID=487), in any relevant Thesis restriction declarations deposited in the University Library, The Library's regulations (see http://www.manchester.ac.uk/library/aboutus/regulations) and in The University's policy on Presentation of Theses.

DEDICATION

To my wife and daughter

ACKNOWLEDGEMENTS

Thanks to all the people who supported me during my DBA journey, surely I could not accomplish my program without the love and support from all of you.

Sincere thanks to my supervisors – Dr Ping Gao in the University of Manchester and Dr Guohua Wan in the Shanghai Jiaotong University, for their support and guidance over the last years. They inspired me a lot and encouraged me to go further to pursue my DBA degree. During the years in my DBA program, they always be there to provide me insightful guidance patiently. Apparently, I might never have set out on my doctoral research and certainly would not have finished it.

I want to express my thanks to other members in our research institutes: all the staffs in Manchester Business School and Antai Management School in SJTU. Thank you all for your support and guidance, especially for the valuable insights on my research. Also special thanks to all the interviewees who participated in this research, especially thanks Chairman Zhang from the VJ and all my colleagues and co-workers from the GEC.

I would like to thank my family for their support and encouragement. Special thanks to my wife, who provided me the opportunity to be a father right before the end of this program, thanks.

CHAPTER 1: INTRODUCTION

1.1 Aspiration of Adopting Platform Business

With the rapid emergence and expansion of platform business in recent years, many industrial leading enterprises have taken great efforts to transform and upgrade into platform organizations. Therefore, they adopt platform business strategy to consolidate the leading place in the market. For instance, amongst the top 15 'billion-dollar' enterprises in the world, 11 out of 15 are platform providers, including famous companies such as Apple, Google, Amazon, Facebook, and so on. Take Apple as an example, since it launched the first iPhone in 2007, the market has been redefined as the customers started to rely on smart devices like iPhone. With the adoption of Apple Store – a platform on where any application (APP) aims to install on the iPhone must be published and will be charged 30% service fee when inside APP money transaction happens, Apple has established its own ecosystem by operating such a platform. According to the statics, the retained profit for Apple from Apple Store only is around 8 billion USD per year. As a reference, the overall retained profit for another two giant enterprises – Tencent and Alibaba, is just around 12 billion USD a year in total.

In recent years, with the well-adopted platform business strategies, many traditional industry leading enterprises in China have achieved better performance in the market. For example, Alrm, PingAn hatched many Internet-based fin-tech platforms including Lufax, Health Cloud and Bill Pass. All these well-diffused platforms have granted considerable profits and market share for the enterprises, which has consolidated the leading places for the industrial leading enterprises. Nevertheless, platform businesses have changed the normality and dynamics of a market. In the booming era of information technology, apart from the traditional giants, it has also witnessed that many new companies, with the help of emerged information technology, take the advantage of information technology to establish their own platform business to enter the market and some of them even dominate the market as a latecomer. In a word, in the current

business context, especially at a big data era, most enterprises have started to upgrade or transform into platform enterprises so as to launch their platform business. In this context, understanding how to establish a platform business, or how to transform or upgrade into a platform enterprise has become an interesting topic with considerable attractiveness and expectations.

1.2 Platform Adoption in Big Data Context

However, not every platform strategy can be a success as observed, most of them can hardly survive at last, which leads to another type of discussion – how to diffuse the platform business, or what kind of platform business is appropriate for adoption in other words. Looking back the history of platform business in China, it can be summarized that all the emerged platform businesses have gone through two generations so far. The first generation platform businesses are mostly provided by the Internet-based platform enterprises, which mainly focused on providing valuable information. The main profits are generated from specific advertisements (e.g. Baidu, Google and Soufang). However, only online-information providing model can hardly address the customers' demands offline. Let's say if a platform customer finds an apartment on the platform and wants to buy it, the platform can hardly make the assurance for the actual translations in terms of quality and efficiency.

Therefore, the second generation platform businesses are mostly focused on trading (e.g. Taobao, Jingdong and Pinduoduo). Customers not only can find valuable information and products online, but also can enjoy the offline services provided by the platform enterprises, which means the entire value is raised. In the current business environment, or the given context, customers are having better experiences like personalization. Thus, to establish and diffuse the platform strategy nowadays should not only rely on advanced information technologies, but also should be coherent with the context. Therefore, understanding what the characters that a successful deployed platform should contain has become a hot topic and an attractive issue for platform studies.

Furthermore, apart from the characters or attributes that the platform maintain, the strategies for promoting its adoption are also significant. For instance, considering the deployment of a given platform, a classic question that most likely to be asked is: Is it a must to burn money (huge investment) to develop a platform? In other words, is it impossible for small or less-invested enterprises to become a platform owner? If the

answer for this question is a capital and bonded yes, then what is the meaning for small or less-invested enterprises to rack their brains in scheming strategies on platform?

Theoretically, money-burning is normally adopted to attract naive users, to raise their awareness and to enhance their experience and cognition. Whether it is worth continuously conducting money-burning or not, it normally depends on the intensity of competition: if the final destiny for platform competition is winner-takes-all, and the second place player cannot even survive, then it is better to adopt money-burning strategy as early and vigorous as possible. Otherwise, it is inappropriate to waste this much money. Therefore, at the big data era, for small or less-invested enterprises, how they can establish and diffuse their own platform business strategy successfully now is becoming an interesting and attractive issue for platform studies.

1.3 Platform Competition and Competitive Advantages

In addition, with platform establishment and diffusion, another significant or nonnegligible issue is platform competition. Once the platform finishes deployed, it might always be under the competitive pressures from both traditional industrial competitors and the potential market entrants (Porter, 1984). Therefore, to deal with the market competitions, understanding how to construct competitive advantages for the platform that is established then become quite significant, especially in the context of big data era, as compared with traditional context platforms that even diffused still have a great chance to be replaced by latecomers.

In the case of platform competition between Didi and Uber in China, it is observed that two-sided users of the platform – customers and drivers can mutually attract and increase value, which contains positive cross-boundary network effect. Whereas for an individual customer, the value cannot increase because of the platform utilization by other customers. Sometimes in rush hours the customers can become competitors as well, so can it be for the drivers, which means the same-side network effect is negative. Furthermore, the switching-cost to the other platform for both customers and drivers are relatively low. Thus, such kind of market is not a winner-takes-all market, which means by only adopting money-burning strategy cannot grant the victory in platform competition. The final result of the competition between Uber and Didi has also proved the analysis – either of them is capable to beat the other and the battle ends up with the merge of both of them. Therefore, understanding how to deal with fierce platform competition is significant for platform studies nowadays.

Traditionally, by holding advantages both in capital, capability and resources, leading enterprises are normally easy to accomplish monopoly, for latecomers to catch up and take over considerable market share is extremely difficult, unless the latecomers work on specific divided market quite well. Nevertheless, at present, industries and markets are always experiencing massive changes along with the continuously evolved and emerged new information technologies. Innovations in information technology have profound and lasting impacts on structuring the competition and defining the market, which in other words, new technology especially information technology in nature can provide the opportunities for latecomers to achieve the so-called corner overtaking.

It is not exaggerating to say that, in the current business environment, achieving sustainable competitive advantage is extremely difficult for any enterprise, even for the leading ones. Nevertheless, it is witnessed that by adoption the appropriate platform strategies, the leading advantages have been consolidated for the leading enterprises. Once the platform business has been well-deployed, the latecomers normally face the barriers that are extremely difficult to overcome when entering the market. In most cases, the small or emerging enterprises will have no choice but to comply with the platform, and thereby, to some extent, which unconsciously helps to strengthen the domination of the platform. Hence, understanding how to construct or cultivate the competitive advantages for platform especially at the big data era is also an attractive research topic as well, both for platform owners and potential entrants.

1.4 Research Aim and Questions

The phenomena of platform business blooming have attracted massive interests both from academic field and market practice. Nevertheless, reviewed literature indicated that most existing studies on platform business tended to analyze existing platforms in static manner, especially wild about interpreting how successful deployed platforms work or how successful platform enterprises operate with its platform. Nevertheless, in reality, more and more enterprises are seeking to transform or upgrade into platform enterprises and adopt platform business strategies, which means further theoretical guidance and practical experiences are on demand. Therefore, more studies are suggested to understand the mechanisms of how a successful platform business is actually established, or how a successful platform enterprise is actually transformed or constructed, especially within the context of big data era.

Moreover, also due to the insufficiency of understanding platform business in dynamic manner, more intensive studies on platform diffusion are also recommended. As introduced, what kind of platforms have better chance to be successfully diffused, or what common characters that the successful diffused platforms contain need further exploration. In addition, apart from the attributes of the platform itself, what strategies can we adopt to promote its diffusion process, and how? Questions still need further discussions as well.

In addition, in actual market competition, it is always observed that some new platforms emerge and dominate, at the same time, somehow it might be replaced by the latecomers later on. Nevertheless, we also notice that some dominating platforms still operate well within the market competition. The phenomenon inspires us to think how to construct competitive advantages for the platform, or to find the mechanism or the original source where its competitive advantages generate. Related platform studies still need to be extended especially for small or less-invested enterprises to establish and diffuse their own platform business with the help of big data techniques. At last, compared with traditional platform studies, our business environment nowadays has undergone a throughout transformation if compared even with several years ago. Continuously evolved information technologies, especially big data and cloud computing, have fundamentally converted the way and the process of business. Therefore, it is insufficient if we only understand the current platform related phenomena within the traditional frame or context, further understanding and platform studies are required within the context of the big data era.

Therefore, for bridging the divides between the witnessed phenomena and constraint literature, this *thesis aims to further extend the understanding about platform construction, platform adoption and platform competition, especially in the big data context*.

Within the given context, the main objective of this research is to develop a conceptual framework to understand the mechanisms of platform construction, adoption and competition within the given context. With the aim to make the defined research objective more operational, the target is expressed into answering three research questions for this thesis, as listed:

RQ1: How to establish a platform business or enterprise, especially within the big data context?

RQ2: How to diffuse a platform business mode successfully, especially within the big data context?

RQ3: How to construct competitive advantages for a platform in the competition, especially within the big data context?

1.5 Research Design

This study applies qualitative case study as methodology, as this research is set to answer "How" questions as former introduced (Yin, 2009). According to the conceptual framework, for the case study, this work identifies the key events during the dynamics of the selected platform, and also illustrates the stories in detail that happens in each stage. Therefore, it addresses its dynamics during development and diffusion. In terms of case study, two cases are selected carefully: one is an Internet-based Chinese house decoration platform enterprise – The GEC; the other is an Internet-based Chinese commercial real estate platform enterprise – The VJ.

In terms of data collection, both documentary research and semi-structured interviews were adopted (Baxter and Jack, 2008, Zucker, 2009). For documentary research, on one hand, some official websites of actors that were enrolled in the platform were visited as most basic and general information that could be found; on the other hand, many valuable insights and information were also collected from the reports and other archives of the enterprise.

In addition, for getting in-depth view about the cases, semi-structured interviews were also conducted with key persons in both GEC and VJ who had been involved, including both managers from different levels and departments as well as staffs and sales on very fundamental or operative level. The interviewees were strictly selected as they were all quite familiar with the goal and the execution of their respective function. In practice, apart from visiting the interviewees in the case enterprise, interviewees from other organizations on each platform were also visited. As introduced, semi-structured interviews were adopted to allow more open-ended and fluent discussions since different managers' roles were different and they were familiar with some elements of our business model but not with others. During the interview, both sound record and written record were taken. After the interview, the neutral observer concluded the dialogue and wrote down the key words for each element. The analysis of data and the narrative of the case studies were all inherent and based on the theoretical propositions, which included the research questions, the developed conceptual framework, as well as the qualitative case study strategy that was adopted. Accordingly, a total of three rounds of data analysis, from shallower to deeper, were implemented in this thesis (Mingers et al., 2013). Firstly, some "early steps in analysis" were taken, which were mostly based on the data collected from documentary research. Secondly, based on data collected from the interviews, the previously delineated overall pictures of the selected cases were refined from rough to precise versions. Then, based on the second round of analysis, descriptive sections would be delineated for further analysis. Lastly, based on the previous two rounds of analysis, we moved further to seek the answers for the proposed research questions. By adopting the duplication strategy, the mechanisms and the patterns of platform construction and adoption were explored (RQ1 and RQ2); by adopting comparison strategy, the differences were summarized (RQ3).

The strategy of triangulation was applied both in data collection and analysis, with the aim to ensure validity and reliability of this research (Patton, 2002, Baxter and Jack, 2008). This research took several measures to ensure adequate levels of reliability and validity (Holland et al., 2006). For instance, research had independent interviewers for post-project evaluation, interviewed multiple members of the organization who came from different backgrounds conducted a so-called member check by allowing preliminary research results to be assessed by these respondents and had findings peer-reviewed by presenting them at two subsequent peer-reviewed international academic conferences, etc. The multiple sources make the data collection more reliable and comprehensive.

1.6 Thesis Structure

In this thesis, the following part Chapter 2 is literature review. Specifically, this chapter reviews the current studies on platform enterprise and platform business models, the platform adoption and platform competition. The literature review section includes relevant concepts, representative studies and theories that have been widely adopted in current platform studies. At the beginning of this chapter, the thesis first makes a systematic summary and discussion based on the reviewed studies. Research gaps in current platform studies are identified and discussed which are associated with the phenomena and knowledge foundations.

Chapter 3 develops a conceptual framework based on reviewed platform studies and theories towards addressing the listed three research questions. For bridging the research divides, the research aim, objective and research questions are clarified. In addition, a detailed elaboration and interpretation is given on the developed framework for this research. According to the developed framework, the potential question-solving paradigm and three proposed research questions are matched together.

Chapter 4 introduces the design of this research from the big picture to the details. Specifically, the selection of interpretivism as the philosophical standpoint and the qualitative case study as the methodology of this research are elaborated including both reasons and operative details in practice. In addition, research settings and case selections are illustrated, and the strategy for data collection and analysis are introduced as well in this chapter.

Chapter 5 and Chapter 6 present two case studies of this work – the GEC and the VJ, respectively. In each case, the chronology, including the critical events in the process, as well as both platform development and diffusion, are generated. The platform, including the participators and key stakeholders are delineated. Associating with the conceptual framework, the comprehensive analysis for each case is conducted in each chapter.

Chapter 7 documents the analysis of the case studies. Synthetic analysis based on the analytical framework that is proposed, and the research questions are discussed in depth and answered through examining the case studies. Through synthetically analyzing the conclusions that are made through case study, several findings are discussed as the outcome of this chapter.

Chapter 8 concludes this thesis. The process of research is reviewed. The research questions are revisited and conclusions are made. The implications of this thesis are summarized from both theoretical and practical aspects. At the end, the limitations of this research and inspirations for future studies are elaborated.

CHAPTER 2: PLATFORM BUSINESS: ESTABLISHEMENT, ADOPTION AND COMPETITION

2.1 Platform Business Model

2.1.1 Business Model Conceptions

Business model refers to an enterprise's intention to create and acquire value through the incorporation of new technological environments with business strategies (Hawkins, 2004). After the founding of a company, a specific business model will be employed directly or indirectly. Accordingly, business model draws the conclusion of how the company administrates its business process to create, deliver and acquire the value it provides (Hawkins, 2004). Table 2.1 lists the summarized definitions of business model from the reviewed literature.

Literature	Business Model Definition
Timmers, 1998	A business model is a framework for products, services, and information flows that describes the various business actors and their roles, their potential benefits, and the sources of revenue
Amit & Zott, 2001	The business model describes "the content, structure, and governance of transactions designed to create value using business opportunities". In accordance with the transactions connect activities, the model is defined as "the interdependent system of activities, beyond the focus of the company, across the boundaries".
Chesbrough & Rosenbloom, 2002	The business model refers to "Heuristic logic that relates technological potential to economic value realization".
Magretta, 2002	Business models are "stories explaining how enterprises work. A good business model answers Peter Drucker's age-old questions: Who is the customer, and what is really matter to the customer?
Morris et al., 2005	A business model is concerned with: "How to deal with a set of interrelated decision variables in the areas of risk strategy, architecture, and economics to create a concise representation of sustainable competitive advantage in a defined market".
Johnson, Christensen & Kagermann, 2008	Business models "comprise four interlocking elements, i.e., taken together, to create and deliver value".
Teece, 2010	"The business model illustrates the logic, the data, and other evidence that supports the customer value proposition, as well as the viable structure of the revenue and cost to the enterprise to realize the value".

Table 2.1 Diversified definitions of business model

Source: summarized by author

Business model is virtually to find the demand of the customers, create value to fulfill the demand and convey the value to the customers, and finally gain the benefits from the customers' payment for this value (Zott and Amit, 2010). Hence, this reveals management's hypothesis of what customers want, how they want these, and how the company can manage its process to meet the demand, get paid and make a profit (Teece, 2010). Yet the reviewed studies suggest that there has been not a unified and explicit definition of the business model.

2.1.2 Platform Business Model

The term "platform" is used by industry managers and researchers from all walks of life, especially in the field of Information and Communication Technology (ICT). In bilateral markets, platform policies create value in various ways through interactions between two or more different associated users. Besides, it could grow continuously (Evans et al., 2006). Platform strategy is a novel and effective organizational strategy to deliver transactions and innovation across multiple industries. Given these, platform innovation turns the optimal strategy to gain sustainable revenue, especially in Information Technology (IT) and mobile. There are numerous important cases. Google, Microsoft, Nintendo, Amazon and Apple have employed a platform provisioning strategy, thereby becoming one of the world's richest tech companies. These companies know how and where their platforms support the market. Despite the size of the company, platform providers create an area for transactions and various content and services (Gawer and Cusumano, 2013).

Platform business and strategy help to build a critical business innovation models in various industries. Scholars have conducted a lot of research on this phenomenon, forming various definitions of platforms. Cusumano and Nobeoka were representatives of the pioneers of the study on platform business (1998, pp. 71-72), asserting that platforms comprise a 'set' of interfaces and subsystems. Ulrich and Robertson (1998,

p.6) defined a platform as a "collection of assets" from the perspective of product platforms. As Greenstein and Bresnahan (1999, p. 4) stated, a platform is a "bundle of platform components connecting buyers and sellers". West (2003, p. 1260) recognized a platform as the relevant platforms providing the "modular substitution of complementary assets". Likewise, Iansiti and Levien (2004a, p. 149) considered a platform as a "package" via which keystones share value with their ecosystems.

To interpret the platform and business environment, some scholars pay more attention to the economic theory of bilateral markets. As Eisenmann et al. (2006) stated, platforms are the products and services gathering groups of users in two-sided market. Gawer and Henderson (2007, p. 4) defined a platform as "one component or subsystem" of an evolving technological system. Yet, whether a 'platform' or a 'platform business model' has no consensual academic definition, the diversified definitions poses challenges to defining academic and industrial scope of models: "the term 'platform' is employed in various contexts of meaning and can be hard to understand" (Cusumano, 2010a, p. 32).

In this thesis, the definition of platform that given by Eisenmann et al. has been adopted as the fundamental of this research. As Eisenmann et al. stated a platform contains a set of rules and components, consisting of users whose transactions are dependent of network effects (Eisenmann et al., 2006). They concentrated on actors as well as the network that arises on the platform and accentuates transactions in accordance with network effects. Through transactions and network effects, a business ecosystem is created. In the business ecosystem, companies work together to develop their ability to innovate (Schumpeter, 1942). The success of most disruptive innovations is not due to the efforts of one company. Instead, companies need complementary innovations to attract customers, and these complementary innovations make breakthrough innovations (Freeman and Soete, 1997).

Hagju, Schmalensee and Evans (2006) highlighted the platform's business ecosystems. As they interpreted, ICT industry platform is the core of the business ecosystem composed of interdependent business communities and consumers, and forms complementary and symbiotic relationships with platforms. After the construction of the commercial ecosystem, the platform is innovative. A key difference between supply chains and platforms is that companies develop complementary innovation in terms of industry platform (Gawer and Cusumano, 2013). Gawer and Cusumano (2013) emphasized the fact that providers of platform are not needed to make mutual transaction, virtually their business in the manufacturing of supply chain.

The platform business model may involve transactions that occur in bilateral markets (Rochet and Tirole, 2003b, 2006) where a vast variety of stakeholders can be engaged in the platform as part of the supply or demand side (Rochet and Tirole, 2003b; Rochet and Tirole, 2006; Armstrong and Wright, 2007; Evans and Schmalensee, 2008; Rysman, 2009). Bilateral markets are an environment that allows multiple groups, such as suppliers and consumers, to participate in exchange for the value each group hopes to gain through a fair 'transaction'. Since bilateral market transactions create value by facilitating interaction between the parties, the 'network effect' emerges from these 'transactions' (Parker and Van Alstyne, 2005, Eisenmann et al., 2006). Network effect's biggest characteristic in platform business is the appearance of indirect or direct network effect (also known as ipsilateral and trans-lateral network effect). These network effects greatly reduce transaction costs because the platform integrates efficiency and innovation, making it easier to exchange expected values. Furthermore, these 'network effects' build a 'business ecosystem', and 'innovation' takes place in the wake of building the 'business ecosystem' (Evans et al., 2006).

2.1.3 Systematic Nature of Platform

As outlined in the previous section, from an economic perspective, platforms are composed of three theoretical concepts: bilateral markets, network effects, and the business ecosystem, which are key to their systematic nature. A two-sided market is an economic mediator that comprises two distinct sides providing each other with network benefits. A two-sided market enables many industries to share product and service offerings a specific place or space, especially ICT. In a two-sided market, direct or indirect network effects appear through transactions. These are the effects of a product or service user on the value of another user's product or service. When network effect is exerted, a product or service's value relies on the user number it has (Shapiro and Varian, 1998). Such value builds a business ecosystem (Evans et al., 2006). Accordingly, 'bilateral market', 'network effect', and 'business ecosystem' are core theoretical concepts and key systematic nature of the platform business model.

Two-sided Market

A two-sided market, also known as a two-sided network, refers to an economic platform with multiple distinct actors or stakeholders providing each other with network benefits (Armstrong and Wright, 2007; Nocke et al., 2007). It is a meeting place for two/or more sets of agents interacting via an intermediary or a platform (Jullien, 2005; Evans and Schmalensee, 2008). In addition to traditional products and services, many industries have two-sided markets. Generally, market refers to the physical and conceptual space for consumers and suppliers to trade goods (or services) (Schiff, 2003). On the contrary, the term "market" in two-sided markets refers to goods (or services) that provide a physical or virtual platform in which different groups of users interact with each other (Evans et al., 2006). A prominent example of a two-sided market is the Internet portal providing a platform for many different user groups. Accordingly, a more accurate term would be "two-sided platform market". If there is only one bilateral platform provider in

a market, the bilateral market can be referred to as the "monopolistic bilateral platform market". On the other hand, it can be referred to as a 'competing two-sided platform market' if there exists more than one two-sided platform provider in market (Rysman, 2009).

Evans (2003a) categorized various roles in a two-sided market into three types. The first is the market-maker, responsible for connecting the parties (buyers and sellers) who want to make a deal. The second is audience makers, connecting advertisers with audiences. The third is the requirements coordinator, responsible for creating goods or services that generate cross-network externalities. By sub-dividing the demandcoordinator, Evans and Schmalensee (2008) divided two-sided markets into four types: 'Exchanges' connecting a purchaser with a seller; 'Advertiser-supported media'; 'Transaction systems' e.g. credit card payment system; 'Software platforms.

Furthermore, bilateral markets have different value chains from other simple markets. In traditional linear models, value moves from left to right: the left side of a company is cost, and the right side is revenue (Eisenmann et al., 2006). On the contrary, since the platform has a distinct group of users on each side, cost and revenue are both to the left and to the right in a two-sided market. Google, Amazon, eBay and other large Internet companies are the examples. These platform companies incur costs by serving multiple groups and collect revenue from various sides. In terms of two-sided markets' revenue strategies (Rysman, 2009), a variety of economic studies describe the revenue structure of these networks as charging each other relative prices. Revenues, products and services bring platform participants together in a two-sided market.

Parker and Van Alstyne (2005), and Eisenmann et al. (2006) further discussed the twosided effects to interpret the behavior of IT-based markets. This type of network effect is reflected by Hardware and software platforms, programmers, personal computer (PC) and mobile operating systems, e-commerce, credit cards, and matching services. In some cases, indirect network effects can be considered as a one-way version of bilateral network effects. In other words, in terms of bilateral market research, there is a variety of studies that focus on industry-specific applications, e.g., media (Anderson and Coate, 2005; Gabszewicz et al., 2006; Kaiser and Wright, 2006), mobile/internet (Gans and King, 2000; Armstrong and Wright, 2007), and payment system (Rochet and Tirole, 2002; Wright, 2004; Guthrie and Wright, 2007).

Network Effects

Network effects can also refer to network externalities, demand-side economies of scale, and a stakeholder's impact on the value of a particular product to others. In short, it's a demand economy of scale, meaning at least some degree of interaction. The value of a product or service will be determined by the number of other users when network effects are present (Shapiro and Varian, 1998). Network effects are widely recognized as a critical aspect of industrial organization in IT industries and are widespread in various fields, e.g., mobiles, microchips, telecommunication, PCs, semiconductors, e-commerce, and electronic marketplaces. Scholars have found empirical evidence of network effects in various product categories, e.g., spreadsheets (Brynjolfsson and Kemerer, 1996) and DVD players (Dranove and Gandal, 2003).

Network effects suggest that the more people use a particular product or service, the more value it has to each user. The industry based on information and communication systems is greatly affected by network configuration and network effects. To meet customers', need for amusement and entertainment, game consoles, e.g., the Sony PlayStation and the Xbox create primary utility or original/direct utility. The number of these network products has been increased under the technological developments over the past few decades. Due to network externalities, the network market composed of network products is different from traditional market (Katz and Shapiro, 1985, 1994).

A 'direct externality' is deemed to exist when a consumer's utility is directly impacted instead of being impacted by the consumption behavior of other consumers applying the same goods or services in a market (Katz and Shapiro 1985; Liebowitz and Margolis 1994). A two-sided market refers to a market with a distinctive type of network externality (Parker and Van Alstyne, 2005). The externalities of bilateral markets do not exist among users belonging to the same group, because in bilateral markets, the consumption behaviors of users belonging to many different groups will produce direct and indirect network effects. In other words, users impact other users of the same group (i.e. direct network effects), and the users' number or the consumption amount of other groups directly impacts the utility of one user on one side (Parker and Van Alstyne, 2005; Eisenmann et al., 2011). This is known as 'indirect network externality' or 'cross network externality' (Liebowitz and Margolis 1994). Direct network externalities exist when the size of one party increases its utility. Yet in bilateral markets, direct network externalities do not need to be present to users on either side (Farrell and Saloner, 1985; Katz and Shapiro, 1985).

Direct network effect (Katz and Shapiro, 1985; Liebowitz and Margolis, 1994). Direct network effects are directly caused by an increase in the number of consumers of the same product (such as telecommunications networks, online services, or mobile services). These products and services are typical examples of direct network externalities that lead to feedback loops and exponential growth. For instance, the more people who own a smartphone, the more valuable the smartphone is to everyone. This situation creates externalities as users buy smartphones. Even if they don't create value for others, they will create value in any situation.

Indirect network effect has two types, i.e., negative indirect network effects and positive indirect network effects. An example of a negative indirect network effect was given by Liebowitz and Margolis (1994, p. 138): 'if a group of breakfast-eaters joins the network of orange juice drinkers, their increased demand raises the price of orange juice concentrate, and accordingly most commonly effects a transfer of wealth from their fellow network members to the network of orange growers'. In this case, people who drank orange juice were affected by breakfast eaters, but they did not receive any

damages from breakfast drinkers. Moreover, economists may not want breakfast people to make up for that loss. In other words, negative network effects produce negative feedback and exponential decay.

Positive indirect network effects are similar yet complicated slightly (Liebowitz and Margolis, 1994). An increase in the use of a product or service creates value for complementary goods or services, thereby increasing the value of the original product or service in turn. This explains why Android and iOS are competing not just for smartphone users, but for smartphone developers. This positive indirect network effect is also called cross network effect as describing the net benefit of cross bilateral markets. It is more normal on the platforms with two- or multi-sided markets (Le Masson et al., 2011) since "the platform's value to any given user largely depends on the number of users on the network's other side" (Eisenmann et al., 2006, p. 2).

Business Ecosystems

The concept of business ecosystem was described by Moore (1993) as an economic community crossing numerous industries working in production, customer service as well as innovation cooperatively and competitively. The business ecosystem is characterized by a considerable amount of loosely connected participants who depend on each other for common benefits and survival (Iansiti and Levien, 2004).

The community is composed by various actors (Moore, 1996), e.g., customers, market intermediaries, suppliers, lead producers, competitors and other stakeholders. These business communities reflect the external environment where companies get ideas from the outside and from the inside of the market to create value for community members: they are at the heart of open innovation. Learning how to create and capture value through the relationships established between partners is a very important issue. The total value created by the network is dependent directly on the relationships between partners in global value network (Iansiti and Levien, 2004).

In a business ecosystem, a company's activities depend on a range of relationships that more or less play an important role in the innovation process. Yet one company may be at the center because it creates business potential and resources for other companies. Business relationships provide opportunities to access knowledge, technology and the potential for innovation, making actors an attractive partner. Within framework, the networks lay the basis on which relationships between firms are organized (Shapiro & Varian, 1998). Iansiti & Levien (2004) described three types of actors within a business ecosystem as dominator, keystone and niche players, respectively. First, the "physical dominator" dominates all of its ecosystem's niches using integration strategies and can control the maximum number of nodes within its network, thereby capturing the value created for its own benefit. Second, the "value dominator" or the "hub landlord" extracts the maximum value from the network without trying to dominate it. Both examples share a common objective: to extract the full value of the network without reassigning it to others. This often leads to weakening of business ecosystem (Iansiti and Levien, 2004).

Keystones play an active and dominant role in value creation and redistribution within the network. Instead of trying to control the entire network, they lead by location on several strategic nodes. Keystones often employ platform strategies to facilitate access to resources, giving them the opportunity to leverage the contributions of other network participants. They often take a "win-win" approach to other members of their ecosystem (Iansiti and Levien, 2004).

Niche players are small, highly specialized and differentiated players. They support much of the value created in the ecosystem. They get the necessary resources through the platform of cornerstone investors, who give them the opportunity to develop new products or services. They indeed maintain a tight connection with keystone by actively promoting the development of the platform (Iansiti and Levien, 2004).
From an ecosystem perspective, the dominant strategy is ineffective. An entity dominance typically misses out on innovation and business opportunities because it doesn't make niche and uncontrolled innovation processes possible. Value creators allow niches to extract too much value from the web, undermining their business ecosystem partners and their ability to innovate. Keystone players are typically a company that can identify and enforce the cooperation terms that best suit every member of the community. The goal of the leader is the overall representation of the ecosystem, not individual actors. To be a cornerstone investor, a company must be an attractive participant. In this sense, it should have bargaining or market power, good reputation, and commercial success or trust (Iansiti and Levien, 2004).

2.1.4 Platform and Innovation

The second chapter literature review shows that the innovative scholars have different views on the different stages of the technological innovation process (e.g. McKenney, 1994King et al., 1994, Gopalakrishnan and Damanpour, 1997, Van de Ven, 2005, Markus et al., 2006, Gao, 2015). Following Gao's categorization (2015), we study a complete technology innovation as a two-stage process, i.e., technology development and technology diffusion. As the success of a technology innovation initiative suggests, the technology is not only developed but diffused successfully (Gao, 2015).

To be specific, the development stage primarily stresses "production" technology, while the diffusion stage is dominated by "use" technology. In the literature, several separate processes, e.g., basic research, applied research, product development, production research, quality control and commercialization, are required to develop a technology (Hage and Hollingsworth, 2000). To spread, separate processes include comprehension, adoption, implementation and assimilation (Swanson and Ramiller, 2004).

As mentioned earlier, participants, networks, and institutions are structural components of the three business ecosystems (Carlsson et al., 2002, Bergek et al., 2008). Participators are defined as the organizational actors directly undertaking the innovation activities, e.g., research institutes, universities, some GSEs as well as private firms (Markard and Truffer, 2008). Networks are established based on the interactions among various system actors (Carlsson et al., 2002). Institutions are defined as "the set of practices, rules and laws that constrain the behavior of system actors" (Liu and White, 2001, p.1095).

Freeman (2002) suggested that to develop and diffuse a novel technology, institutions are required to be "aligned" to the technology. The system can guide and restrain the behavior of institutional actors, because according to the interpretation of institutional theory, in such "institutional environment", actors are required to pursue "legitimacy" for survival. (Mignerat and Rivard, 2009). In terms of the system, the system

environment can be established and impacted in various ways, and the system will also be impacted (Kukk et al., 2016). Thus, institutions have an impact on actors through institutional influences, and actors perform innovating activities.

Besides, though networks are also considered as one of three basic structural components, for two reasons, the framework does not describe the network when plotting the system structure. First, in a state-level technology innovation project, there are so many players involved in different fields that they cannot be treated in detail. This suggests that summing up their interactions is hard to achieve across the board. Second, interaction itself is not static, but dynamic, evolving at different stages of innovation. This suggests that they can only be solved in a certain amount of time.

As Scott stated (1995), institution is a social structure controlling and hindering the behavior and direction of organizations and individuals. Organizational actors seek to gain legitimacy in their context to be accepted, thus ensuring their long-term survival. Legitimacy is the core concept of institutional theory. Using "system", scholars describe the legitimacy of the environment that is required to be maintained or repaired (Suchman, 1995). That is, the concepts related to the international system are completely institutional. In the system domain, each organization should at least be connected to or similar to other organizations (Deephouse and Suchman, 2008). The links among different actors in the field reflect the existence of exchange or the exchange among different actors (DiMaggio and Powell, 1983). Thus, in line with the context, Scott (1995) highlighted that the behavior of others may impact focal organizations in the field of organization more.

Chesbrough (2006a) described a novel paradigm of open innovation in comparison with the traditional closed model. Traditionally, the innovation process is internal, and companies rarely use their innovation results as a means to generate new competitive advantages. In this model, companies generate, develop, and commercialize their own ideas, products, or services. In this context, the resources available in the enterprise environment are neither developed nor diffused, thus depriving the enterprise of innovation opportunities. This insider-centric logic has cost a lot of innovation money over the years, sometimes inefficiently. In this "do it yourself" vision, both value creation and value acquisition rely largely on internal resources and knowledge formed through an internal-oriented business model. This model no longer seems viable (Chesbrough, 2006a). Forward-looking organizations have accordingly sought ways to transform the process itself in order to create sustainable value.

Now a global market for innovation has emerged: innovation itself is a commodity, a loan and a license. The possibilities of tapping the global knowledge base are increasing. As a result, corporate innovation has opened its door to the world, and companies are increasingly adopting a more open innovation model based on exploration and development of the external environment (Radjou, 2006). In this model, companies take advantage of the discoveries of others and are willing to commercialize their innovations through third-party entities that exhibit good innovative business models (Chesbrough, 2006b). Accordingly, through a network of relationships with partners, companies can bring new products or services more effectively to the market and maintain the health of their business communities.

The primary source of differentiation in open innovation models is depending on the ability to mix internal as well as external sources of innovation in the surrounding environment. From this perspective, open innovation is about building networks between different business partners. These networks rely on the collaborative efforts of highly specialized companies offering complementary intermediate products and services (Iansiti and Levien, 2004). Open innovation relies on a deep and broad network of business partners to create value together at the network level (Simard & West, 2006). Thus to better understand the dynamics of open innovation on a global scale, it is necessary to understand inter-organizational coordination. Therefore, to be successful, the most important thing for managers to be able to accept open innovation is to establish value creation partnerships and control of value acquisition, significantly depending on finding the right level of openness.

2.1.5 Platform Enterprise

In brief, value delivery is at the heart of the platform's business model. In traditional business models, the process of delivering products/services to customers is the process of delivering value to downstream customers. Besides, the core of enterprise competitiveness and competitiveness lies in how to create more value for customers through product/service innovation. Even without intermediary channels, companies can deliver their products/services to customers on their own, yet often inefficiently. The emergence of platform enterprises has fundamentally changed the distribution mode of products/services between suppliers and customers, and the efficiency of value delivery has been improved substantially. The effective value delivery function is said as the critical element to the rise of the platform pattern.

The value creation subject is separated from the value transfer subject. Platform business model, the terminal customer needs the product/service from suppliers. Thus, suppliers create the value. Yet, because of the conditions or resource limitations, suppliers usually fail to complete the product/service to the customer, supplier lost value transfer function, the value of transfer function are done by platform for enterprise. Accordingly, the value creation subject and the value delivery subject are separated in the platform model (Gawer and Cusumano, 2013).

Second, value creation process is also separated from the value realization process. Traditional mode, value creation and value realization are integrated by: enterprises are to provide customers with products/services, customers pay money and the enterprise to create value for customers to obtain profit at the same time. Thus, value creation and value realization synchronization are complete. But in platform model, value creation and value realization no longer have the necessary connection. Numerous platform companies provide customers with services such as information search and E-mail services, but they can't make profits. The creation and increase of customer value do not necessarily bring profits to the enterprise, and the realization of the creation and value of value are separated. This separation requires the management to pay sufficient

attention to the design and the innovation of platform business model (Gawer and Cusumano, 2013).

To understand the nature of platform enterprise, many studies suggest that the institutional perspective could be adopted by considering platform as an "organizational field", accordingly, the establishment and deployment of platform enterprises could be considered as institutionalization process (Scott, 2005). Institutionalization is referred to as a process occurring over time and as a set of social arrangements having acquired a certain state or property, whereas the process aspect is more stressed by later institutionalization researchers. In terms of why and how institutionalization occurs, Scott aims to examine the mechanisms—how effects are produced—involved in creating and sustaining institutions.

As Scott (1995) suggests that institutions are not emerging in a vacuum environment, they always challenge, borrow from, and to varying extent, displace former institutions. He also stated that if the study emphasizes the processes and conditions that generate new rules, understanding, and related practices, it will be a study of institutional creation. Yet if the analyst examines how an existing set of beliefs, norms, and practices comes under attack, undergoes de-legitimation, or fall into disuse, to be replaced by new rules, norms, then the studies are of institutional change.

It is also noteworthy that whether a naturalistic or an agent-based approach is employed appears to vary significantly by what types of elements are invoked, whether regulative, normative or cultural-regulative pillars— (Scott 2008). Examining regulative elements are more like methodological individualists, assuming that individuals function as agents, constructing rules and requirements by some type of deliberative, strategic or calculative process. While the normative element is more likely to assume a more natural process, with the evolution of moral commands and the development of obligation expectations in repeated interactions. Moreover, cultural cognition seems to arise from a more transient process. Particularly in the early stages, the common understanding, the common meaning, and the taken for granted truth all make an important contribution to creation (Scott 2008).

Suchman (1995) provides an illuminating general discussion of conditions leading to new institutional arrangements. As he suggests, the impetus for institutional creation is the development, recognition, and naming of a recurrent problem to which no preexisting institution provides a satisfactory repertoire of responses. Once these responses have been "generalized into solutions", it may be possible for the participants to engage in "a more thoroughgoing 'theorization' of the situation to figure out which solutions are most appropriate in which contexts" (Suchman 1995). Then the solutions generated in one context may then diffuse to other similar situations under test propose. Such man (1995) also proposes that where institutions arise—at what level—is determined by where in the social structure particular shared understandings arise, and he argues that actors in response to recurrent problems for which no existing "off-the-shelf" solutions are available craft institutions. By contrast, Meyer (1994) also offers a view that institutional creation can also be driven by "supply side". He suggests that certain types of actors—particularly those in sciences and professions—occupy institutionalized roles that enable and encourage them to devise and promote new schemas, rules, models, routines, and artifacts. Yet the adoption of these generalized principles and procedures is promoted as evidence of "modernization", irrespective of whether local situations warrant or local actors need or want these developments.

The diffusion of an institutional form across space or time has shown great significance in institutional analysis, and several distinctions are helpful to understand the various ways in which institutions are diffused. DiMaggio and Powell (1983) uncover three contrasting mechanisms—coercive, normative, and mimetic—that identify varying forces or incentives for adopting new structures and behaviors. Scott (2008) reviews studies on institutions diffusion by employing the three pillars framework and generate noticeable ideas as follows.

As Scott (1987) suggests, in terms of effective, the use of coercion requires relatively clear demands, effective surveillance, and significant sanctions. Besides, it is also

important that whether the mechanisms employed are primarily those of power, involving imposition of authority, or rely on the use of inducement. We should also expect institutional effects to vary by these mechanisms, and by higher penetration being associated with authority. The reality is, numerous institutional forms are diffused by some combination of these mechanisms in the world of public and private organizations, and nation-states with statist or corporatist traditions are more likely to successfully employ coercive, regulative power in introducing innovations and reforms than pluralist or individualist systems (Jepperson and Meyer 1991).

Scott (2001) indicates that the concept of institution connotes stability and persistence. Some scholars assume that institutionalization once it is completed, it requires no further effort at maintenance, and as Simon (1997, p.106) witness, "the activity itself creates stimuli that direct attention toward its continuance and completion". Apart from individual level, organizational ecologists also assume that stability is a normal state for organizations, and inertia is the product of such organization-level processes as sunk costs, vested interests, and habitualized behavior shored up by the external constraints imposed by contractual obligations to exchange partners and regulatory regimes (Hannan and Freeman 1989).

Scott (2008) suggests that the underlying conception of institution affects views of maintenance mechanisms. Cultural-cognitive theorists then to emphasize the unconscious and taken-for-granted assumptions, which define the social reality. While normative scholars mainly emphasize the stabilizing influence of shared norms that are both internalized and imposed by external. DiMaggio (1988) argues that actors employ power not just to create institutions, but also to preserve and maintain them over time. Besides, if regulation is institutionalized, the rewarding and sanctioning will take place within a framework of rules. Furthermore, power can be stabilized and legitimized by the development of rules.

2.2 Platform Establishment: Envelopment Strategies

2.2.1 Envelopment of Complements

Any two platforms should be related in the ways: they must be complementary, optional, or functionally irrelevant. For the present section, we will present a siege attack based on these relationships to understand how platforms are usually built. The platform market is usually composed of multi-tiered complementary systems. The same company can be both a platform provider on one network and a provider or component provider on another network. For example, eBay is the platform provider of its online auction network and one of millions of subscribers worldwide. Similarly, PayPal is the platform provider of its e-mail payment network, which is one of the providers of eBay's auction platform. Because the platform market has a strong scale of economy, a company tends to dominate every level. Companies that dominate a particular tier, competing for a greater share of the industry's profits and control over its technology, may try to replace or weaken leaders in the adjacent tiers (Casadesus-Masanell & Yoffie, 2007; Gawer & Henderson, 2007).

In many cases, challengers enter an adjacent layer via a complementary platform, much as Microsoft separately attacks Real's streaming software, Netscap's browser and Adobe's Flash platform. As mentioned in the previous section, a siege attack is the most successful when (1) the user overlaps between the target and the attacker which is obvious, or (2) the attacker can take advantage of price discrimination, or (3) the range economy is high. As the valuation of complementary products by users is positively correlated, the attackers targeting complementary platforms should not expect to achieve bundled discounts based on price discrimination. Similarly, the product design is optimized to reduce functional overlap (Ulrich, 1995; Sanchez & Mahoney, 1996), attackers target complementary products and generally do not achieve significant economies of scope. Thus, the complementary envelope is most likely to succeed because the platform's user base is highly overlapping. For some complementary pairs, user base overlap is highly symmetrical, and these complements are specific to each other. For instance, most eBay users are also PayPal users, and vice versa. Likewise, a large proportion of Microsoft Office users is Microsoft Windows users, and vice versa. For other complementary pairs, overlap will be asymmetric; most users of one platform use another, but that's not the case. These additional comments are directed at each other unilaterally. For instance, most users of Intuit's Quicken software are Windows users, but only a small percentage of Windows users is Quicken users.

Like Microsoft's Windows and Real's streaming software, attackers can gain market share by bundling. The Chicago school's "single monopoly profit theorem" predicts that binding complementary should not increase the profits of monopolists (Posner, 1976; Bork, 1978). Following this logic, bundled prices cannot exceed the sum of independent prices. If the supply of complementary products is competitive, the profit from bundle sales should not exceed that of the component sold separately. Whinston (1990), however, indicates that OMPT is valid only under restrictive conditions :(1) supplements are provided in fully competitive markets; (2) monopolists' products are essential to all applications of complements; (3) the supplement is not restricted by economies of scale. As Whinston states (2001), when a monopolis's product is not critical to all applications of its supplier's market-power complement, a monopolist has an incentive to obtain the rents that the supplier receives from other uses.

As the returns from the complementary market increase, the monopolist may be able to extract rents by bundling and by refusing to provide scale to the complementary provider. Platform markets often violate Winston's conditions. As a result, we look forward to seeing the lucrative bundle of complementary products made by monopoly platform providers. Accordingly, given that the target platform market is not subject to independent entry, when platform users overlap significantly, participants bundling a complementary platform are most likely to succeed. The overlap boosts stock returns by bundling pricing close to the sum of the optimal prices of individual sales platforms.

2.2.2 Envelopment of Weak Substitutes

The maximum price a customer pays for a bundle of two complete substitutes should be equal to the price of each individual item sold. Binding weak alternatives, however, can create value. Weak alternatives serve the same broad purpose, but they serve different user needs because they rely on different technologies. Blockbuster's brick-and-mortar stores, for example, offer faster DVD rentals, but with fewer options than Netflix's postal service. Similarly, Monster.com and LinkedIn.com use different methods to help users find and fill jobs: searchable lists and social networks, respectively.

These methods offer obvious advantages: lists are valuable when parties want to do a full search, and social networks provide trusted third parties with assessments of fitness. The user base of weak alternatives may overlap to some extent. When two platforms meet different needs, and when some people show both needs in different occasions, these people may have multiple homes at the same time, e.g., using Blockbuster retail browsing for some DVD rentals and Netflix online ordering for others. Other people with weak demand in certain situations will choose a single platform, especially when multiple targets cost more. Since there is only modest overlap among the platform's user bases, we should not expect an envelope targeted at weak alternatives to achieve significant share gains by bundling alone. Due to the moderate overlap of user bases, the sum of the optimal prices of individual platforms is difficult to price for pure bundling. The nature of weak substitutes makes this pricing problem even more acute. For the weaker alternatives, the user's evaluation of the bundle will exceed the independent evaluation of her favorite product, but only for the second to provide unique functionality. In addition, since the weaker alternatives have the same broad USES, we expect the need for unique functionality to be positively correlated for each platform. For example, movie fans will value the variety of unique services offered through the DVD mail service, as well as the instant access offered by the Internet streaming service. The positive correlation of demand will limit the opportunities for envelope merchants to offer bundled discounts using price discrimination.

Therefore, to offer substantial discounts to a bunch of weak alternatives, an envelope must achieve significant range economics. Some economies should be available. In addition to the economics of marketing to multiple target users, bundling weak alternatives typically results in cost savings in production and operations. In essence, weak substitutions overlap the functionality to some extent, so some common components and activities should be shared. For example, Netflix can save money by bundling together those platforms and then relying on a single division to buy films, compared with companies that separately offer DVD mail and Internet streaming platforms. Therefore, if the target platform market is not affected by independent entry, then the entrant with weak alternative platforms in bundling is most likely to succeed when bundling offers significant economic benefits. When platforms are partially duplicated, these economies can afford the steep discounts needed to sell bundles (relative to the optimal price of individual platforms).

2.2.3 Envelopment of Unrelated Platforms

Even if the two platforms are designed for radically different purposes, such as mobile phones and hand-held gaming devices, they may still have ordinary users and use similar components. For example, both mobile phones and hand-held game consoles require displays, batteries, microprocessors and input keys. And many consumers have both mobile phones and hand-held game consoles. By leveraging common components and users, in the industry of producing, processing, and distributing digital information, the interlocking of unrelated platforms often facilitates aggregation, unifying functions performed by previously different products in one device (Greenstein & Khanna, 1997; Yoffie, 1997). Handheld devices like apple's iPhone, for example, now bundle features like phones, video game players, personal computers, media players, navigation systems, e-book readers and credit cards.

For functional unrelated platforms, we cannot generalize the extent of the user infrastructure overlap. For some mature platforms, overlap will be important, and these platforms have implemented high penetration of a group of ordinary potential customers, such as the line and telephone services in the mass-market consumer, or the word processing and electronic watch software in knowledge workers. In this case, because most potential customers have bought these two platforms, the chances of getting stock returns by bungled prices (the best price for a single platform for a single sale) should be big. In addition, no matter how much overlap exists between user groups of non-functional platforms, the valuation of the platform by users should not present a strong positive correlation. Thus, an envelope should be able to take advantage of the benefits of price discrimination to offer significant bundled discounts as functions depend on components, non-functional platforms typically do not share common components. As a result, the economic benefits of the range of production are usually limited. However, for some non-functional platforms, component overlap makes sense and economic scope matters. Cable and phone companies, for example, are using existing fiber optic and copper wires to provide additional services without having to

repeat a lot of upfront investment for homes. Therefore, if the target platform market is not affected by independent entry, the entrant of the platform with non-related functions is most likely to succeed when the users of the platform overlap a lot and the range is relatively high. In fact, the industrial boundary of the Internet era is becoming increasingly blurred, and the cross-border operation of enterprises is prominent. Tencent relies on WeChat to move from social networking into mobile communications. Alibaba is an extension of e-commerce to payment, logistics and catering. Letv launched super TV "disruption" traditional manufacturing. This kind of manufacturer is often not the player in the industry, suddenly enter, does not press "pattern" card, but can completely overturn the original industry pattern. Of cross-border destroyer in the industrial convergence and it is not difficult to find that it all belongs to enterprise Platform, namely in technology, product or trading system provides a cornerstone role in Building blocks (Building Block) Platform Provider (Platform Provider). Platform for enterprises under the background of industrial convergence widely implement Platform envelope strategy, entering a new market, adjacent even seemingly unrelated to leverage the effect of using Platform infrastructure resources (Eisenmann and Parker, 2011).

Therefore, based on reviewed literature in this section, the platform organization and its strategy practice presents several challenges to the existing theoretical research: for instance, on one hand, reviewed literature indicates that most existing studies on platform business tend to analyze existing platforms in static manner, instead of adopting a dynamic approach, accordingly, more studies are suggested to understand how a successful platform business model is actually established and diffused.

On the other hand, traditional enterprise theory cannot explain the boundary of platform envelope. Enterprise theory, transaction cost economics, "market" and "organization" boundary problem is simplified to buy or home-made decision-making (Make or Buy), according to the degree of asset specificity and trading in the possibility of opportunistic behaviour, decided to subcontract or vertical integration (Williamson, 2002). Platform envelope boundary decision, yet is not at the trading level simply decide to buy or home-made, but at the system level to determine whether the service function of a new multilateral users can introduce platform business ecosystem. Specificity of assets is the key. On the contrary, platform envelope boundary decision may be more likely to consider whether "Shared Assets" can create value for new users and new users with existing platform group after introducing symbiosis.

2.3 Platform Diffusion: Big Data Context

2.3.1 Technology-based Platform Business

IT sector has provided several widely known examples of technological platforms as well as their associated platform leader, such as Apple, Amazon, Facebook and Google (Gawer and Cusumano, 2014). The existing management research on technological platforms primarily falls in two theoretical steams: one understood the concept from economic theory, the other inspired from technological perspective (Gawer, 2014). These perspectives developed separately, as economics considers platforms as various types of markets and primarily focused on platform competitions (Rochet and Tirole, 2006, Boudreau, 2010), while the other steam views platforms as modular technological architectures (Eisenmann et al., 2011). Given that the literature learning platform business from economic perspectives has been introduced, this section primarily aims at understanding the platform from technological perspective.

Apart from economics perspectives, some studies aslo understood platform from the perspective which viewed platform as technological architectures that related with the methods of product development and diffusion. For instance, the concept of product platforms were highlighted as specific kinds of design choices on product architecture which help enterprises generate product families (Ulrich, 1995), as well as help firms to innovate fast and systematically by adopting and re-using common assets such as templates for production innovation (Krishnan and Gupta, 2001). Gawer and Cusumano (2014) suggested that the systemic creation and expansion in innovation could be viewed as core fundamental principle of platform-based development.

In terms of designing a platform, accordingly, the key is to find or establish the common element across the set of organizational contexts (Boudreau, 2010). This explains the reason that why all observed platforms share a common structure, and the platform itself is normally constituted by the stable core of the product system (Baldwin and von Hippel, 2011). Benefiting from the modular technological architecture characteristics,

the technological platforms are particularly good for facilitating the innovation, especially technology innovation. Eisenmann et al. (2011) suggests that modularity not only helps manage complexity, but also helps to reduce the interdependence between modules accordingly to simple interconnectivities. The literature also indicates that the role of "interface" between different modules is the fundamental to how such kind of modularity can facilitate innovation eventually (Baldwin, 2007, Boudreau, 2010). This is because the interface in platform is not just a divider, but also performs as a connector as well as a conduit of selected information that could facilitate the interconnection. Accordingly, the degree of openness of interfaces will decide degree of to what chance that innovation may actually happen (Boudreau, 2010). Technological view suggests that the design and adoption of platforms could help firms achieve economies of scope and stimulate technology innovation.

Through literature review, we hold the opinion that either economic perspective or technological perspective holds certain degrees of limitation in actual adoption. According to reviewed literature, it is indicated that both theoretical perspectives generally analyse the platform in a static approach and well functioned in understanding the competition between different platforms and how platform facilitates innovation, but it is difficult to be adopted to understand the dynamics of platform or address the platform evolution. Furthermore, both theoretical perspectives also fail to interpret the competitions within the platform between platform owners and members. Therefore, if a research aims to explore the inside dynamics or evolutions of a platform, or understand the competitions within the platforms, the theoretical perspectives or lens for analysis need to be further developed, and this is the gap which we aim to address.

Here the dynamics of platform are mainly referring to the establishment and the diffusion of platform. It is suggested that technological platform dynamic is also a process of technological innovation (e.g. Gawer and Henderson, 2007, Krishnan and Gupta, 2001, Rochet and Tirole, 2003), accordingly, it works to recognize a complete technological platform innovation as a two-stage process: namely technological

platform development and diffusion (David and Greenstein, 1990, Markus et al., 2006, Gao, 2015). Referring to Baregheh et al. (2009) that technology innovation is "a multistage process whereby certain groups of stakeholders transform their ideas into new or improved technology products, services or processes, with the aim to advance, compete and differentiate successfully in market competitions". In terms of development, this stage mainly focuses on "establishing" the platform, while diffusion stage mainly focuses on "using" the platform. In the literature, several separate processes are required to develop a technology, e.g., for instance, basic research, applied research, product development, production research, quality control, as well as commercialization (Hage and Hollingsworth, 2000). To diffuse a technology, separate processes could include, for instance comprehension, adoption, implementation, and assimilation (Swanson and Ramiller, 2004). The success of a platform dynamic initiative means that platform has not only been developed but has also been diffused successfully.

Technological platform innovation can hardly be achieved by any single organization, in most cases, it is an outcome of effective collaboration (Gawer and Henderson, 2007). Collaborations would consciously or accidentally promote the emergence of network, or system (Carlsson, 2006). Within such a network or system, ideas, resources, skills and capabilities could flow and exchange among involved entities (Eisenmann et al., 2011). Accordingly, technological platform innovation is not only related with technological change, but also highly relates with the changes that in social entities (ibid.). As indicate by Nelson and Nelson (2002), for turning an invention into an innovation, the combination of several different types of knowledge, capabilities, skills and resources is indispensable. Therefore, comparing with other organizations like public officials and R&D institutes, firms have more advantages to undertake the innovation progress due to their nature. In the sense of platform norms, the firm that leads the platform dynamics is recognized as platform leader or owner (Rochet and Tirole, 2003).

2.3.2 Platform in Big Data Context: SaaS

In recent years, software as a service (SaaS) has received more and more attention, and the continuous improvement of SaaS market in many countries has had a significant impact on the software market (Gartner, 2011; IDC, 2010). SaaS brings considerable benefits to enterprises and organizations, especially to small and medium-sized enterprises that lack capital and technical talent. That's because SaaS is an application that can be used anywhere and anytime via the Internet and browser (Rostami et al., 2014). In the meantime, SaaS has the cost advantage of having a flexible payment method that only pays for what is used and does not require any IT infrastructure, software installation and maintenance. In addition, there is less demand for SaaS from internal IT staff in terms of human resources. Compared with traditional information systems, SaaS brings huge benefits to enterprises and organizations.

However, there are still issues that affect SaaS adoption. According to Weerd et al. (2016), although the adoption rate of SaaS is steadily rising globally, it is still very low in developing countries such as Malaysia, Indonesia and Thailand. According to the report of Asian cloud computing association (2015), only 24 percent of small and medium-sized enterprises in Indonesia use cloud computing services, while in Western Europe, the number is as high as 64 percent. Lee et al. (2013) points out that only 36% of companies in South Korea use or know SaaS. Wu et al. (2016) points out that the adoption of SaaS by small and medium-sized enterprises is slower than expected in developing countries. Overall, business and organization adoption of SaaS remains low in developing countries. In fact, it has always been a hot topic to adopt new information technology or service solutions in a company because new technology or service solutions are considered tools to increase the competitiveness of the company, so it is necessary to analyze the influencing factors to adopt SaaS.

Cloud services can be considered as cloud-based service solution clusters, which involve providing computing, data storage and software services over the Internet. Cloud computing is performed on behalf of the customer on hardware that the customer does not necessarily own or operate on, which provides other types of cloud implementations (for example, private and mixed deployment). When the customer sends input data to the cloud, the data is processed by the cloud service provider and the result is returned to the customer. As a result, cloud computing can provide on demand services at lower cost and with greater scalability. Goscinski and Brock (2010) points out that computing resources in the cloud can be executed in many roles, such as database service, virtual server, service work flow or contract of distributed computing system. More importantly, cloud services based on cloud computing can relieve organizations of the burden of developing and maintaining large IT systems. Therefore, an organization can focus on its core business processes and implement supporting applications to deliver competitive advantage (Feuerlicht, 2010).

Today, cloud services are seen not only as a favorable solution to improve organizational performance and competitiveness, but also as a new business model that offers innovative ways of delivering computing services. On the whole, cloud services can fall into three types: Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS). SaaS is considered as a potential segment. The application of SaaS solutions can gain considerable benefits for enterprise users, thus significantly increasing IT performance (Catteddu & Hogben, 2009). SaaS conveys applications' functionality via the media of the Internet as a service (Sultan, 2010). Though a large number of vendors declares that the adopting SaaS helps to gain promising benefits, some organizations are still reluctant to employ SaaS solutions primarily because of the trust concern (e.g., data security, network security).

In the cloud environment, each service model (SaaS, PaaS or IaaS) encounters with its own security issues and calls for a different security requirement level (Catteddu & Hogben, 2009; Subashini & Kavitha, 2010). Several cloud service-related surveys help us understand the factors involved in adopting SaaS solutions. For instance, The Adoption of Software as a Service in Small and Medium-Sized Businesses (IDC, 2007) states that though SaaS is robust in potential growth, small and medium-sized businesses have not been employed SaaS as soon as expected. Concern about data security is the factor which is most frequently cited as discouraging the use of SaaS. Marketing efforts are needed, for example, to establish appropriate sales channels and decide how to promote SaaS to these companies best. The report also notes that marketing efforts for SaaS applications should highlight trust issues by improving user perceived benefits and reducing user perceived risk.

In SaaS, Subashini and Kavitha (2010) highlights that some critical security elements should be taken into consideration, e.g., data security, network security, data locality, data integrity, data isolation, data access, authentication and authorization, data confidentiality, web application security, data breach, virtualization vulnerabilities (e.g., weaknesses or flaws of virtualization technologies, allowing attackers to reduce a system's information assurance), availability, backup, as well as identity management and sign-on process. Though several studies have addressed possible benefits and risks for SaaS adoption, the importance of separating possible benefits/risks into cause/effect groups has been rarely discussed. The factors (e.g., possible benefits and risks) would provide more insights to help the organizations with decision-making if they could have been clustered into cause and effect groups. Besides, it can also help the SaaS vendors adopt more effective measures to propel the SaaS adoption. Inspired by this, the present study aims to develop a solution framework capable of districting the perceived benefits from the perceived risks to help the organizations with the decision-making on the SaaS solution adoptions.

2.3.3 Adoption of Technological Platform

Adopting new technology or service solutions is a perennial hot topic, as new technology or service solutions are seen as enablers for improving the organization's competitiveness. Numerous studies have investigated the critical factors impacting the adoption of new technologies or service solutions. For instance, Tarafdar and Vaidya (2006) suggests that the adoption of e-commerce technology may be influenced by factors such as senior management role, organizational culture, characteristics of information system professionals and organizational structure. Yet, few studies have specifically analyzed the determinants of SaaS adoption for an organization using a compact and comprehensive framework. From the literature review, there are several theoretical perspectives on the application of information technology.

Technology–Organization-Environment (TOE)

TOE framework was first proposed by Tornatzky and Fleischer (1990), employed to explore the organizations' new IT innovation adoption. The framework includes three main dimensions: technical dimension, organizational dimension and environmental dimension to influence the adoption of new IT innovations. The technical dimension refers to the technical processes and infrastructure within or outside the organization, which will have different impacts on the availability, complexity and compatibility of enterprises within or outside the organization. The organizational dimension emphasizes the organizational business model. As Gao (2008) says, this dimension should consider its value and value creation, corporate capacity, and enterprise boundary. The environmental dimension refers to the macro environment and industrial environment. Many studies use this framework to investigate ICT innovation adoption. However, this model provides only three general aspects, considered the first layer of the framework. Variables should be explored from other models.

Technology Acceptance/Adoption Model (TAM)

Several studies have been conducted to explore users' adoption and acceptance of mobile payment services. The application research of mobile payment mainly comes from TAM model and DOI model. In IT/ is research, various advanced models understand innovative use. TAM's most recognized technology adoption model has been widely used to explain adoption behavior in different studies, such as e-commerce, mobile commerce, online payment, online banking, 3g, mobile payment, etc. In TAM's case, adoption behavior is intended to utilize a specific system, highly depending on perceived usefulness and perceived ease-of-use system applications. Therefore, the use of information technology is theoretically affected by perceived usefulness and perceived ease of use.

Perceived usefulness is defined here as "the degree to which one believes that using a particular system will improve his or her performance at work"; Ease of use refers to "the degree to which one believes that using a particular system will be free". Dehlberg et al. (2003), Mallat (2004) and Kim et al.(2010) points out that perceived usefulness and perceived ease of use strongly and positively affect customers' willingness to adopt and use mobile payment. Dehlberg et al. (2003) and Mallat (2004) also consider trust to be another factor in mobile payment acceptance.

Diffusion of Innovation (DOI)

Besides TAM model, diffusion of innovations (DOI) (Rogers, 1995) is another theory frequently applied in IS/IT adoption research (Moore & Benbasat,1991), e.g., WWW (Agarwal & Prasad, 1997), electronic cash (Szmigin & Bourne, 1999), smart cards (Plouffe et al., 2001), 3G (Chong et al., 2010), Internet financial services (Black et al., 2001) as well as mobile payment (Mallat, 2007). In accordance with DOI theory (Rogers, 1995), the technology diffusion will occur via five stages: knowledge, persuasion, decision, implementation and confirmation. Rogers(1995) proposes the communication of a new idea, for example, the communication of new technology will be affected by four elements: innovation itself, communication channels, time and social system. Therefore, the adoption of innovative technologies is affected by five characteristics: comparative advantage, complexity, compatibility, experimental and observability (Rogers 1995).

Comparative advantage is similar to perceived usefulness in the TAM model, referring to the extent to which an innovation is considered better than the previous approach (Rogers 1995, Chong, 2012). Compatibility refers to "the extent to which an innovation meets current values, past experiences, and the needs of potential adopters" (Rogers 1995, p.15). Complexity is a measure of "the extent to which an innovation is considered difficult to understand and use" (Rogers 1995, p.16), similar to TAM's ease of use. Experiment ability indicates "the degree to which an innovation is tested on a limited basis" (Rogers 1995, p.16). Observability refers to "the degree to which an innovation is novation is visible to others" (Rogers 1995, p.16).

Unified Theory of Acceptance and Use of Technology (UTAUT)

In 2003, Venkatesh et al. published a thesis that, after reviewing and analyzing the existing eight adoption models, proposed a unified theory of technical acceptance and use (UTAUT). Effort expectancy reveals the degree of ease related to the use of systems. In line with the content of UTAUT, the effort expectancy is obvious both in voluntary and mandatory usage contexts during the early time of using. Subsequently, it will become less significant during extension (Venkatesh et al., 2003).

Social impact refers to the degree to which an individual perceives the influence of those around them who believe they are being asked to apply the new system (Venkatesh et al., 2003). It concludes from the elements of TRA, TAM2, MPCU, etc. Theoretically, social influence is not affected by the voluntary context, but by the mandatory setting. Similar to effort expectations, social impact is also important in the early stages of technology adoption. Over the time, however, the impact will become less obvious. Besides, the impact of social influences on technology acceptance decisions is complex and incidental.

Convenience reflects the extent to which individuals can use support systems for an organization in terms of infrastructure, capabilities, and resources (Venkatesh et al., 2003). This definition combines subjective norms with perceived behavior control to promote conditions and compatibility (Venkatesh et al., 2003). The empirical results show that the condition of facilitation affects the use directly and is restricted by age and experience. As the empirically tests suggest, the UTAUT model performs well with adjusted R2 valuing 70%, much higher than that of TAM and TPB (Min et al., 2008; Lee et al., 2012). This shows that the UTAUT model can be one of the most useful and reliable models, improving the constraints of existing analysis and interpretation factors and helping decisio- makers understand users' intentions and behaviors in technology adoption.

Stakeholder Perspective

The stakeholder perspective is a theory originally developed to deal with ethics and values in managing an organization (Blind et al., 2010). It helps identify and model groups that are stakeholders to the organization, and it enables managers to develop methods that can be used to address these groups' interests (ibid.). Interpreted by innovation scholars, stakeholder theory regards technology innovation as a socio-technical process that is operated by several stakeholders, e.g., government authorities, and contributes to examination of the stakeholders' roles and interests (Pouloudi, 1999, Papazafeiropoulou, 2002). The government, as a key stakeholder, especially in technological innovation at the national level, can establish collective coordination among other stakeholders to take advantage of their interests and capabilities in innovation (Choudrie et al., 2003, Shin et al., 2006).

For example, employing stakeholder analysis, Papazafeiropoulou and Pouloudi (2000) examined the role of the government in promoting electronic commerce adoption in European countries, and suggested that governments should have a holistic view of the stakeholders operating in the marketplace and should take actions pro-actively in technology diffusion. Likewise, employing a web of stakeholder analysis, Shin et al. (2006) investigated mobile broadcasting development in South Korea by mapping the interactions between social and technological entities at various development stages. Stakeholder analysis interpreted how diverse groups of stakeholders, with different interests, capabilities and resources, were affected by actions that were taken by the leading stakeholder – the Korean government. Other studies using stakeholder perspectives have come to similar conclusions, suggesting that keystone can play a leading role in coordinating relationships and mobilizing interests and resources for innovation (e.g. Choudrie et al., 2003, Shin, 2008, Levén et al., 2014, Zeng et al., 2010, Ravishankar, 2013).

Institutional Theory

By taking an open system perspective Institutional Theory allows for organizations to be influenced by their environments. In addition to rational/performance pressures, the institutional perspective also conceives of socially constructed belief, norm and rule systems as exerting considerable influence on organizations. One focus of institutionalism has been to explain how these institutional pressures have contributed to the homogenization of structures and practices within organizational fields (DiMaggio & Powell, 1983). The main argument is that the adoption of accepted organizational structures confers legitimacy and that the institutional pressures to adopt them are transmitted by "network connections." An institutional perspective would offer researchers a vantage point for conceptualizing the digital economy as an emergent, evolving, embedded, fragmented, and provisional social production that is shaped as much by cultural and structural forces as by technical and economic ones (Orlikowski & Barley, 2001). As the belief systems and norms underlying these pressures have varied over the time and from place to place institutional theory could conceivably provide a lens for studying the emergence of and change in the patterns of intra and interorganizational coordination.

Economists and political scientists highlighted regulatory pressures (e.g. Moe, 1984; Williamson, 1975). While sociologists first stressed normative pressures more recent work in this area has favored cultural-cognitive pressures (e.g. Douglas, 1986; Zucker, 1977). These are Scott's (2001) pillars of institutions. These pressures and their different order and compliance bases, different mechanisms and logic, different empirical indicators. The role of institutions in shaping organizations has been criticized as being too deterministic. Barley's (1986) study of the varying impact of the introduction of CT scanners on the organizational structure within radiology departments helped to bring human agency back into institutional theory (DiMaggio, 1988). Oliver (1991) suggested that organizations might well respond to regulative and normative institutional pressures in many ways (e.g. compromise, avoidance, defiance

and manipulation) rather than just passively complying with them. Institutional forces came to be seen as guiding rather than determining organizational actions. Subsequent institutional theory has relied more on interactive and recursive models and has been particularly influenced by Giddens' structuration theory (Barley & Tolbert, 1997) as can be readily seen by comparing his modes of structuration with Scott's pillars – regulative, normative and cognitive pressure.

Committee-based platform forums typically bring with them rules, procedures and behavioral norms which clearly favor an institutional perspective. For example, in the telecommunications industry participation in Platforms Development Organizations is at the national level and this brings with it institutional norms and rules typically found in bodies dealing with international issues. These differ considerably from those found in industry consortia with organizational or individual level participation (Schmidt & Werle, 1998). The logics used to define "rational" are themselves socially constructed. The rules, behavioral norms and institutional frameworks bound and define rational arguments and approaches. The institutional perspective has not been widely applied to the creation or adoption of technical platforms. Yet, its consideration of the creation and use of information systems give us some idea of how the perspective could handle issues around platforms. For example, SEI's Capability Maturity Model (CMM) has been seen as an institution that influences, sometimes detrimentally, software development in organizations seeking CMM certification (Alder, 2005). More generally institutional pressures can lead to isomorphism in development approaches (Nicolaou, 1999). Institutions may also take active roles in shaping technologies. For example, government agencies can take active roles in promoting innovation (King et al., 1994), industry associations can promote technology adoption and diffusion (Damsgaard & Lyytinen, 2001; Damsgaard & Scheepers, 1999).

The structures of the relationships among organizations and between organizations and technologies have an institutional component. The challenge is to identify the relevant institutions and then try to understand how they influence industry structure. The institutions at this level of analysis include government agencies, trade and industry associations, other organizations in the firm's value chain, trend-setting corporations, professional organizations and educational institutions (Nicolaou, 1999). By using institutional theory to examine how platforms making and adoption interacts with relationship building, we can examine the pressures created by platforms. We can examine how the introduction of a platform (or technologies based upon it) changes existing institutional pressures – say through a process of structuration (Barley & Tolbert, 1997). This latter analysis will also allow us to examine the impact of the initial institutional environment as the introduction of a technical platform may play out differently in different settings (Barley, 1986). Such a study will probably have to deal with conflicting pressures from different institutions. For example, information systems have been viewed as institutions that can conflict with existing institutions such as organizational structures (Avgerou, 2000) or older information systems (Alverez, 2001). Globalization also means organizations have to confront multiple institutional environments emanating from differing countries.

Yet, according to reviewed studies, there are important limitations in using an institutional perspective as the sole lens for addressing our research question. It does not incorporate the rational/performance pressures that influence platform making/adoption. It looks more at how coercive, mimetic and normative isomorphic processes produce organizations that have very similar structures – "rationalized myths" that give organizations legitimacy. Its literature has relatively little to say about how institutions form, change, stabilize, or dissolve. Questions about when it is possible to create new rules or norms are not addressed.

Actor-Network Theory

Actor-network theory (ANT) has been widely adopted in innovation studies (e.g. Gao, 2006, Tilson and Lyytinen, 2006a, Tilson and Lyytinen, 2006b, Kwak et al., 2011, Montenegro and Bulgacov, 2014, Yongwoon and Shin, 2015). It examines the actions and motivations of human actors who align their interests around non-human actors, and understands the world as complex networks of three symmetrical actors, namely natural, social and technical actors (Latour, 2005). The process of building the actor network can be viewed as a process of persuading other actors to participate (Wessells, 2007, Montenegro and Bulgacov, 2014). Nevertheless, even if the actors are enrolled, due to their heterogeneous interests, actors in the network would always intend to align the interests of others with their own (Latour, 2005).

ANT sees the world as a network of technical, natural, and social roles (or elements) and treats them in a symmetrical manner. Latour (1998) describes modern society as a "fibrous, linear character" and argues that the definition of actors depends entirely on their connections with other actors. ANT does not distinguish between macro actors and micro actors (that is, individuals, groups, or organizations). Participants can also be technical artifacts, from the smallest components to the largest systems. The establishment of the actor-network is a process of overcoming the resistance of various actors and weaving the network with other actors (j. Law, 1992). The challenge is to explore how the network of actors produces effects such as organization, power, innovation, platforms or industry structures. The core of ANT analysis is the translation process, in which actors align the interests of others with their own. The translation goes through three stages: in the process of problem-solving, one focus participant constructs the problem, and defines the identity and interests of other participants, making them consistent with their own interests. Focus participants make themselves indispensable by defining an OPP under their control (which other participants must use to realize their interests) (Callon, 1986). The OPP is usually in the direct path of the focus participant, while others may have to overcome obstacles to get through it. Control of the Windows API (OPP), for example, the resulting vast network of actors that align with Microsoft's interests, give Microsoft considerable market power. The definition of the interests of others and the definition of OPP are part of the strategy of participants to align the interests of others with their own interests. Other elements may include creating incentives to encourage others to overcome barriers to passing the OPP. In the second translation phase, interest, focus actors execute these strategies, persuading other actors to accept its definition of their interest. The final stage, registration, is another time for the participant to accept the benefits defined by the focus participant. Registration also includes the definition of actor roles in a newly created network of actors. In translation, focus actors assign interests, projects, desires, strategies, responses, and anxieties to others. Registration implies a degree of acceptance of the roles assigned, which largely determines how certain relationships between humans and technology participants fit into the technology platform and work practices. However, the actor may not be able to fully assume the designated role, and the possibility of resistance through the flexibility of interpretation allows for re-imprinting (Howcroft et al., 2004p.346). Accordingly, the outcomes of actor-networks building and creating inscriptions can be unpredictable. For example, a classification scheme for nursing work intends to improve professional recognition for nurses may also have unforeseen consequences for their relationships with other actors in healthcare (Bowker, Timmermans and Star, 1996).

A network of roles with strong, stable connections can be taken for granted and used as a "package" or "resource" as it continues to build a network of roles (Latour, 1987). These "black boxes" can include proxies, devices and texts, relatively platform-specific sets of organizational relationships, social technologies, border agreements, or organizational forms (J. Law, 1992). For instance, Bowker et al. (1996) found that the classification of care work acted as a black-box political actor. Boland and Schultze(1996) explained how activity-based costing became a black box by joining Allies. However, the black boxes still face resistance - although they are maintained through performance and replication, no organization, innovation or platform is complete, as actors can defect at any time (Callon, 1986). The black box can show a characteristic of irreversibility - "at some point, it's impossible to go back to having only one translation; And the extent to which it shapes and determines subsequent translations. (Callon (1991, p.150) irreversibility not only makes the previous translation difficult to undo, but also limits the possibility of the future. The actornetwork perspective and the growing stream of ANT-based research into intangible technologies. ANT provides the network-building metaphor and a vocabulary for describing the process of platform establishment and diffusion.

The network-building for a technical platform starts with say an initial idea or the recognition of the need for such a platform. A focal actor or set of actors strives to enroll others: first to agree that a platform is required, then perhaps to engage in designing or negotiating the platform in a committee setting, and finally to adopt it. The initial idea, the interim drafts, and the final platform are not transmitted unaltered. Rather they move through space and time in the hands of actors that react to them in different ways (modify, deflect, betray, augment, appropriate or drop). The transformation by actors to suit their own needs often entails some loss of control by the initiating actor. For example, Bloomfield et al. (1992) highlights the interpretive flexibility of information systems by observing the variation in outcomes at different locations due to dissimilar translations of the same system. Accordingly, the widespread adoption of a platform or its failure to diffuse can be determined by the extent to which focal actors can align the interests of many types of actors. Besides, ANT also provides a useful way of conceptualizing and describing how platform stabilizes and can become irreversible. The concept of irreversibility in particular provides a characteristic in network-building for exploring the effect of initial conditions on the platform creation process and its outcomes.

In brief, this section introduces several social-technical perspective based theories with aim to understand the process of how a technology with specific characters can be adopted within the given social context, e.g., TAM, DOI, UTAUT, Stakeholder theory, institutional theory, as well as ANT. Those theory-based perspectives are reviewed and introduced because the basic understanding of platform business mode in the big data era is based on the perception of technological platform. Accordingly, adopting social-technical perspectives seems proper. Nevertheless, technological platform, according to the introduced definition, is a technology-based platform mode. Apart from considering its technology attribute, the platform attribute should also be considered as well, such as "two-sided market", "network effect" as well as "ecosystem". Therefore, to understand the adoption of technological platform from both economic and technological platform.

2.4 Platform Competition: Constructing Competitive Advantage

2.4.1 Business Model and Comparative Advantage

A well-designed business model could help the enterprise better achieve the competitive advantage in market (Teece, 2010). For example, Mayo and Brown (1999) consider business model as the design of key interdependent systems that is utilized in management activities and finally aimed at creating and sustaining enterprise's competitive advantage. Likewise, Mata et al. (1995) adopted resource-based view to emphasize that creating sustainable competitive advantage in defined markets is one of the objectives of establishing a business model that is consisted from a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics. Afuah and Tucci (2000) hold the view that to develop a successful business model, is actually insufficient to guarantee an enterprise's competitive advantage, but the innovation of model can become a pathway to enterprise's competitive advantage. Accordingly, strategy analysis is an essential step in designing a competitively sustainable business model. Largely in response to the preceding notion of 'strategic business units', proponents of this concept for strategy argued that what really leads to competitive advantage are hard-to-copy capabilities that cannot be imitated or bought on open market (McGrath, 2010).

Competitive advantage is highly related with the core value of a business model (Mata et al., 1995). Afuah and Tucci (2001) considers that value is mainly created for customers and means the extent to which the enterprise's offer is distinct or has a lower cost than its competitors. In this case, customers in value chain can be classified into upstream supplier, downstream supplier, government, institutional wholesaler, retailer, service provider and final consumer (Morris, Schindehutte and Allen, 2005). By comparison, value is considered to be created for all the stakeholders e.g., investors, customers and so on. In this way, value mainly represents benefits returned to the firm, market share and performance, brand and reputation, financial performance.

In terms of the source of value, Morris, Schindehutte and Allen (2005) figure out four potential sources e.g., novelty, lock-in, complementarities and efficiency, which can be realized through business model. Apart from these four factors, distinctiveness, for instance, unique combination of resources and distinctive offerings to customers can be a prevalent source proposed by Afuah and Tucci (2001). From suppliers' perspectives, value arises out of reduced customer search costs, product promotion costs, business transaction costs, and lead time for business transactions. Such a low-cost advantage that may lead to value creation which is also identified by Afuah & Tucci (2001) and Porter (1996). Other value sources proposed by previous researchers contain trust and security. These value sources, to a certain degree, can be mutually reinforcing; which means, presence of each value source can enhance effectiveness of any other value source (Mahadevan, 2000).

Zott, Amit and Massa (2011) considered value creation as the final goal of designing business models, which is realized by the exploitation of business. Another view is that business models play an enabling role for firms in creating and delivering value to customers. To be specific, a business model articulates the logic, the data, and other evidence that support a value proposition for the customer (Teece, 2010). Absolutely, a good business model can create considerable value for customers (Schumpeter, 1936). Yet, the components view is also proposed in discussing the relationship between business model and value creation. For instance, Chesbrough & Rosenbloom (2002), Amit & Zott (2001) demonstrate that technical potential and value creation, as two components and taken together, consist the heuristic logic. Such logic represents the business model exactly. In general, those scholars and business strategists that have great interests in exploiting enterprise's value creation tend to focus increasing attention on the topic of business model (Mahadevan, 2000; Parkinson, 1999).

To exploit the sources of competitive advantage, it is concluded that it can be superior execution of particular activities within the enterprise's internal value chain, superior coordination among those activities, or superior management of the interface between the firm and others in the value network (Hunt, 2000). Furthermore, in terms of achieving sustained competitive advantage, enterprise's resources are required to be heterogeneously distributed across competing firms; In the meantime, firms without these resources may find it more costly to develop, acquire competitive advantage than firms that have already used resources, which could be a source of sustained competitive advantage (Teece, 2010).

Firms under various circumstances gain competitive advantage or disadvantage in a different degree of sustainability. One of the cases is that firms may implement a valuable strategy pursued by few competing firms. Yet, in the meantime, it is not rather difficult for these competing firms to gain the resources necessary to implement this strategy. Such a case represents that the firm has a temporary competitive advantage; Another case is that firms implement a valuable strategy being simultaneously implemented by several competing firms, which indicates that firms experience competitive parity (Teece, 2010); In addition, a firm is at a competitive disadvantage when a valueless strategy is implemented; In terms of a resource-based view, resource or capability cannot be a source of competitive advantage when the enterprise's resource or capability is maintained by numerous other competing firms. By comparison, if a firm without a resource or capability does face a cost disadvantage in acquiring, developing, and utilizing it compared to a firm that already possesses that resource (i.e., resource immobility), in this way, the firm that already maintains that resource can gain a sustained competitive advantage (Barney, 1999).

In terms of the inter-connection between business model and enterprise's competitive advantage, the latter is broadly taken as the final objective and goal of the former (Teece, 2010). For example, Mayo and Brown (1999) consider business model as the design of key interdependent systems that is utilized in management activities and finally aimed at creating and sustaining enterprise's competitive advantage. Likewise, Morris, Schindehutte and Allen (2005) also emphasize that creating sustainable competitive advantage in defined markets is one of the objectives of establishing a
business model that is consisted from a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics. To be more detailed, e-business model enables organizations to be more efficient, more flexible, and responsive to customer demand, to forecast possible future scenarios, this ultimately guarantees enterprise's competitiveness in the internet era (Dubosson, Osterwalder & Pigneur, 2002). Another view is that how firms gain competitive advantage should be included in the business model (Amit and Zott, 2001).

Yet Afuah and Tucci (2003) hold the view that to develop a successful business model, is actually insufficient to guarantee the enterprise's competitive advantage. In other words, to realize enterprise's competitive advantage, complementary conditions and analysis are definitely required to be applied to the original business models. For instance, Teece (2010) considers that the prerequisite is that the business model is sufficiently differentiated and hard to imitate for new entrants and incumbents. The innovation of such an e-business model can become a pathway to enterprise's competitive advantage. In addition to this, it is taken as a necessary factor to have an efficient and effective architecture for an enterprise's business model to create enterprise's competitive advantages. Teece (2010) also emphasizes that only if firms get business model right customize it for a market segment and build in non-imitable dimensions can they achieve a competitive advantage. Furthermore, to maintain enterprise's competitive advantage, coupling strategy is required to be employed to the business model.

As Mata et al. states (1995) that a resource-based competitive advantage model can be concluded from the influence of resource heterogeneity and resource immobility on competitive advantage. This model mainly focuses on three problems. The first one is to consider whether a resource is valuable; the second one is whether the resource is distributed among competitors with heterogeneity; and the third one is that the resource is not completely mobile. There are differences in empirical studies using resourcesbased view (RBV). Wade and Hulland (2004) discussed the usefulness of RBV in information system research. In the field of IS, this theory helps to evaluate information system (IS) resources in terms of strategic value and diversity of IS types (Santhanam & Hartono, 2003). In addition, RBV is helpful in comparing IS and non-IS resources for further research. In addition, RBV also affects strategic human resource management (Wright, Dunford & Snell, 2001).

Strategic positioning is a way to protect organizational uniqueness and gain sustainable competitive advantage. This method mainly includes game activities distinguished from competitors (porter, 1996).The concept encompasses three important principles, of which the first is to create unique and valuable positions by meeting the small number of needs of many customers, the wide range of needs of a few customers, and the wide range of needs of many customers in a narrow market. The second is that the strategy requires trade-offs in competition. In addition, strategies should be adaptive between activities, through interactions and enhanced activities that contribute to competitive advantage and sustainability.

Competitive strategy places more emphases on industry, while competitive advantage pays more attention to organizations (Porte, 1998). There are two issues to consider when developing a competitive strategy. The first question is what will keep the industry profitable in the long run, and what will affect the long-term benefit of the industry. The second one is competitive strategy plays a key role in standing in a relatively competitive position within one industry. Therefore, choosing a competitive position in attractive industry is the main point. Then, how to gain and maintain competitive advantage for an organization in an industry is where competitive advantage lies. The competitive strategy mainly introduces the industrial structure and the analysis of competitors.

Competitive advantage is related to the performance of enterprises in the industry market. Some companies fail because they turn competitive strategy into specific activities to gain competitive advantage (Porter, 1998). The main problems surrounding

competitive advantage include obtaining sustainable cost advantage, differentiating with customers, maintaining competitive position, etc. Competitive advantage is created by creating value for customers. Thomson and Strickland believe that (1990) competitive advantages can be the distinctive and superior actions in comparison with other competitors, applying to the competitive environment appropriately.

Enterprise resource refers to the ability of enterprise control, organizational process and other resources, which should enable the enterprise to work more effectively (Daft, 1983). From this perspective, resources refer to a company's possessions, e.g., assets, capabilities and knowledge, which contribute to the employment of competitive strategies. Wernerfelt first introduced resource-based theory in 1984 known as the resource-based view at that time, which is an additional explanation of Porter's contribution of competitive strategy. It is necessary for an enterprise to find the theory of competitive advantage on the basis of resources. Competitions owing to companies' different product market positions can also be accepted as competitions owing to companies' different resource position, which means an analysis of resource-controlled competitions within companies in the market is needed. While Rumelt (1997) researched in a strategic theory, interpreting why the existing companies, stressing the abilities of themselves, obtain more revenues than other organizations. A researcher called Barney (1986) has some similar ideas with Wernerfelt, thinking what resources quality a company preserves leads to fixed high-quality performance. In addition to the similarity, Barney argues that this theory is of different significance from former theory based on product market positions of companies.

The resource-based view of the firm mainly contains two hidden contentions: the first is resource heterogeneity, suggesting that different companies within the competition possess different resources; the second one is resource immobility, suggesting that this difference of possessing resources can exist long. These two underlying assertions are associated with sustained competitive advantage. Since the capability one firm possesses also pertaining to other firms cannot be identified as a competitive advantage

source, and this type of resource cannot help this firm to stand out from the whole industry. Besides, possessing a resource, differing from others, can bring temporary competitive advantage to this firm at least. For the second condition resource immobility, it is irreplaceable when considering whether a resource is a sustained competitive one. If there is one resource, firms not possessing it are not fronted with cost obstacles in developing, acquiring and using it when being compared with firms that possess that resource. This kind of resource is mobile. Mobile resources can only be temporary, sustainable and competitive. If an enterprise has no resources, it encounters a cost barrier in the process of acquiring, developing, and using a resource. Such resource can be a source of continuous competition (Barney, 1991).

2.4.2 Platform and Interoperability

The business ecosystem relies not on transaction or ownership logic, but on access and use logic (Rifkin, 2000). In many business ecosystems, transactions are not about the transfer of property rights to tangible goods, but about the acquisition of intangible services. This is particularly true in the area of information and communications technology, where the business ecosystem relies heavily on business partners (for example, independent developers) and other ICT companies. Connections among members are used by focus companies to enrich and strengthen their platforms. In this sense, the platform becomes an open architecture that enables members of the ecosystem to access and use resources to develop new services that can interact and enhance existing services on the platform. This approach motivates some companies to explore new strategic options and implement very innovative business models. Therefore, shifting the focus from ownership to open concepts requires special emphasis on technical equipment, such as platforms for coordinating partnerships in the business ecosystem.

Because platforms are repositories of knowledge (both implicit and explicit), potential contributors need access to build their own business models and value propositions. As Internet Protocol (IP) -based collaboration becomes the rule, interoperability between business partners has become a necessary condition for many ecosystems. Generally, interoperability refers to the ability of various ICT systems and organizations to exchange data and share information and knowledge in a reciprocal manner (Gasser and Palfrey, 2007). Interoperability should be considered a prerequisite for open innovation: it enables companies to build partnerships, acquire useful knowledge, develop and deliver new products and services, and strengthen ecosystem development.

From a technical perspective, platforms are composed of subsystems and interfaces on which organizations and their external partners can build specific applications or services for a variety of users. They are modular systems. As Baldwin & Clark(2000) points out, the decomposition of a system into modules (or subsystems) depends on the division of information into visible design rules and hidden design rules. Visible design rules are as follows: the architecture specifies which modules will be part of the system and what their functions are; interface that describes how modules interact and communicate; the platform ensures that the module is consistent with other modules.

Visible design rules contain explicit knowledge that needs to be shared and communicated. By contrast, hidden design rules contain tacit knowledge hidden in modules (as software) and do not require communication. It is important to know the core of the access platform - the hidden design rules that enable partners to execute software-as-a-service without giving property rights, and modules that do not access source code to build this module or component. In many cases, interfaces between subsystems - such as APIs (application programming interfaces) -- are more important than the subsystems themselves. The platform nowadays is not about controlling hardware resources, applications or information. Instead, they will visit services and content tailored to the community to enhance collaboration and knowledge.

According to prototype examples, Gawer & Cusumano(2002) recorded the strategy of the platform and proposed a normative model to realize leadership. They identified three stages in forming a successful platform strategy: core building, core opening, and peripheral follow-on growth. The whole process mainly includes construction, opening and development. Later, Iansiti & Levien(2004) discussed the role of the platform in the development of the commercial ecosystem, especially for keystone. As for them, platforms enable partners to interact efficiently and create their own value proposition while nurturing the entire ecosystem. They believe that platforms can reflect functionality or services that partners can access through a set of common interfaces.

These works show that platforms require leaders to make an effort to share their business ideas or technology platforms in order to attract members of the ecosystem. The role of leadership is to encourage the shared vision of all community members and ensure that their efforts will facilitate the development of beneficial synergies for customers. This shared vision builds innovation efforts and ensures coordination between complementary innovators within the ecosystem. The Focus Company or keystone then Advanced Construction Technology Services (ACTS) as a value architect, deciding whether and when to open the platform, what to open and what to integrate, and ultimately improving the platform's global value. The global value of platforms depends on positive network externalities, which incentivize leaders to expose their most valuable services to attract more complements and partners. As a result, leaders not only shape the global value network, but also reduce the uncertainty of ecosystem platforms over partners' business models.

2.4.3 Platform Competition

Platforms are generally subject to positive feedback loops through network effects in use (Katz and Shapiro, 1985) and increasing returns in supply (Arthur, 1996) which tend to maximize the advantages to companies (O'reilly, 2007). As Cusumano and Gawer (2002, p. 3) stated, "The more people use the platform's products, the greater the incentive for complementary manufacturers to introduce more complementary products, creating a virtuous circle". Because the term platform has been used as part of various approaches from different disciplinary perspectives, there are different research approaches and definitions (Rochet and Tirole, 2003b; Eisenmann et al., 2006; Evans et al., 2008). Therefore, research arrangements are needed to determine how platforms or bilateral markets will be tested from each disciplinary perspective.

In industrial economics, the key issue refers to the theoretical analysis of the platform competition. A significant body of theoretical and empirical literature rapidly emerged, and the platform (or two-sided market) has become a hot research field in industrial economics. The two-sided platforms known today as the economic and business focus were first clearly identified in pioneering research by Rochet and Tirole, whose work began circulating in 2002. They analyzed platforms in a two-sided market with network externalities, using the specific economics of a payment card association through the cooperative determination of an interchange fee. Rochet and Tirole built a framework where banks and merchants grabbed the market and consumers and merchants made rational decision on whether to use a credit card to interpret a platform using a network, the researchers interpreted the factors impacting merchant resistance, drew the comparison between cooperative and for-profit business models, and took the first step in the analysis of system competition (Rochet and Tirole, 2002).

By integrating usage and membership externalities, integrating different factors of the literature highlighting either form of externality, a theoretical model was built by an additional study on the topic by Rochet and Tirole (2006); it gained new outcomes in

terms of the mixture of membership and employment charges when setting price or determining fees between users. The study achieved this using the pure-usage-externality model of Rochet and Tirole (2003b) as well as the pure-membership-externality model of Armstrong (2006). They addressed competition issues among the same typology of platforms and made competing platforms (Rochet and Tirole, 2006).

Yet, Armstrong, in contrast with Rochet and Tirole focusing on theoretical analysis, researched platform competition modeling among different types of platforms. Armstrong, using the Hoteling location model, states that there are qualitative differences between the two platforms (Armstrong, 2006). He interpretes how the multi-home impacts the actions of platform providers through the comparison of the case of two groups: one group choosing single-home with the case of another group choosing multi-home. Three models are presented: a monopoly platform, a model of competing platforms (two-sided single-homing), and a model of competitive bottlenecks.

Monopolistic platforms can only be applied to a limited number of examples of bilateral markets, although there are some applications. Bilateral single guidance involves competing platforms, but it assumes that each participant chooses to join or use a single platform for exogenous reasons. As Armstrong theorizes, when one group continues to process individual platforms (to a single home), the other group wants to process each platform (to multiple homes) through the competitive bottleneck model, the realistic model. These surveys, mostly from the perspective of industrial economics, analyze how the platform addresses the "chicken and egg" issues related to the bilateral market, focusing on conditions and degree of subsidies determine which party gets subsidies.

Accordingly, the field of industrial economics primarily deals with platforms from the transaction perspective. The platform serves as a mediator to broker a deal between two or more participating groups. It was called by Rochet and Tirole (2003a, p. 993) as "a medium where two different groups have mutual interact". Research from a transactional perspective focuses on network effects, that is, when there are more participants from different groups, participants from multiple groups on a platform can

gain greater value and accommodate the dynamics of more participants. The main objective of this analysis is to determine what incentives should be offered to participants in groups and what strategies should be adopted to achieve critical quality.

As a matter of fact, based on the literature review in this section, platform organization and its strategic practice pose several challenges to the existing theoretical research. For example, the classic competition theory is inconsistent with the practice of a large number of enterprises using the platform envelope strategy. Based on the long-term theory of competitive advantage, the competitive advantage of enterprise comes from heterogeneous resources, ability or social network relations (Hoskisson et al, 1999). Since these heterogeneous resource elements have been significantly accumulated, these factors have strong industrial grounding characteristics (Prahalad and Hamel, 1990; Teece, 1997). Thus, enterprises should not enter non-related industries, which apparently do not agree with current platform enterprises' adoption of platform strategies to access to traditional "irrelevant" industries.

Furthermore, the theory of platform does not explain the process mechanism of building competitive advantage of platform envelope strategy. The research of platform theory starts from the field of product research and development. The new product development platform can effectively reduce the cost while meeting the customized needs of customers. Accordingly, the research platform has developed in two directions. First, the internal product development platform has evolved to the level of supply chain platform and cross-industry innovation platform, paying attention to the impact of platform architecture design on innovation ability. Second, it is the research of the "two-sided Market" of industrial organization theory, a platform with transaction attributes that is engaged in dealing with the "chicken and egg" problem when building the platform through price design. Though platform strategy, the construction of platform strategy as a core issue has not yet achieved competitive advantage.

2.5 Research Gaps, Aim and Questions

This chapter elaborates on the existing research results related to platform business, evaluates different perspectives and aspects of platform business, and mainly focuses on four topics: platform business model research, platform establishment, platform adoption and platform competition. The literature review confirms that the platform business model and strategy is undoubtedly an important research topic in the academic and industrial fields.

Both market leaders and emerging companies are looking for a platform business model to dominate the market and gain continued competitive advantage. However, combined with the interesting observed phenomena, it is difficult to explain and explore the observed phenomena well in the literature review, which leads to some research gaps. This thesis tries to solve the identified challenges through case analysis and exploration of theoretical construction. Accordingly, following the discussions of gaps in current platform studies, research aim and questions is also clarified.

2.5.1 Gaps in Current Platform Studies

Platform business establishment and diffusion

In recent years, platform organizations have rapidly emerged and grown. It can be seen that many leading enterprises in the industry are making efforts to transform and upgrade to the platform organization and adopt the platform operation strategy to consolidate the market leading position. Platform business has changed the normal and dynamic of the market. At the era of information technology booming, in addition to the traditional giants, many new companies have also emerged with the help of information technology. Some of these companies have exploited information technology to build their platform businesses, thereby accessing to the market and even dominating the market as a latecomer. To sum up, in the current business environment, especially at the era of big data, most enterprises are interested in transforming and upgrading into platform enterprises so as to start platform business. In this context, understanding how to build a platform business has become a topic of considerable interest and expectation.

Besides, not every platform strategy succeeds, and most of them end up struggling to survive, leading to another type of discussion - how to spread the platform business, i.e., what kind of platform business is appropriate. Furthermore, in addition to the features or attributes maintained by the platform, it is also important to promote the policies it adopts. Yet, due to a lack of dynamic understanding of the platform's business, more indepth research on platform diffusion is also recommended. As mentioned earlier, what platforms are more likely to be successfully diffused, or what common features contained in successful diffused platforms require further exploration. Moreover, apart from the attributes of the platform itself, what strategies can we adopt to promote its diffusion process, and how? Those questions still need to be further discussed.

However, the literature review shows that most of the existing research on platform business tends to analyze existing platforms vertically, with particular interest in explaining how successfully deployed platforms work or how platform enterprises operate through platforms. Yet, practically a growing number of enterprises are seeking to transform or upgrade into platform enterprises, suggesting that more theoretical guidance and practical experiences are required. Thus, more studies are committed to analyzing how a platform business is actually established and diffused successfully with a dynamic manner.

Furthermore, section 2.3 introduces several theories based on the social technology perspective, aiming to understand the process of adopting technologies with specific characteristics in a given social environment. e.g. TAM, DOI, UTAUT, Stakeholder Theory, Institutional Theory as well as ANT. However, the technology platform, as defined by the introduction, is a technology-based platform pattern. In addition to considering its technical attributes, it also considers the platform attributes, such as "two-sided market", "network effect" as well as "ecosystem". As mentioned before, the research related to platform adoption is very limited, and it is clearly not sufficient to

analyze from a technical perspective. Accordingly, to fully understand the adoption of technology platforms, both at the economic level and the technical level are of great significance. A comprehensive analyzing frame is necessary and required, including both economic and technological perspectives to understand the technological platform establishment and adoption.

Platform Competition and Competitive Advantages

Besides, with the establishment and diffusion of platforms, another important or nonnegligible problem is platform competition. Once the platform is deployed, it may always face competitive pressure from traditional industry competitors and potential market entrants. Therefore, to cope with market competition, especially at the age of big data, how to build or cultivate the competitive advantages of platforms is an attractive topic for platform owners and potential entrants. The classic competition theory does not agree with the practice of a large number of enterprises' adoption of the platform envelope strategy. According to the long-term theory of competitive advantage, the competitive advantage of enterprise comes from heterogeneous resources, ability or social network relations (Hoskisson et al, 1999). Because of these heterogeneous resource elements have been significantly accumulated, these factors have strong industrial grounding characteristics (Prahalad and Hamel, 1990; Teece, 1997).

Thus, enterprises should not enter non-related industries, which apparently do not agree with current platform enterprises' adoption of platform strategies to access to traditional "irrelevant" industries. In the practical market competition, there are always new platforms emerging and dominating, and it may be replaced by newcomers. Yet, we also see that some mainstream platforms are still performing well in the market competition. This prompts us to think about how to build competitive advantage for the platform, and how to find the mechanism or source of platform competitive advantage. The relevant platform research needs to be expanded.

Understanding Platform in Big Data Context

Our business environment, compared to traditional platform research, has undergone a comprehensive transformation. The constant development of information technology, especially big data and cloud computing, has fundamentally changed the way and process of business. In addition to the changes in the business environment at the era of big data, the technical platform of big data features is also different from the traditional platform. Accordingly, it is not enough to understand current platform-related phenomena in traditional frameworks or contexts, and further understandings are needed in the context of big data era.

2.5.2 Research Aim and Questions

For bridging the divides between the witnessed phenomena and constraint literature, this *thesis aims to further extend the understandings about platform construction*, *platform adoption, as well as platform competition, especially in the big data context*.

Within the given context, the main objective of this research is to develop a conceptual framework to understand the mechanisms of platform construction, adoption and competition within the given context. With the aim to make defined research objective more operational, the target is expressed into answering three research questions for this thesis, as listed:

RQ1: How to establish a platform business or enterprise, especially within the big data context?

RQ2: How to diffuse a platform business mode successfully, especially within the big data context?

RQ3: How to construct competitive advantages for a platform in the competition, especially within the big data context?

CHAPTER 3: CONCEPTUAL FRAMEWORK

3.1 Introduction

As mentioned in the above section, this thesis aims to further expand the understanding of platform enterprises, platform adoption and platform competition, especially in the big data environment. Three research questions were respectively asked: how to build a platform business or enterprise, especially in the context of big data? How to successfully spread an established platform business, and what features should the platform have for good communication, particularly in the big data environment? How to construct competitive advantages for a platform in the competition, especially within the big data context? Based on reviewed platform studies, a conceptual framework is developed in this chapter to structure the understanding of platform establishment and diffusion, as well as competitive advantages construction (Figure 3.1).



Figure 3.1: Conceptual framework of platform establishment and diffusion.

3.2 Primary Theoretical Perspectives

The economic perspective gains a fairly deep insight into the economic and competitive impact of technology platforms (albeit with limited generality). Yet, as we are examining the creation of platform and the construction of large scale information systems technologically deterministic perspectives are not suitable as a primary lens. Platform cannot be taken as a given but must be endogenous to the selected approach. Since our research also involves the social and economic effects of platforms, it is not appropriate to adopt a method that reflects social determinism. Research based on this perspective will not allow us to consider the dynamic interaction between industry participants and technologies.

Some institutional theory-based studies have examined the impact of technology upon social relations and others the institutional pressures of technology. Yet, there is a lack of empirical work that looks at the dynamic two-way interactions among technologies and organizations. Its sole focus on long term institutional pressures limit is applicability as we cannot so readily ignore rational/performance pressures. The theory has a relatively limited ability to deal with how institutions are formed, changed, stabilized or dissolved, plus it is technologically underdeveloped and less suited to the creation of complex large-scale platforms.

Actor-Network Theory (ANT) is based on that it is unlikely to study the social or the technical in isolation (Latour, 2005). In the present study, ANT served as the main theoretical lens for examining the social technical means of reaching agreements during platform construction and adoption, as well as the broader structure of relationships among organizational participants. It lends itself to the consideration of hybrids of human and non-human elements (Walsham, 1997) and avoids both technological and social determinism. It provides theoretical and methodological bases for incorporating the persistent social and technical pressures associated with institutional actors as well as short-term rational/performance pressures. Yet ANT is a just a conceptual and methodological framework. It doesn't tell us anything about platform building and

proliferation. Its impact on the relationships between organizations that builds large systems, or the types of connections that exist between participants. Subsequently, we analyzed the translation process undertaken by actors in the process of platform production and adoption, focusing on how actors develop different strategies to pursue their own interests, and how they connect with others to make it possible. ANT focuses on the network building and formation process, while inscription and translation are the two core concepts of ANT (Callon, 1991). In terms of technology innovation studies, ANT is normally adopted to understand how technology is accepted within a network, and how the networks are formed and sustained (Elder-Vass, 2008, Yongwoon and Shin, 2015). Technology innovation is seen as a process in which an actor network of organizations with varied interests is formed and maintained around the technology (Gao, 2006, Lee and Oh, 2006). The successful innovation is determined by whether the focal actor can enroll other key actors into the actor network and align heterogeneous interests to the technology innovation initiative (Gao, 2007). This research is set to understand technology-based platform from establishment to diffusion. Accordingly, the basic theoretical perspectives in ANT can also be adopted.

Thus, based on ANT, keystone organization is viewed as a focal actor enrolling actors into the platform. Besides, the platform is considered as a process where an actornetwork of various types of organizations is involved (Fomin, 2008). Yet Howcroft et al. (2004) suggests that since actors "might not completely understand the assigned role and the flexible context may lead to re-inscription", the outcomes of building the network and creating inscriptions are unpredictable. On the contrary, if the actor network is operating with strong and stable ties, it can be considered as a package or resource in the later stage of building larger scale networks. ANT scholars have called this a "black-box", and Callon (1991) suggests that the "black-box" is normally irreversible. This suggests that it is hard not only to undo or cancel the previous translations, but also to confine it in the future.

Technology platform dynamics can include multiple translations: platform launch, goal

and specification achievement, adoption of organizational participants, and platform dissemination across all relevant organizations. The platform both is shaped by translations among other organizations, and it shapes the actor-network where it becomes embedded in the other way. Accordingly, platform dynamics can be learned as an ongoing transformation and exploration of new Obligatory Passage Points (OPP) and new organizations to advance the interactive process of the platform.

The development of technology platforms requires a variety of translations, including the launch of platform work, the achievement of goals and specifications, the adoption of organizational participants, and the promotion of platform-based products and services. Translations among human and non-human actors must take place at each stage for platform to progress. Emerging platforms have many characteristics (e.g. scope, flexibility, procedure for definition, legal status, and enforcement procedure), which are subject to multiple translations among many actors as the platform, and its characteristics, are incorporated into the actor-network and subsequently influence ongoing translations. Platform is formed through translation with and between other participants, which in turn shapes the network of actors embedded within them. The platform is accordingly an ongoing interactive process of translating and discovering new OPP and new actors to advance the platform. The three stages of translation are central to how the establishment and adoption of our analysis platform plays a role in very large system design.

Problematization

Given these benefits, it wants participants to decide whether to start the platform work. In the process of problem-solving, the actor allocates the identity, interests, values, projects, desires, strategies, responses and worries to other actors to make them consistent with his own. Actors try to make themselves indispensable by defining an OPP under their control, and other actors must realize their interests through this OPP (Callon, 1986). The OPP is typically in the actor's direct path while others may have to overcome obstacles to pass through it (Callon, 1986; Sidorova & Sarker, 2000). The definition of others' interests and of the OPP is part of the actor's platform strategy. Other elements may cover creating incentives to encourage others to overcome barriers to passing the OPP. We defined a set of policies to incorporate other participants into the platform policies.

In the case of an actor trying to create a platform using market-based mechanisms, its platform strategy includes defining the interests of the actors that it wants to adopt. There may be other external elements, including strategies for recruiting technology and organizing participants, which make up the platform strategy. As for the board platform, the initial strategy involves identifying the interests of other participants so that they adopt the goals of the platform's work and participate in the committee process. Prior to this, at least one actor must have problematized the selection of either market or committee-based mechanisms for platforms creation. In formulating platform strategies actors hypothesize or imagine alternative actor-network configurations (Callon, 1986; Latour, 1995). The actors' interests shape their preferences for alternative configurations. Their perception of existing actor network configurations provides an understanding of the translations required to realize alternative future configurations. Accordingly, we can envisage a strategy formulation model in which the interests of the participants are coordinated by their vision of the future configurations.

Platform policies may be based on more or less complete or complex models configured for existing and imagined role networks. We in no way imply full knowledge of actornetwork configurations nor infallible strategy formulation and execution. We allow for actors' recognizing the uncertainty around actor-network building and for their simultaneously imagining multiple possible futures and creating strategies which they believe will make the more attractive futures (i.e. those more aligned with their own interests) more likely and unattractive futures less so. We only conceive of actors with at least some human component as creating platform strategies. Non-human actors are the goal of heterogeneous engineering efforts, which are formed by platforms acting through strategies of cooperation (or non-cooperation) with human actors or through inscriptions embedded in technology, law, ideology or other artifacts.

Interessement

In the second translation phase, interest, the actor executes its strategy and persuades other actors to accept its defined benefits. Subsequent negotiation, interaction, and translation may eventually lead to the creation and dissemination of the platform. Interessement and other interactions among both human and non-human actors are able to modify human actors' perceptions of (a) current and future actor-network configurations, (b) the interests of other actors and (c) the translations required to bring about possible future actor-network configurations. The feedback inherent in this process allows the refinement and alignment of actor's perceptions of actor-network configurations and interests. We consider problematization (e.g., strategy formulation) and the interactions among actors (e.g., interessement or strategy execution) as an ongoing dynamic process at the heart of aligning the diverse interests and imagined futures of heterogeneous actors.

The proposed platform will not be transmitted without modification (Latour, 1986). They move through time and space in the hands of actors that react to them in different ways (modify, deflect, betray, augment, appropriate or drop) (e.g. Lyytinen & Fomin, 2002). If the participants in their contact do nothing, the diffusion of the platform process or platform stops.

Enrollment

The final stage of translation, registration, is another time for another participant to accept benefits defined by the participant. In successful platform work, the benefits of a range of participants are translated into agreements on platform scope and content. The platform is inscribed in documents, software or technical artifacts, which bolster its durability. The platform may be framed as the solution (OPP) to certain industry problems and the actor-network widened in time and space as more actors adopt it. If the platform builds a strong enough network of actors (implementations, user and regulatory approvals), it becomes a black box, irreversible. In the process of continuing to build a role-network platform, roles are taken for granted and used as "packages" that shape and limit the possibilities for the future. While enrollment implies a degree of acceptance of assigned roles, actors may not fully assume these roles. Even if the desired translation is achieved, the actor network configuration may not be as expected (e.g. due to translations accomplished among others). The transformation of the original proposed platform by multiple actors to meet their own needs often entails some loss of control by the initiating actor, changes in OPPs and many actors' interests. Accordingly, the results of the creation and creation of an actor's network are unpredictable.

In brief, it is very appropriate to refer to the actor-network theory in social technology research to understand the establishment and diffusion of platform business. Comparatively, the process of platform establishment and propagation is interpreted or decompressed as the translation process in ANT. During this process, the platform has been initiated, developed and diffused at last. ANT provides a conceptual frame for us to follow to understand the research questions that are asked. The following sections discuss frameworks developed based on introduced frameworks to understand how platforms are actually built and diffused, and how platforms generate comparative advantages through a resource-based perspective.

3.3 Platform Establishment and Diffusion

In the technology adoption part of Chapter 2, several social technology theories are reviewed. In practical application, every theoretical perspective has its advantages and limitations. Therefore, selecting an appropriate theoretical perspective must combine with the purpose of research and the specific question. In this thesis, we aim to understand the transformation of platform from establishment to final diffusion, actornetwork theory (ANT) is adopted accordingly, becasue it can provide the basis for theories and methods to incorporate persistent social and technical pressures related to institutional actors as well as short-term rational pressures. ANT is typically used to analyze the creation and adoption of technology, to examine what protocols have been reached during this process, and to explore the interrelationships between each participant in the network.

ANT has broadly served as an analysis framework, and the translation process is always at the center in different analysis cases. Translation in ANT refers to actors that in the network intend to align the interests of others with their own (Latour, 2005). Callon (1991) states that translation in ANT normally includes three stages. These three phases form part of the conceptual framework for understanding the establishment and dissemination of the platform's business model.

The first is problematization. At this stage, there will be a focal actor to build the problem and define the identity to guide the interests of other participants in line with their own interests. In addition, focus actors will try to make themselves indispensable by creating a Obligatory Passage Point (OPP) entirely under their control. As for other actors, if they want to achieve their own interests, they have no choice but to pass through the OPP. Often, the OPP is always in the direct path of the focus actor, while others may face some difficulty passing it. Even so, they have no choice but to achieve their goals (Callon, 1991). When the platform is established, the platform owner controls an OPP, which the other platform participants then align with to form a network.

The second stage is interessement. Defining interests and creating OPP can be considered as part of a focused actor's strategy to achieve its own goals. Yet as introduced, other factors might have to overcome some obstacles to pass through the OPP. Accordingly, the focal actor should take some strategies to convince other actors to accept its definition of their interest, and further to be motivated to pass through the OPP (Latour, 2005).

The third stage is enrolment, which means the moment that other actors accept the definition and decide to participate. In this stage, actors are clear about their roles in the newly created network. In brief, focus actors should well allocate their interests, goals, projects, strategies, and even afterthoughts during the translation process (Montenegro and Bulgacov, 2014).

Yet as Howcroft et al. (2004) suggests, the consequences of building networks and creating inscriptions are unpredictable as actors may not fully understand the assigned roles and flexible contexts may result in the re-inscriptions. Conversely, if the ant runs in a strong and stable relationship, it can be viewed as a package or resource late in building a larger network. These packages were named by ANT scholars as "blackbox", normally these black-boxes should include agents, institutions, interactions, boundary protocols, and organizational forms. As Callon (1991) suggests, the "blackbox" is normally irreversible, and it is not only difficult to undo or cancel the translations in previous but also confine in the future. Thus, for the owner or initiator of the platform, the goal of establishing and spreading the platform is to create such a "black box".

3.4 Competitive Advantages of Platform

In the last part of the second chapter, the thesis also reviews the research on competitive advantage and platform competition. Competitive strategy focuses more on industry and competitive advantage focuses more on organization. When making a decision on competitive strategy, there are two questions which need to be considered. tThe first one is to what extend the industries can stay long-term benefits and what factors affect it. Second, competitive strategy plays a key role in the relative competitive position of an industry. According to literature review, competitive advantage comes from creating value for customers. As reviewed, the resource-based view of the firm primarily contains two hidden contentions: the first is resource heterogeneity, suggesting that different companies within the competition possess different resources; the second one is resource immobility. This suggests that this disparity in resources can persist for a long time. These two basic claims are linked to continued competitive advantage.

Industry in the context of integration platform for enterprises to choose the platform envelope strategy is the key on the cognitive from support competition "difference" to "common support competition", a deeper theoretical logic analysis paradigm is the competitive advantage theory, the "supply side" to the "demand side". Platforms, as supporting infrastructure development, are different from traditional enterprises in thinking about how to apply their heterogeneous resources, capabilities, and network new products, services or other industries to make profits. What is more important is the competition between businesses to consider whether there is some common support. The common resource and capability are a common need.

As the cornerstone of the platform, these common resources can be "danced" on the same platform by users from different industries, different products and services. This book case analysis shows that such common resources and capabilities are user data resources and the development and service capabilities based on user data resources. Previous theoretical research on competitive advantage is to analyse competitive advantage from the "supply side", and to support enterprises to establish "isolation mechanism" by having valuable, scarce, difficult to imitate, and difficult to replace heterogeneous characteristics of resources and capabilities, as to gain competitive strengths. This supply-side paradigm values "value acquisition" and ignores the more important "value creation". Value creation requires a product or service that truly provides users with "pain points". Improving user value through service is the fundamental of competition and the "common rule" of competition among different industries. Platform enterprises accurately grasp this common law, and platform infrastructure covers key resources such as user data.

Thus, under the background of industry integration, platform enterprises will share based on infrastructure to enhance user value experience and implement strategies covering different industries, products, services and functions. The new service function of the platform envelope and the complementary symbiosis of the original platform ecosystem further enhance the competitiveness of the platform business ecosystem. The enveloping strategy has no virtual shape, so choose the Internet platform of enterprise "patent". Traditional enterprises can also adopt this strategy to build the key of competitive advantage from "supply side" to "demand side" from the management concept and cognitive strategy. Accordingly, in this frame, it is believed that the competitive advantage to highlight the "difference support competition" and "supplyside paradigm" over support competition "generality" paradigm. In conclusion, based on data analysis, it is more helpful to discover commonalities or commonalities than differences implied by traditional theories, which can be seen as a significant shift in the context of big data.

3.5 Promoting Platform Dynamics: Strategies

As suggested by the framework, on the basis of understanding the process of building and diffusion of ant platform, many specific strategies or technologies can be used to promote the formation and diffusion of the platform at different stages. There is no "one-size-fit-all" method for promoting the procedure and constructing competitive advantages. Given the background of big data, several typical strategies can be adopted according to literature review.

Basic user precipitation

At the Internet era, enterprise management has changed from "enterprise orientation" to "user supremacy". Platform architecture is the foundation of platform envelope, and user data is the foundation of platform architecture. It determines the design, platform, content, experience and evaluation of platform operation. Accordingly, it differs from previous enterprises to build competitive advantage by acquiring or accumulating heterogeneous technical capacity and asset elements. The construction of platform envelope strategic competitive advantage is "reverse" process. It starts from the client side, improves user experience, integrates different resources and capabilities, creates value for users, and gains competitive advantage.

The construction process and key of competitive advantage are the foundation of user data. User data resources must be controlled by platform enterprises, and the user data resources need to acquire resources and capabilities can be acquired by multiple means. Thus, the first task of exploring the platform envelope strategy is to build a basic user database. Which strategies can be used to accomplish this? What resources and capabilities are needed to support the strategy? Accordingly, we suggest that platform envelope strategic exploration phase mainly use the existing resources and ability to take its own transformation, purchase and aggregation strategy to build basic user database, like improving service experience precipitation-based user build competitive advantage.

Network effect excitation

The basic user database built around the strategic exploration stage is the cornerstone of the long-term development of the platform. Under the background of industrial integration, platform enterprises find that the barriers and boundaries of different industries are being progressively broken. Meanwhile, data resources in the platform infrastructure can be shared by multiple industries. New service development facilitates positive feedback between service content increase and user scale increase; through service binding and service platform integration, the strength of the relationship between user groups and users is increased, and when a certain threshold value is exceeded, strong crossover network effects are stimulated. In previous platform researches, the scale of platform users has been widely concerned. The expansion of scale can stimulate the "winner-takes-all" effect and cross-border network effect on the same side. Scale is important, whereas is it just the size of the network? The network relationship strength is also a critical factor impacting the network effect, and the process of the platform envelope process is exactly the process of increasing the strength of the association between the multilateral users.

Enterprises are suggested to be able to increase the platform function modules through the platform envelope and provide services to more suppliers and users, thereby significantly increasing the user scale. In the meantime, the platform to provide users with various "bundled" service, the degree of dependence of users on platforms and users is on the rise. According to the classic description of the relationship between big winners, the strength of multilateral relations within the user network platform is improved. When the network size and relationship strength exceed a certain threshold, it will stimulate the same side and cross-boundary network effect, thereby helping the enterprise gain competitive advantage. Accordingly, we believe that the strategic growth of the platform is mainly through the development of new services, services and integration of service platforms to increase user scale and strength, motivate and intersect with network effects to build competitive advantages.

Commercial system symbiosis

The platform, integrated with multiple services developed in a bundle with user value, effectively covers the multi-user community. What "platforms" are adopted within each user community to ensure order, and what "rules" are adopted between different user communities to achieve interfacial interoperability and complementary functions. Building an orderly business ecosystem becomes the main work of the maturity of the platform envelope strategy. Platform and the difference between ordinary alliance, which is not only a business cooperation network, or connected to the supply of community, the demand of community and complements providers of business ecosystem. The initiative of multilateral users in the system has been fully developed, which has greatly promoted the complementarity innovation. While enveloping the open interface platform, the control architecture should also be strengthened. The control of the architecture can promote the symbiosis between groups rather than competition dependence. In the meantime, enterprises are ensured to have their own ecosystem business leadership platform, and the foundation is laid for sustainable competitive advantage.

Accordingly, we believe that the specific formation process of the dominant architecture includes three key actions: basic user precipitation, network effect stimulation and business system symbiosis. During the strategic exploration period, basic user precipitation can lock users' consumption habits and increase the cost of user conversion. Strategic growth, services and integration increase user scale and the relationship between strength, when the strong relationship between size and long span a certain critical point, will inspire the same side and across the side of network effects, and can lead to a "winner-take-all", leading architecture prototype begins to emerge. Strategic stage, through the platform envelope fusion in different market multilateral users to build up the business ecosystem, the new ecological system means that the formation of the new architecture, and platform providers dominate in the industry structure, become the shaper, rules of business ecosystem designers and system

administrators. When the architecture solidifies, it will lock the leadership of the platform enterprise in the ecosystem, thus ensuring the sustainability of the competitive advantage.

In addition, platform enterprises build a new "dominant architecture" of business ecosystem through the platform envelope mode and lock the architecture into the platform strategy to build a guarantee of sustainable competitive advantages. In line with the sources of competitive advantage theory, the internal logic and the general analysis framework of sustainability, above the industry under the background of integration platform building envelope strategy process is a concrete analysis of competitive advantage. It is found in the studies that with the traditional strategic competition advantage to build from the organization to services to meet different user needs, the platform envelope the strategic competitive advantage selects the user as a starting point and undergoes a "reverse" process from the user data to service development and ecosystem.

In brief, we believe that the industry under the background of integration platform for enterprise users as the envelope of various industries and the service function of common basis points, "reverse" build up competitive advantage through the "Basic user precipitation – Inspire network effects – Commercial system symbiosis – Lock dominant architecture" mechanism chain.

3.6 Conclusion

In this Chapter, the conceptual framework is developed on the basis of a review study. The framework is developed primarily to build an understanding of platform building and diffusion, as well as to build competitive advantage. Actor-network theory is adopted to understand the understanding of how a successful platform business is actually established and diffused; an improved resource-based view of how the established platform business model can be built with continued competitive advantage. Besides, in each section, several specific strategies and techniques are also introduced based on reviewed studies. Two theoretical perspectives form the basis of our understanding of the work. The next chapter describes the research design of this thesis.

CHAPTER 4: RESEARCH DESIGN

4.1 Introduction

This chapter expounds the research design and establishes the link from data collection and analysis to the research questions. This study adopts the qualitative research method to answer the research questions through the analysis of the cases of two comparison platform enterprises in China.

4.2 Philosophical Perspective

Each study has a hypothesis highly relevant to the effectiveness and methodology of the study (Myers, 1997). Various philosophical assumptions may lead to differences in how we understand the nature of things (ontologies), how we explain the nature of knowledge and what counts as knowledge (epistemology), and what methods we use to acquire knowledge (methodologies). Therefore, the results of research on the same subject may be different due to different philosophical assumptions (Mingers and Willcocks, 2004). There are several following Orlikowski and Baroudi (1991) philosophical assumptions including positivism, interpretivism and critical realism. Table 4.1 lists a comparison of the differences in ontological, epistemological, and methodological assumptions between three perspectives.

Positivism assumes that reality exists objectively and can be described by measurable attributes that exist independently and are beyond the control of researchers. Positivist studies usually try to increase the predictive understanding of phenomena by testing proposed theories (Orlikowski and Baroudi, 1991). In other words, positivist studies can be described as studies using hypothesized deductive methods, aiming to establish a relationship between a group of variables that might be predictive (Tsang, 2014). Positivist research generally adopts quantitative methods, such as questionnaire survey, and static methods for data collection and analysis to establish the relationship between variables (Yin, 2009). Orlikowski and Baroudi (1991) proposed that studies could be

classified as positivists if "evidence of existential formal propositions, quantifiable measures of variables, hypothesis testing, and inferences from the sample to the designated population".

Interpretivism normally assumes that if social structures such as language and common sense are ignored, reality cannot be properly reflected (Orlikowski and Baroudi, 1991). By viewing reality as socially constructed, interpretivism believes that diverse meanings can exist with different social constructions, and these meanings can influence how the objective world is understood, and how people respond (Tsang, 2014). Thus, to understand "the meaning and behavior of actors according to their own subjective frame of reference", hermeneutic research generally tries to explore this phenomenon through the meaning given by human beings (Mingers and Willcocks, 2004). Accordingly, intensive interviews, participation and observation are often used to reveal this intentional phenomenon, and qualitative research methods such as ethnography and case study are preferred to positivist research (Tsang, 2014).

Critical realism was originally positivist empiricism and interpretivist idealism (Mingers, 2002). It is designed to describe the interface between society and nature because the perspective is developed through the combination of transcendental realism (general philosophy in natural science) and critical naturalism (philosophy in social science)(Archer et al., 1998). Therefore, the critical realism view acknowledges that reality is objective, but it points out the layers of reality and points out that the observed events are generated by structures and mechanisms that make up layers (Tsang, 2014).

Critical realism scholars believe that "social reality is constituted by history, generated and reproduced by people" (Orlikowski and Baroudi, 1991). It argues that, although people who produce social reality are capable of changing social circumstances consciously, their ability to change is constrained by various forms of environment, such as social, political, and cultural domination. Accordingly, unlike positivist and interpretivist studies, critical realism studies not only support the predictive ability of exploring structures and mechanisms, but also cherish adequate explanations of past events (Tsang, 2014). Besides, as Orlikowski and Baroudi suggested (1991), it highlights the conflicts and contradictions of contemporary society and does not have a clear preference for quantitative or qualitative research methods.

Positivism	Interpretivism	Critical realism
Reality is objective. Events	Reality is socially	Reality is objective but
are constrained by the	constructed by people.	stratified, consisting of
human conception of	Multiple realities of an event	structures, mechanisms and
causality.	are possible.	events.
A hypothetical-deductive	Generating knowledge by	Retroduction is applied to
approach is applied to	interpreting the subjective	create theories concerning
discover law-like	meanings and actions of	the structures and
relationships that can	subjects and events.	mechanisms that generate
predict.		the observable events.
Quantitative methods	Qualitative methods based	No preference; sometimes a
based on strategies like	on strategies like case	mixed method is also used.
surveys.	studies.	
	Positivism Reality is objective. Events are constrained by the human conception of causality. A hypothetical-deductive approach is applied to discover law-like relationships that can predict. Quantitative methods based on strategies like surveys.	PositivismInterpretivismReality is objective. Events are constrained by the human conception of causality.Reality is socially constructed by people.A hypothetical-deductive approach is applied to discover law-likeGenerating knowledge by interpreting the subjective meanings and actions of subjects and events.Predict. Quantitative methods based on strategies like surveys.Qualitative methods based on strategies like case studies.

Table 4.1: Comparison of positivism, interpretivism, and critical realism.

Source: Adapted from Tsang, 2014.

This thesis takes the perspective of interpretivism as the philosophical hypothesis. The interpretivist view of social science is that the individual methods of natural science alone are not enough. Accordingly, Interpretivism generally believes that reality cannot be properly reflected if social structures such as language and common meaning are ignored (Orlikowski and Baroudi, 1991). Interpretivism regards reality as social construction, and thinks that different social construction may have different meanings, which will affect people's understanding and reaction to objective world (Tsang, 2014).

Thus, in order to understand "the meaning and behavior of the actor according to his own subjective frame of reference", the research of interpretivism generally tries to explore this phenomenon through the meaning given by human beings (Mingers and Willcocks, 2004). According to Kaplan and Maxwell (1994), interpretivism study mainly focuses on the complexity of senses made by human beings, and neither dependent nor independent variable is predefined. Therefore, intensive interviews and observation are usually adopted to find this intentional phenomenon, while qualitative method is the first choice (Tsang, 2014).

4.3 Research Methodology

4.3.1 Qualitative Case Study

As Myers (1997, p.6) defines, a research method is "the strategy of inquiry which moves from the underlying philosophical assumptions to research design and data collection". In the literature, two methodologies are mostly applied, namely qualitative and quantitative methodology (Baxter and Jack, 2008). Underlined by different philosophical perspectives, quantitative methods are normally adopted when answering "what" and "when" questions, while qualitative methods are mainly applied when "why" and "how" questions are asked (Yin, 2009). Qualitative methodology is adopted.

In addition, some specific research strategies, such as experiments, archival analysis and case studies, are proposed to serve the qualitative methods (Yin, 2009). To determine which strategy is appropriate for a specific type of research, Yin (2009) summarized three considerations: firstly, the type of research questions posed; secondly, the extent of actual control the investigator has; finally, the degree of focus on the contemporary as opposed to the historical. For example, in terms of case studies, Yin (2009, p.29) suggests that this strategy can be applied when "how and why questions are being asked, about a contemporary set of events over which investigators have little control". In addition, if context conditions are included in the study, the case study strategy is also recommended, because the strategy believes that "context conditions may be highly relevant to the observed research phenomena". Given the purpose of this study, a case study strategy is adopted.

For designing the case study, Yin (2009) distinguishes between single case and multiple case study designs. Thus, when a case is extreme or unique and can represent a significant contribution to knowledge and theoretical construction, a single case study is usually applied. Multiple case studies are normally capable of helping in understanding the similarities and differences between the cases. Benefiting from replication, the logic underlying the multiple case study design can create more robust and reliable evidence

(Baxter and Jack, 2008). Given all the suggestions for selecting research settings and case studies, a comparative case study strategy was selected. For case study, an Internet-based Chinese enterprise – GEC and an internet-based Chinese commercial real estate enterprise –VJ were taken as the focus target to understand the establishment, adoption and competition of the platform.

4.3.2 Data Collection

Literature research, participatory interview and semi-structured interview were used to collect data (Baxter and Jack, 2008, Zucker, 2009). For documentary research, on one hand, some official websites of actors that have been enrolled in the platform were visited as most basic and general information could be found; on the other hand, many valuable insights and information were also collected from the reports and other archives of the enterprise. Since the author worked in the top management level as the Chief Operation Officer in GEC and the shareholder of VJ, the participation methods were also adopted accordingly. Besides, we conducted semi-structured interviews with key figures in GEC and VJ to gain insight into the case.

During the interview at GEC, three senior executives and six department managers from different departments were interviewed, all of whom were very familiar with the implementation of their enterprise strategies, objectives and functions. Besides, we also selected the interviewees from other organizations on the platform which the enterprise established and operated. The summary of interview information from GEC is generated in the Table 4.2 as follows. In addition, the summary of interview approaches or process is generated in the Table 4.3 as follows. The details of each nominee are summarized in the appendix.

Department/Organization	Interviewee
General Management Department	Department Manager
Research & Development Department	Department Manager
Product Quality Control Department	Vice Department Manager
Technology and Product Department	Department Manager
Top Management	COO, CEO, CTO, CFO
Marketing Department	Senior Specialist
Partnered Suppliers	ROBAN; TOTO; BOLONI; OULIN; TOSHIBA
Partnered Construction Team	Construction Team Manager

Source: summarized by author

Approach	Quantity	Detailed information
Pre-interview questionnaires	20	Sent out pre-interview questionnaires and information sheets to 20 eligible and accessible potential Chinese interviewees.
		Information sheets included the basic information about this research and the researcher, as well as the procedure for the interview.
		15 questionnaires were collected, 15 agreed to be interviewed.
Semi-structured 15 interviews	15	10 interviews were semi-structured, 5 interviews were unstructured.
		9 interviews were conducted during in 2017: the rest of the
		interviews were conducted in 2017, the fest of the
		11 interviews were conducted in Hangzhou, 4 in Shanghai.
Follow-up feedback	9	Planed to be conducted after all interviews finished, aimed at checking the accuracy of data and understanding.

Table 4.3 Interview approaches in GEC

Source: summarized by author
The interview with VJ interviewed two senior managers and five department managers from different departments, who were very familiar with the implementation of their enterprise strategies, objectives and functions. Besides, we also selected the interviewees from other organizations on the platform which the enterprise established and operated as well. The summary of interview information from the VJ is generated in the Table 4.4 as follows. Besides, the summary of interview approaches or process is generated in the Table 4.5 as follows. The appendix summarizes the details of each anonymous interviewee.

	Table 4.4	Interview	Information	in	VJ
--	-----------	-----------	-------------	----	----

Department/Organization	Interviewee
General Management Office	Chief Secretary
Research & Development Department	Department Manager
Investment Department	Vice Department Manager
Technology Department	Department Manager
Top Management	CEO, CTO
Marketing Department	Senior Specialist
Partnered Organizations	Property Developer; Commercial Tenant; Proprietary

Source: summarized by author

Approach	Quantity	Detailed information
Pre-interview questionnaires	15	Sent out pre-interview questionnaires and information sheets to 15 eligible and accessible potential Chinese interviewees.
		Information sheets included the basic information about this research, as well as the procedure for the interview.
		13 questionnaires were collected, 10 agreed to be interviewed.
Semi-structured interviews	10	 8 interviews were semi-structured, 2 interviews were unstructured. All interviews were conducted in Chinese. 10 interviews were conducted during 2017.01 – 2017.03. 10 interviews are conducted in Shanghai.
Follow-up feedback	7	Planed to be conducted after all interviews finished, aimed at checking the accuracy of data and understanding.

Table 4.5	Interview	approaches	in	VJ
1 4010 1.5	miter view	upprouenes		• 5

Source: summarized by author

In both cases, semi-structured interviews were adopted to allow for more open and fluid discussions, as different managers had different roles and are familiar with some elements of our business model but not with others. Generally, two rounds of interviews were actually taken: one round was pilot fieldwork for getting touch with potential interviewees and the other was formal one. During the pilot and the formal fieldwork, potential eligible interviewees were identified, and the same numbers of pre-interview questionnaires were sent out. These pre-sent questionnaires were then collected. Some respondents were unable to attend the interview, and most of them gave positive feedback. The above table summarizes the interview information.

On the whole, each interview lasted at least 60 minutes, but no more than 90 minutes. The protocols for interviews were designed based on the research questions, on issues implied by the reviewed literature, and on some of the interviewees' feedback in pilot fieldwork. Different schemes were designed and applied to different respondents. The interview was conducted in Chinese to ensure the originality and subtlety of the communication. Audio recordings and written transcripts were recorded during the interview. After the interview, the neutral observer closed the conversation and wrote down the key words for each element.

4.3.3 Data Analysis

In order to analyze the data, this thesis adopts the strategy of "guiding case study with theoretical proposition as orientation" (Yin, 2009, p.130). The analysis of data and the narrative of the case studies were all inherent and based on the theoretical propositions, which include the research questions, the developed conceptual framework, as well as the qualitative case study strategy that was adopted. Therefore, this thesis conducted three rounds of data analysis from shallow to deep (Mingers et al., 2013).

First and foremost, some "early steps in analysis" were taken, mostly based on the data collected from documentary research. As previously elaborated, this part of the data collection and analysis was mainly implemented to draw the overall picture of the background to the selected cases. On the basis of the overall situation described, interviews and further case descriptions were constructed to find out the detailed information needed to be collected and identify potential suitable interviewees. Secondly, based on the data collected in the interview, the overall picture of the selected cases was refined from rough to fine. Subsequently, on the basis of the second analysis, the descriptive part could be described for further analysis. Lastly, based on the previous two rounds of analysis, we moved further to seek the answers to the proposed research questions. To be specific, we conducted two types of analysis based on the case studies. Following the duplication strategy, the mechanisms and the patterns of platform construction and adoption were explored (RQ1 and RQ2); by adopting comparison strategy, the differences were summarized (Cavaye, 1996).

Furthermore, to ensure the quality of data collection and analysis, the strategy of triangulation was adopted in both stages of this research. As Mathison (1988) suggested, "triangulation is to control bias and establishing valid propositions". In practice, triangulation normally refers to application and combination of several methodologies in one study to facilitate the trustworthiness and validation of data through cross verification from more than one source, such as by combining multiple observers, theories, methods, materials and even researchers (e.g. Kaplan and Maxwell, 1994).

4.3.4 Ethical considerations

Ethics are a critical issue that all researchers should consider when conducting "real world studies", especially for researchers doing qualitative studies and applying case studies as the methods of research. There are usually two issues that need to be addressed, first of all to make sure that any research that we are doing is conducted in a way that recognizes the rights of the participants; second, when conducting studies involving participants, we conduct them ethically.

This study seeks to achieve the ethical practice of the platform to protect data and informants. Some steps were taken before and during data collection. For instance, before the pilot and formal fieldwork, the form named "Research information pages" was sent to the interviewees (attached in Appendix). This was to give participants a comprehensive understanding of our research background and answer questions about data and information protection. Subsequently, before the interview began, the "informed consent" was proposed and explained and signed by the interviewee (attached in Appendix). After the interviews, all interviewees were anonymized in the transcribing, analyzing and writing up. Accordingly, this work should not have ethical issues.

4.4 RESEARCH QUALITY

4.4.1 Internal validity and data analysis

The concept of validity has different interpretations in different disciplines and different methods (Golafshani, 2003). Under the background of social science, especially in qualitative empirical research, validity usually refers to the extent to which a concept, conclusion, or measure has been fully explored and is consistent with the real world (Stenbacka, 2001). To be straight forward, validity means accuracy throughout data collection, data analysis, and the formation of conclusions. In terms of controlling validity in research, Yin (2009) presented three types of validity, i.e., construct validity, internal validity and external validity.

Construct validity

Construct validity refers to whether the researchers have developed a set of "fully operational measurement methods" and whether the data collection is free of subjective bias from the researchers (Yin, 2009). In terms of designing sufficient operational measures, as illustrated in the previous chapter, this thesis divides the proposed research aim into three grounded research questions, which is easily understood and more feasible to answer. In addition, under the guidance of the conceptual framework, this thesis decomposes the answering process of these questions into three different but progressive stages, as described in this thesis, which improves the feasibility and operability of the measurement method in this study.

In addition, by keeping in mind triangulation strategies, the work avoided subjective bias as much as possible throughout the study. For instance, the initial aim was to use multiple sources of evidence to collect data. Furthermore, the same strategy was also adopted both in cross-checking the content provided by different informants, and in comparing the similarity and accuracy between the information collected from the documentary research and that collected from the interviews.

Internal validity

Internal validity means an inductive estimate of the degree to which a causal relationship is concluded (Yin, 2009). In this thesis, internal validity is properly controlled mainly in three aspects. First, the methodology is adopted based on interpretivism which underpins this research as the philosophical standpoint. In accordance with a given example, repeated analysis of two unrelated cases ensures a high degree of causality required for internal validity.

Secondly, the intrinsic validity of this study is guaranteed by the highly logical design of the whole thesis. This study stems from an interesting phenomenon, namely the booming development of platform business. To interpret the phenomenon, relevant literature is reviewed. Meanwhile, three research gaps are identified in the present innovation study. In order to make up for the existing research blank, this thesis introduces the research objectives, and puts forward the main research questions. On the basis of literature review, a theoretical framework is established to solve the proposed research problems.

The framework is adopted to guide the research, as the data is collected based on documentary research and semi-structured interviews, which are inherently designed based on the theoretical framework that is developed. Research questions are answered based on data analysis which are structured by conceptual framework that developed. Such a systematic approach of coding not only provides a reliable way for gathering data from the case studies, but also helps to construct the analysis rigorously. The concluded methods adopts throughout the study jointly ensure the required internal effectiveness.

4.4.2 External validity and Reliability

External validity

As Yin suggested (2009), external validity concerns the degree to which the results of a piece of research can apply to other cases. Generally, external validity is difficult to measure and control for a case study because most case studies are selected on the basis of their uniqueness and representativeness. Accordingly, generalization cannot be complete until the theory is tested by replicating the findings obtained for other cases. Yet, external validity is involved from the initial research design to the implementation of this work.

In addition, despite environmental problems, the understanding of the mechanisms involved is the core objective of this study. Using a unique approach, in the same context, in different industries with completely different business processes, two mechanisms are summarized from two cases, which also confirmed that the structure and randomness of objects are fixed in reality. This indicates that the generalization is not only feasible but is also operable.

Reliability

Reliability is introduced as the extent to which the results are consistent over time and their degree of trustworthiness (Seale, 1999). That is, reliability refers to whether the quality of research is reliable, reliable and trustworthy. In empirical studies, reliability is not only a platform for validating collected data, but also a measure for data collection and analysis.

To control the reliability of collected data and the measurements, this thesis presents a multi-modal data acquisition and analysis scheme based on triangulation paradigm (Yin, 2009). For instance, first, data is collected from both documentary research and semi-structured interviews. This has secured the reliability of collected data in at least two aspects. On the one hand, the interview is built based on the data of literature research.

On the other hand, the information provided by interviewees is confirmed, tested and cross-checked by referring to the literature research data.

In addition, the interview questions are mostly open-ended. To test the consistency of the answers, respondents tended to ask a variety of questions about the same topic based on the framework they developed. Thus, cross-examine results of multiple respondents to ensure the reliability of data collection. Many published studies have confirmed specific methods used in practice. Hence, the reliability of this work is guaranteed through the verification measurement of multiple Wells in data acquisition and analysis.

4.5 CONCLUSION

In this chapter, we elaborate on approaches and techniques employed to answer the proposed research questions. When designing this research, we primarily considered three dimensions, i.e., philosophical perspective, research methodology, and research quality.

To be specific, section 4.2 first compares positivism, interpretivism and critical realism as the three most widely adopted philosophical perspectives, and selected interpretivism as the philosophical standpoint of this research due to the research aims. Subsequently, supported by this view, section 4.3 introduces qualitative case studies as a basic strategy for data collection and analysis.

According to the strategy of qualitative case study, the method of case study, literature study and semi-structured interview is adopted to answer the research questions, and the analysis strategy of data analysis introduced by Yin (2009) is adopted. The developed conceptual framework which has structured both the data collection and analysis, and the ethical issues are also discussed in this section.

Finally, section 4.4 assesses quality of this research, along with an elaboration on how triangulation strategy is applied in both data collection and data analysis to ensure quality. Thus, during the whole research process, including research design, data collection, data analysis and conclusion, the constructive validity, internal validity and external validity are considered and guaranteed. Next, in the following chapters, data collection and analysis are carried out for the two cases.

CHAPTER 5: CASE STUDY 1 – The VJ

5.1 Introduction

This Chapter introduces the case study of VJ – a typical and successful platform organization which delivers offline real-estate products and services through internetbased platform. This case study is expressed with several aspects, including background of the enterprise, the core business model, the core platforms structure, how these platforms are established and diffused, as well as how the competitive advantages of platform are generated.

5.2 Background of VJ

VJ, an integrated service provider with the most perfect service chain in field of community commerce in China, was founded in 2014. Now it has more than 500 industrial talents. Provide six services modules of "research consultation, marketing agency, attracting investment and operation, property management, financial investment and internet plus" which are based on three business platforms about "transaction, operation and service", aiming at offering high-quality appreciation of fixed assets and service of realization for owners. At the beginning, when the enterprise was acting as an agent, it was found that the conditions which were often promised to the owner could not be met. For example, lacking of occupancy rate and poor management can lead to a return on investment of investors and managers that is less than the promise of sales. From the perspective of businessmen, the enterprise found this market gap. Developers are more focused on capital planning, and do not see the business as a central business and will not focus on this issue.

VJ, as the earliest and the best integrated service provider of community commerce in China, establishes headquarter in Shanghai and three branch companies in east China district, south China district and northwest district. Apart from limited number of traditional international companies that set branches in China, VJ has been publicly recognized as the leading company within the industry. At present, there are four product brands under the Group: No. 1 Street, Mars No. 1, D.T., Piggy owns Shop APP, and there are more than 50 overall management projects with management area above 800 thousand square meters and assets under management above 25,000 million.

Year	Key Evens
2014	 In March, VJ was established. In April, Baixi No.1 Street was started, which symbolized the establishment of the first brand of community commerce focusing on unified commission of after-sale service – No.1 Street. In December, Baixi No.1 Street was officially opened.
2015	 In February, The group property management service module was officially launched. In May, the group trading platform was officially launched. In July, the project was officially launched, marking the launch of second commercial brand, Mars one. In August, the group's financial investment services module was officially launched. There were 24 management projects in VJ with management area above 500 thousand square meters and assets under management above RMB10,000 million.
2016	 In January, China Real Estate Association awarded it with "the Most Innovative Commercial Real Estate Service Institution in 2015". In March, it was granted with "Award for Innovative Management in China's Commercial Real Estate Operation in 2015" by CCRE. In July, VJ became unit of Secretary General in Shanghai Branch of Van Sound Club. In August, Zhonghanghuafu No.1 Street (Xi'an) was started, and VJ officially launched course of nationwide development. In October, VJ Univercity was established for the school mission of "the Huangpu Military Academic in China's community commerce". In November, Binfenli No.1 Street (Hangzhou) was started, and the Group started research project of "commercial facilities in characteristic town". In December, it was awarded with "the Best Learning Organization in 2015" by website of CREP. VJ became unit of committee members in Mall China community commerce platform.
2017	 In January, D.T.C.H665 was launched, marking the establishment of the "D.T." brand of commercial space content. In March, it collaborated with the Country Garden group, which started on the Binhuwan No.1 Street (Zhenjiang). In April, it was granted with "Award for Innovative Management in China's Commercial Real Estate Operation in 2015" by CCRE. Up to now, there are 51 management projects in VJ with management area above 800 thousand square meters and assets under management above RMB25, 000 million.

Table 6.1: The chronology of VJ Development

5.3 Core Businesses of VJ

Companies can provide a one-stop service for merchants including agency, community and advertisement, which can basically solve the needs of operators. And the actual operators, the selection of the service ratio of VJ, are greatly influenced by the locality. Irrelevantly if you have any related projects, enterprises can meet the demand of merchants, they will tend to choose the services provided by the VJ, which is enterprise choose shop quantity as the cause of the current primary goal. For one-stop services, businesses are basically doing it, and upstream and downstream (including the capital chain) are involved. But the focus is not on providing one-stop services.

In 2017, the total revenue was nearly 1.5 billion yuan (including 1.2 billion yuan in marketing, and 200 million yuan in investment attraction operation), and the net profit was about 60 million to 70 million yuan (including more than 50 million in marketing profit, and 10 million to 20 million yuan in investment attraction operation). In terms of marketing, the revenue is 1.2 billion, which included two underwriting items in 2017, and the whole is included in the financial accounting income. Excluding these effects, the revenue from the marketing business was about 30 percent.



Figure 5.1: VJ's 2017 revenue from operation

In terms of investment promotion, some of them are still in the rent-free period, so their income will be fully accounted for in our income, which accounts for about 60% of the total. The remaining 40 percent comes from the small owner's division, which is the income from the service charge.



Figure 5.2: VJ's 2017 revenue from sales

There are more than 200 salesmen in the team. Most of these staff graduated from technical secondary school or junior college, and they are basically skilled at selling. This part of the staff is basically come from the recommendation, and a few from interpersonal circle. The circle of salesman is relatively fixed, for example, employees who have worked together before will come to work in WJ through the recommendation. The turnover ratio of this part is also very high, approaching 50%. Last year, more than 100 people came in, and more than 100 employees left. The sales staff tends to choose the position and leave the job according to their judgment of the future of the project.

There are more than 100 employees in the platform part, and most of them have Bachelor's Degree or above. The proportion of the staff who have Master's Degree is close to 20%. This part of the personnel basically uses the network application way to employ, and also seldom involves the school recruit. This part of the team is relatively stable. And the personnel treatment of the company is basically equal to the salary level of the same degree or position in the society.

5.3.1 Practical and actual preliminary planning

The service module "Preliminary planning" based on the lead concept of VJ community business operation depends on the professional Preliminary planning team which is deep in China's community business. Market Research, Project Orientation, Architectural Planning and Financial Analysis all features abundant practical experience in projects. The self-development project started from sales property even became the sales champion of Shanghai commercial real estate in 2015. Meanwhile, the abundant practical experience gained from the appearance-improving plan (the re-modification of commercial atmosphere) and the operation improving (appreciation of assets) plan of more than 50 community business projects conversely supports the implementation of project orientation, construction planning and financial calculation.

Lead Team: the concentration on the professional lead team of China's community business. Lead Strategy: Pre-operation-oriented. Practical Experience: the practical experience gained from abundant sales champions, appearance improving plan and operation improving plan. It's based on the data from three major systems of transaction management, asset management and membership management.

5.3.2 Rapid selling from marketing agencies

As the most experienced and the leading marketing agency team specialized in commercial real estate, VJ is deeply rooted in Shanghai and Yangtze River Delta market, primarily operating the sales of China's community business projects. Adhering to the service concept of the maximization for customer's assets realization value, the VJ Group has become the strategic partner of numerous top domestic TOP 100 property developers. In rapid development period, owing to the professional marketing agency team of commercial real estate, and the innovative transaction platform and the transaction management system, the VJ Group has helped the partners to maximize the assets realization value within the shortest time. Up till now, VJ has accumulated over 60 sales projects and a sales amount of over RMB 10 billion.

Marketing Team: the most experienced and the leading marketing team specialized in commercial real estate, the sales champion of Shanghai commercial real estate in 2015. Channel capacity: established 3000 distribution companies within one week. Possess capability: block trade, traditional sale and fun project. 60000 investors, 11000 intermediary stores, 60000 real estate brokers, 1200 telemarketing specialists, and 6000 distribution companies in system of transaction management of VJ.

5.3.3 Meticulous Property Management

With the deep understanding of China's community business, VJ regard using its solid management experience and ideas to provide community services which contains daily property management, tenant management, financial management, engineering and technical services as its goal. Comprehensive analysis is carried out on the property, all can increase the property value and reduce the chance of operational risk. It provides policy advice from various aspects, including leasing, property renovation, repair and operating expenses, etc.

It's required to arrange all the legal documents related to the lease for the owners and tenants. Keeping communication with tenants on a regular basis often can find potential problems and solve in time. In VJ's opinion, management, and the relationship between the landlord and the tenant is not allowed to be ignored. It's also required to provide property annual budget, balance of spending plan for the owners. At the same time, it's needed to collect the tenants' deal with the public cost at the same time, prepare the property detailed list, etc. According to the different owners' need to develop detailed financial report provided by VJ, the owner can quickly and clearly understand its investment property.

Engineering and technical services are provided to formulate and carry out property management plan, ensuring that every stage of the economic benefit of construction will be conformed to the owner smoothly. From the early stage of the contractor's service quality, to the supervision of the tenants' management, and to the operation of decoration's energy management real-time technical support, etc., all the efforts thus reduce the attrition rate of the equipment and prolong the life-cycle of the assets afterwards.

5.3.4 Innovative and Flexible Financial Investment

To adapt reforming and development of finance trending and securitization of asset transaction, VJ focuses on two categories of funding products in the module of financial investments and financial services. The funding products of first category are based on VJ's deep understanding of business projects in China's communities. The product participates in through sound and steady risk assessment mechanism and deferred quotas at early stage, which is based on superior asset liquidation and value-added capacity of VJ at late stage. Changing the conditions of "stressed launch and loose administration" of fund products in markets, protecting the interests of investors, and converting passive risk management into initiative one are all needed. The funding products of secondary category, and the investees mainly need brands of communal commerce within industry, which are not only provided with financial support, but also with personalized services needed by all sorts of merchants such as marketing plans, franchisees and agencies, site selection of sub-branches, and so on. In addition, VJ's own brand meeting has made VJ's decision-making with more flexibility and operability in terms of performance planning and brand positioning in communal commerce.

Team: financial service teams of VJ focus on real estate projects of communal commerce and brand services of merchants. Practical experience: combine with data analyses from three main systems: transaction management, asset management, and membership management. Conduct real-time risk assessments and subsequent adjustments for its investment projects and brands of merchants. Business model: provide more liquidation and value-added methods by transaction operation platforms of the VJ.

5.3.5 Intelligent and mobile Internet

VJ provides all people in ecosphere of communal commerce with comprehensive solutions of Internet plus, focusing on the three managerial systems - transaction management, asset management, and membership management - with eco-systematic features of communal commerce.

Transaction management system: at early stage, services focusing on modules of investment attraction and operation are mainly provided. Reconstitute experience of shop opening of communal commerce, and resolve asymmetrical problems between lessees and shop owners. Different from many media-type platforms, the key points of VJ transaction and management system lie in "subdivided granularity of communal commercial labels and professional degree of matching algorithm", and provide lessees and owners with precisely matching function. At late stage, VJ transaction and management system will gradually be added with services directing at modules of marketing agencies.



Figure 5.3: VJ's management systems and platform

Asset management system: realize immediate rent payments (owners) and collections (from lessees) systemically. And collect and analyse through various large databases, providing owners with real-time information for asset, reflecting the increases and decreases of rents. Meanwhile, analyse and report through comparing nearby asset values and rent information.

Membership management system: realize mobile interconnection, and the goal "Big Members, Large-scale Marketing and Big Day"+ experience-type scenes of mobile interconnection. And this can meet demands of consumers in communities such as intelligent WIFI, intelligent Beacon, intelligent parking, intelligent shop finding, intelligent line-up, intelligent films, intelligent Point of Sale (POS), intelligent payment, exclusive members, and intelligent marketing.

5.4 Core Platforms of VJ

5.4.1 VJ Trading Platform

Rapid (project) start-up, rapid (time) reduction of selling rate, (clients) rapid payment collection

VJ devotes to forging the first big trading platform in China which can circulate the rights of property in community business field and manage the transaction rapidly. To make assets realize the assets' value, it is through the means of property rights trading, funding products and investment attraction service and other ways. It mainly serves four types of clients, including real estate agents, fund managers, owners and lessee. Up to now, VJ trading platform owns 100000 real estate agents, 80 developers, 60000 investors and 5700 businesses resources. The trade volume of the platform has added up to more than RMB 10 billion and the trading areas has exceeded 2 million square meters.

5.4.2 VJ operating platform

Detailed (requirements) platforms, detailed execution (action), detailed data

Appreciation in asset value is the outcome that we constantly create for the community business ecosphere consisting of owners, lessee and consumers. In order to make owner's assets constantly appreciating in value, VJ aims to forge a operating platform which serves all the relevant partners in trans-community business filed. On the trading platform of VJ, we can see the developing trend of community business in China and numerous data information and analysis reports related to population growth, family income, trend of consumption, connectivity of traffic network and regional competition environment, etc. It provides the supports of research and determination for partners in all kinds of trans-community business fields, such as preliminary planning, planning, designing, marketing, investment attraction, logistics management and finance.

5.4.3 Service Platform

The sense of transposition (consideration), sense of initiative (in finding problems) and sense of (problem) resolving

Service platform- the supporting platform of VJ three business platforms has two operating systems: internal operation system and external operation system. Three major external management systems of operation:

- 1. System of transaction management serving brokers, distributors, lessees and owners;
- 2. System of asset management serving the lessees and owners:
- 3. System of member management serving the consumers and merchants.

The systems enable all cooperative partners committed to the community business to gain effective support from the business information sharing of VJ Community. Primarily serving various project partners, the internal group headquarters platform provides them with industry research reports, property engineering consultants and operating data analysis, to constantly optimize and enhance the decision-making capacity of project partners, and to offer superior service of asset realization and appreciation to owners.

5.5 How VJ Platforms Established and Diffused

5.5.1 The development of Group and Platform

During the interview, the Chairman of VJ provided many insightful thoughts and valuable resources. As Mr. Zhang, the chairman of VJ in current, came to Shanghai in 2002 and started his own business in 2006 and 2007 respectively. According to conversation with him, he said: "Firstly, I started the car maintenance, and then I found that the real estate industry was better in the process of buying a house, and then I went to the real estate industry. I started from selling houses, to selling houses, to developing houses, to managing houses now. Once upon a time, there was participation. Now, the situation that enterprises are facing is how to plan and copy in the process of the former to the future. This is the business enterprise is facing now, which is also what you think about this time." (Zhang, 2018)

In terms of the problem that the enterprise faced, "...A single independent project, the enterprise has successfully solved 69 projects, manually solves the problem one by one, the enterprise already has some methodology. But companies now want to turn it into a platform enterprise, how to use information and data to drive a single point of project, and this is what companies are now thinking about." (Zhang, 2018)

But why does VJ specifically focus on the community business? The chairman shared his own thoughts and the process and the experiences during Group development. "When it comes to the development of the building, there will be a community of bottom merchants, such as barbershop, fruit shop and a few other platform business state like that. But the property is a sore point for developers, who devote much of their energy to selling homes. For community businesses, they don't have a dedicated investment team or enough interest. Because of this profit of selling community business, compared to housing, is much slower and thinner. However, this became the business opportunity which was captured by our company" (Zhang, 2018).

However, as we know, considering the size of the enterprise, community property is found to be unsuitable for commercial real estate enterprises such as Savills. Thus, compared with traditional giants like Savills, how to get competitive advantages? "Take Wanda commercial as an example, they make shopping center, which has a large volume and a relatively thick profit. However, the scale is too shallow for them to run business of community real estate. In addition, as mentioned, Savills is a kind of enterprise, they do a lot of office business, and also some shopping malls. For such giant foreign-funded enterprises, they need projects with large value added space, so they have less interest in the community...Now, in the industry, property developers desperately need someone to help them deal with and run community businesses. However, this part of business is very important to the residents of the community, because the bottom of their community is the front door of the community, which has a decisive influence on the rent and the sale price of the second-hand house... The market is now blank. (Zhang, 2018)

In the market, developers generally tend to sell street shops to individual investors. "VJ, when first has a try on this field, will give an additional clause in the contract. After selling the street shop, small and medium-sized investors will reverse sign custody agreement, hosting a certain cycle in which the VJ will charge merchants a management fee. So in fact, VJ can receive two-way money, the first is the agency fee (condition), and the second is the management fee. Now, VJ is the largest enterprise in the domestic market in this field, and its business is mainly based in the Shanghai area", as he concluded. If companies want to speed up their expansion, to make the enterprise platform more accessible, with less resources and more manpower, is the key to the problem.

5.5.2 The Business Channel and Profit Mode of VJ's Platform

Speaking of the business channel, at first, it comes from the inner circle of sales and the developers who have worked together before and have the willing to to cooperate with us when developing new dishes. This kind of channel takes the majority part of our business. Second, it comes from the expansion of new business. The company has a dedicated sales team, which is associated with construction or new construction. For example, the salesman can get information about new projects developed by real estate developers at the beginning of each year online. Third, there are occasional bad assets (mortgaged to the bank or mortgaged to the court) that will be in seek for the company to deal with. Our companies generally only make light assets, rarely involving acquisition of such assets. Therefore, the business comes from second and third channels only make up a small proportion.



Figure 5.4: VJ's business channels and profit mode

In terms of profit mode, the VJ Group can also provide services for some merchants, but we are still exploring the specifics of the business. Compared with the previous agency, the community business agency provides finance bigger and faster. This is the easiest, but least expensive service. The actual rent of the tenant is paid in the form of thirdparty payments, so the rent for about half a year is mortgaged to the enterprise, which will naturally form a capital pool. And this part of the cash flow is of high quality.

And merchants, for example, have capital requirements when opening more branches. And it is easier for enterprises to understand their merchants' actual operating conditions, so it is easier to connect them. In addition, individual investors and small owners also have some idle funds. In fact, these funds may also have an increasing effect on the corporate capital pool. The form of financing can be a fund, but it is not decided yet. Outside agencies are also interested in more robust financial management. What's more, the fund is also a viable option. You can also consider using ABS of the bank and the future REITs listing, these are also within the scope.

But currently all of these are just our visions. When the scale reaches a certain level, these businesses will naturally become necessary. VJ's business value, at this stage, is not sufficient to support the visions. The primary goal of the enterprise is to lay an unshakable position in the current field. The current management area of the enterprise is less than 1 million square meters. Within the next five years, the enterprise will strive to manage over 40 million square meters. Thus, in summary, if the company's tentative goals are achieved, then the expansion of business types will become a natural thing. And now is the stage of the horse race, the most difficult problem for enterprise to handle now is how to run the land most efficiently.

5.5.3 Information Technology Supported Business

When talking about how Information Technologies contribute to the enterprise, the chairman uses another famous agency - Lianjia as a case. "...a decade ago, at the time when most of enterprises focused on the profits, they invested a billion to complete the their information system, to consolidate the foundation data. The system on the later played a very important role in speed up expansion, and that's also what companies want and need right now...We believe that future businesses will be driven by information and data, not just people. In October 2016, enterprises began to think about it and started to layout. The core purpose of the recent financing of enterprises is to build a platform in which the data and information will be playing the core roles. However, we are still not quite sure about some aspects. First, online work has not yet been implemented. Second, there are no strong competitors to enter the market of the agent community business yet. The size of the business is now larger than that of other companies, but it is still a small part of the overall market. And once the enterprise truly occupies a part of the whole market, the position of VJ will gradually stabilize. Whoever does it first will take the leading position. They all rely on the platform". (Zhang, 2018)

The pressure from Customer and market is the reason to establish platform. "At first, companies tried to make Internet platforms. When the Internet platform enterprises began to develop, we also tried, but we did not find the appropriate market segment and the advantage point. For example, we had made the prepaid card consumption of the platform, and had also tried the client business. The Internet business needed a lot of money for promotion, we thought about burning money to expanse the market which was not a sustainable way to develop, thus we ended this program after half a year of trying...At that time, the we thought that it was better to be an offline mode of merchants. Currently, the size of our enterprise is relatively large, and it is no longer appropriate for us to be a heavy capital investor or developers to design sales policy. Therefore, we need to naturally transfer our current business into a functional platform.

It seems we have no other priority choice". (The secretary of VJ group, 2018)

5.6 Competitive Advantages of VJ Platforms

In the opinion of the respondents, the company has not found the core competitiveness until now. However, the current success of VJ is due to the following points.

(1) The first point is the enterprise's own advantages. VJ entered the market in a very early time, and this helped VJ occupies a large proportion. What's more, the enterprise's teams are very excellent.

(2) The internal motivation of enterprises makes VJ more willing to seize the needs of small businesses. The demands of these small traders are not what the leaders of real estate companies are concerned about. Small traders' rent situation will take up too many resources for those big names in real estate industry to operate. However, this part of profit only accounts for only a small part of their business scale. Therefore, they can choose to give up, and these losses will not have substantial influence on those enterprises. In the case of VJ, a small proportion of arrears or small amount of funds that did not return in time might have a significant impact on the VJ. So we'd like to focus on this part of business, and this kind of carefully operation tends to bring us more business opportunities. For example, how to maintain the merchants' relationship better, how to attract the people for the merchants, or the merchant finance leasing business, which are all our advantages.

(3) "Enterprises are well-experienced in dealing with these businesses. It is possible that other companies have not summarized some conclusions about the rent collection. However, there are thousands of streets, which means that enterprises have unique ways to deal with these people. So I personally think that VJ is more experienced than them." (Zhang, 2018)

In terms of the competitors, "Yes, we have many competitors, but it's not very threatening at the moment. But leading real estate companies like Vanke, they are just temporarily haven't paid attention to this market. Once they have gone from upstream to downstream, they will fund and recruit staff to enter the market. At that time, our situation will be very tough. Therefore, my personal task is to help our enterprise to find a suitable derivative (financial, services or B2C products), and this may become our profit or competitive advantage. However, the current situation is that the company has not yet reached that stage, and now it is mainly in the stage of spread." (Zhang, 2018)

Financial services of the company and corporate capital flows ensured that VJ Group can hold the competitive advantage position in market competition. The VJ has a fund itself, but it is a separate system and hasn't involved in the internal business. Some of personal investment is used for running the enterprise internal part. The way of collecting and renting on VJ determines the liquidity of the enterprise is sufficient or not. However, when undertaking the sales project, the enterprise needs to pay a part in advance. For example, sometimes VJ need to pay in advance in exchange for the right of sale. Therefore, the capital of the enterprise is usually invested in the project, or used as the security fund for the project. Occasionally, when there is a short-term lag, we tend to put money into Banks for short-term finance products.

5.7 Conclusion

This Chapter introduces the case study of VJ – a typical and successful platform organization that delivers offline real-estate products and services through internetbased platform. This case study is expressed with several aspects, including the background of the enterprise, the core business model, the core platforms, how these platforms established and diffused, as well as how the competitive advantages for the platform generated.

Dynamics of VJ's Platform Business

VJ's online community platform realized many initial ideas about multiple translations, including initiation of the platform, adopting by organizational actors with agreed objectives and specifications and diffusing of the platform around all partnered organizations. The design of the platform is based on translations among other organizations, and it is embedded in the Internet deeply. It is an on-going interactive process of translating and exploring new OPP to develop the platform.

During their daily transaction, VJ assigned its interests to other participators including both suppliers and customers to be consistent with its own initiatives. The VJ tried to render itself independent by defining the OPP, and the other participators must pass through to achieve their own interests. At the stage of establishing the platform, organizations used to imagine or hypothesize the alternative actor-network configurations, which were shaped by the organizations' interests. Their perception of existing configuration would offer an understanding of the translations that were required to realize alternative configuration in future. During this translation process, the VJ made their best efforts to ensure the alignments. During the stage of intersegment, VJ executed many strategies to convince other organizations to accept its definition of their interests, and therefore to ensure the negotiations and interactions which could lead to the establishment of platform. During this stage, the company aimed to modify organizations' perceptions of existing or future network configuration as well as the interests of others. This stage is as significant as the feedback generated in this phase helped to refine and align organizations' perceptions of the platform configurations and interests. During the stage of enrolment, the organizations accepted the interests that defined by the VJ. For the online community platform to success, the interests of a range of organizations, especially core suppliers and core community teams, must be translated into an agreement on the platform configurations and the institutions. In the case, it is found that although enrolment indicated a degree of acceptance of assigned roles for specific organizations on the platform, the organization might not fully assume them, even where translations were accomplished, the platform might not exactly as expected in the initial stage.

Platform Business and VJ's Competitive Advantages

The value proposition from the company is for the people who pursue higher life quality but don't have enough time on community. The profit formula for the company is mainly generated from the price margin for the community materials, as VJ manages its own supply chain, which means the company is capable to get community materials with quantity discounts. In addition, the company also provides the IT service (SaaS) for partnered community companies and also receives advertisement fees from community material suppliers as well. The key resources for the VJ include the good reputation of the company, abundant financial support from the capital market, excellent human resources and teamwork, community styles by stylists, reliable suppliers and community companies.

The key processes are the one-stop service for the customers with the platform community service and cheaper price. Moreover, the good marketing for the product and good after-sales service for the customers are also very important for managing the business well. The key capabilities for the VJ can be concluded into subjective and objective capabilities. The outstanding leaders who have great capacity to lead the company and the professional and hard-working staffs are the subjective key capabilities. There are also some objective key capabilities, such as well-functioned information systems. Since the VJ develops quite well by adopting its platform business strategies, many other companies have started to imitate the business model of VJ's. Nevertheless, it turns out that once a well-functioned platform established, it's no longer easy for the others to build another one and it's also difficult to execute.

After coming up with the platform business model, the managers in VJ have focused on the key elements thus to enrich their key resources, reinforce their key capability and optimize their key processes. These changes lead to improvement of the operations and customers' experience. Data talks, as the report of VJ showed that the sales volume has increased considerably after the adoption of online platform. Apart from delimitating the company's business logic, the business model also presented promising business logic for the community business e-commerce industry as we saw. The VJ is a typical company in this industry and performed very well as the platform leader.

CHAPTER 6: CASE STUDY 2 – The GEC

6.1 Introduction

This chapter introduces the other case study -a famous online housing decoration platform company in China - GEC. The case study is expressed through several aspects, including the background of the company, the platform business model, the dynamics of the platform, as well as how competitive advantages are generated.

6.2 Background of GEC

Established in 2011, GEC is a housing decoration platform on the Internet with 50 million RMB registered capital. The enterprise owns an interactive online platform named GEC which provides services to both customers (house owners) and the decoration companies. Customers can choose a decoration plan for their houses on GEC. Then GEC will choose one appropriate decoration enterprise and have it sent a decoration team to the customer's house to do the decoration. The overall picture of the decoration industry in China has been delineated in Figure 6.1 as followed.



Figure 6.1: Decoration Industrial Chain in China

The inception of the company is to mitigate the hassles the customers face in decorating their houses by providing a one-stop housing decoration service, from consulting to designing, purchasing, installation, and financial support. The company offers a platform decoration menu of decoration options and executes the platforming decoration method. The simplicity and hassle-free value propositions especially appeal to young people. Through the reliable and transparent decoration information and service, the company makes the whole housing decoration experience easy and happy. To improve the decoration experience, the company has built a 30,000 square meters' experience pavilion for customers to have a real experience of how their new house will look and feel like. To be popularized, the company has been giving away many privileges to the customers and decoration companies these days, which even negatively affected GEC's profit margins.

By the end of 2015, the company's COO has offered CEOs and all other managers ideas for further development of the platform business, especially with SaaS technology. Key stakeholders highly agreed to attempt and managed GEC according to this platform business model. At the beginning of 2016, the managers started to lead their departments to concentrate on the establishment of the platform business model. For instance, GEC made more appropriate information system and handset APPs to improve the customers' experience. Moreover, by enriching its supplier system, the purchasing department was able to maintain and manage the supplier base much better. The aftersales service and value-added service were reinforced in order to improve the customers' overall experience of the one-stop service. In 2016, GEC had many significant achievements since the adoption of the platform business model, as the sales volume per month increases from 10 at the end of 2015 to 50 in April of 2016. The rapid growth of GEC gave a shock to the industry and the platform business model established a good reputation for GEC and also granted an enormous growth potential later on for the company.

6.3 The Platform Business Model of GEC

"The company's business objective is primarily established on the vision of giving customers a one-stop housing decoration service" (Qiu, 2016) The rapid development of e-commerce and housing market was adopted as an innovative means of attaining this objective. Establishing and diffusing its own platform business model with SaaS technology was the one that was selected by GEC. Its platform generated competitive advantages mainly through five aspects, namely as value proposition, profit formula, key resources, key processes, and key capabilities. GEC's platform business model is delineated in Figure 6.2 as followed.



Figure 6.2: GEC's Platform Business

The value proposition of the company is for the people who pursue higher life quality but don't have enough time on decoration. The profit formula for the company is mainly generated from the price margin for the decoration materials, as GEC manages its own supply chain, which means the company is capable to get decoration materials with quantity discounts. In addition, the company also provides the IT service (SaaS) for partnering decoration companies and also receives advertisement fee from decorative material suppliers as well. The key resources for GEC include the good reputation of GEC, a 30,000 square meters experience pavilion, abundant financial support from the capital market, excellent human resources and teamwork, decoration styles by the stylists, reliable suppliers, and decoration companies. The key profit mode of GEC through operating its platform business is drawn in Figure 3 as followed.



Figure 6.3: GEC's Profit Mode
"The price advantage of e-commerce still has growth potential" (Chen, the vice-general manager, 2016). The key processes are the one-stop service for customers with the platform decoration service and cheaper price. Moreover, good marketing for the product and good after-sales service for the customers are also very important for managing the business well. Key capabilities for GEC can be concluded into subjective and objective capabilities. The outstanding leaders who have the great capacity to lead the company and the professional and hard-working staffs are the subjective key capabilities. There are also some objective key capabilities, such as well functioned information systems. Since GEC develops quite well by adopting its platform business strategies, many other companies have started to imitate the business model of GEC's. Nevertheless, it turns out that once a well-functioned platform established, it's no longer easy for the others to build another one and it's also difficult to execute.

6.4 Dynamics of GEC's Platform Business

GEC's online decoration platform dynamics has enclosed multiple translations since the idea first came out, including initiation of the platform, adopting by organizational actors with agreed objectives and specifications and diffusing of the platform around all partnered organizations. The platforms both are shaped by translations among other organizations, and it shapes network in which it becomes embedded in the other way. It is an on-going interactive process of translating and exploring new OPP and organizations to advance the platform.

6.4.1 Strategic Exploration Period – Problematization

"Small and medium size development companies do not have good procurement systems, and they are not professional enough to qualify their jobs due to the fact that many of their positions are taken by part-time workers. However, the e-commerce model can solve their trouble about procurement costs and simplify management process. "(Liu, the head of supplying department, 2016) During problematization period, GEC assigned its interests to other participator,s including both suppliers and customers to be consistent with its own initiatives. The company attempts to render itself independent by defining the OPP which under its control that the other participators must pass through to achieve their own interests. At the stage of establishing the platform, organizations used to imagine or hypothesize alternative actor-network configurations, which were shaped by the organizations' interests. Their perception of existing configuration would offer an understanding of the translations that were required to realize the alternative configuration in the future. During this translation process, GEC made their best efforts to ensure the alignments.

"Through Alibaba and Tencent development, it is realized that the basis of enterprise operation at the Internet era is the user data, rather than the early development of user value.' (Zhang, the senior executives, 2016) In view of this, the company organized and systematized its users through membership registration, WeChat guide and square activities. Secondly, on \$3.49 billion purchased Winger in Hangzhou and Shanghai hold-fast two game companies, top clear core purchase intention is not to make profits, but to have 300 million registered users and more than 2000 active users. Thirdly, the company set up the database business department at the group level, specializing in the construction of the user database between different platforms in the process of business integration. At last, it used the company's brand and government resources to improve user experience, thus to increase the number and activity of users.

At the Internet era, enterprise management has shifted from "enterprise departmentalism" to "user-oriented doctrine". Platform architecture is the foundation of the platform envelope, and user data is the foundation of platform architecture. It determines the design, platform, content, experience, and evaluation of platform operation. Therefore, it is different from previous enterprises to build competitive advantages from acquiring or accumulating heterogeneous technical ability and asset elements. The construction of platform envelope strategic competitive advantage is "reverse" process. It starts with the client, improves the user experience, and integrates different resources and capabilities in order to create value for users and gain competitive advantages.

The competitive advantage of the build process and the key is the basis of user data, user data resources must be controlled by platform enterprise, access to resources and capabilities needed for the user data resource itself can adopt diverse means. Therefore, the primary task of the platform envelope strategy exploration is to build the basic user database, and what strategies can be adopted to accomplish this work? What resources and capabilities are needed to support the strategy? Therefore, platform envelope strategic exploration phase mainly uses of existing resources and ability to take its own transformation, purchase and aggregation strategy to build basic user database, like improving service experience precipitation that is based on user to build competitive advantage.

6.4.2 Strategic growth Period – Intersegment

During the stage of intersegment, GEC executed many strategies to convince other organizations to accept its definition of their interests, and therefore to ensure the negotiations and interactions which could lead to the establishment of a platform. During this stage, the company aimed to modify organizations' perceptions of existing or future network configuration as well as the interests of others. This stage is as significant as the feedback generated in this phase which helped to refine and align organizations' perceptions of the platform configurations and interests.

The basic user database that is set up in the platform enveloping strategic exploration stage is the cornerstone of the long-term development of the platform. In the context of industrial integration, platform enterprises find that barriers and boundaries of different industries are gradually broken. Meanwhile, data resources in the platform infrastructure can be shared by multiple industries. Therefore, the main work of the platform envelope strategy is to share and utilize the basic user data. New service development facilitates positive feedback between service content increase and user scale increase; through service binding and service platform integration, the user base and the relationship strength between users are increased, and the strong cross-boundary network effect will be stimulated when it exceeds a certain critical mass.

In previous platform studies, the scale of platform users has been widely concerned, and the increase of scale can inspire the "winner-take-all" effect of the same side and crossboundary network effect. The scale is important, but is it just the size of the network? The network relationship strength is also an important factor on influencing the network effect, and the process of the platform envelope process is exactly the process of enhancing the strength of the relationship among the multilateral users.

It can be seen that enterprises increase the platform function module through platform envelope, which can provide services to more suppliers and users. Thus, it greatly increases the user scale. At the same time, the platform to provide users with a variety of "bundled" service, the user dependence between the platform and users are on the rise, multilateral trading frequency and reciprocal degree are increasing, according to the grand victor strength of relationship between classical elaborations, multilateral relations within the user network platform strength in ascension. When the network size and relationship strength exceed a certain threshold, it will stimulate the same side and cross-boundary network effect, thus helping the enterprise gain competitive advantage. Hence, we suggest that platform envelope strategic growth mainly through the development of new services, services and service platforms integration to increase user scale and the relationship between strength, inspire and cross with the network effect to build competitive advantage.

After setting up a unified database, the company mainly carried out the following work. Firstly, it is based on platform construction of the basic database development new service project. For example, "money is courteous" vertical e-commerce platform, real estate service platform "buy treasure" and county community portal, etc. Secondly, it accelerates the binding of platform services. In view of the game platform user characteristics and behavior analysis, launch a matching news information service; Provide medical registration, travel vouchers and pension services to users of the information platform. We recommend the real estate agent service and the local community life service to the e-commerce platform users. Thirdly, develop software integration services, in view of the rapid development of mobile Internet.

6.4.3 Strategic Maturity Period – Enrolment

During the stage of enrolment, the organizations accept interests that defined by GEC. For the online decoration platform to success, the interests of a range of organizations, especially core suppliers and core decoration teams, must be translated into an agreement on the platform configurations and the institutions. In the case of GEC, it is found that although enrolment indicated a degree of acceptance of assigned roles for specific organizations on the platform, the organization might not fully assume them, even where translations were accomplished, the platform might not exactly as expected in the initial stage.

After being bundled and integrated with multiple services developed by user value, the platform actually covers the multi-user community. What "platforms" are adopted within each user community to ensure order, and what "rules" are adopted between different user communities to achieve interfacial interoperability and complementary functions. The establishment of an orderly commercial ecosystem becomes the main work of the platform envelop strategy maturity stage. Platform and the difference between an ordinary alliance are not only a business cooperation network, or connected to the supply of the community, the demand of the community and complements providers of the business ecosystem. The initiative of multilateral users in the system has been fully developed, which has greatly promoted the complementarity innovation. The platform of envelope opens interface. At the same time, it also must strengthen the control architecture, the architecture control which can promote the symbiosis between the populations depending on rather than competitive rely on. Meanwhile, it ensures the enterprise own the platform for the business leadership of ecosystem, which provides the foundation for the sustainability of competitive advantage.

Thus, we suggest that the concrete forming process of the dominant architecture includes three key actions: basic user precipitation, network effect excitation and commercial system symbiosis. During the strategic exploration period, basic user precipitation can lock users' consumption habits and increase the cost of user conversion. Strategic growth, services, and integration increases user scale and the relationship between strength, when the strong relationship between size and long span a certain critical point will inspire the same side and across the side of network effects, and can lead to a "winner-take-all", leading architecture prototype which began to emerge. Strategic stage, through the platform envelope fusion in different market multilateral users, to build up the business ecosystem, the new ecological system means that the formation of the new architecture, and platform providers who dominate in the industry structure, become the sharper, rules of business ecosystem designers and system administrators. When the architecture solidifies, it will lock the leadership of the platform enterprise in the ecosystem, thus ensuring the sustainability of the competitive advantage.

Furthermore, platform enterprise through the platform envelopment to model a new business ecosystem "dominant architecture", and the architecture is locked leadership as a platform strategy to construct the guarantee of sustainable competitive advantage. According to the sources of competitive advantage theory, the internal logic and the general analysis framework of sustainability, above the industry under the background of integration platform building envelope strategy process is a concrete analysis of competitive advantage. The study found that with the traditional strategic competitive advantage to build from the organization to services to meet different user needs, the platform envelope the strategic competitive advantage is based on the user as a starting point, from the user data to service development and ecosystem "reverse" process. In the long-term development, the company believes that it cannot and should not provide all services. Take the following steps: firstly, open interface to build the platform business ecosystem, to enhance the vitality of the system. Secondly, to strengthen platform architecture control, platform service external provides less than 20%, but the high-level attention has been paid to the importance of control of the platform architecture, architecture every time adding update service are all experienced many discussions and test, to ensure that the company can control platform development direction.

Benefiting from the analytical frame nature, platform business model could be welladopted for understanding the company's business logic, as the platform business model, in this case, showed the business logic of GEC. After coming up with the platform business model in 2015, the managers in GEC have focused on the key elements thus to enrich their key resources, reinforce their key capability and optimize their key processes. These changes have led to improvement of the operations and customers' experience. Data talks, as the report of GEC, showed that the sales volume has increased considerably since the adoption of the online platform. Apart from delimitating the company's business logic, the business model also presented promising business logic for the housing decoration e-commerce industry as we saw. GEC is a typical company in this industry and performed very well as the platform leader. Nevertheless, although this business model performs well in GEC, not every company can imitate such a strategy, especially when the well-function platform has already been established in the industry.

6.5 GEC Competitive Advantages

"The brand of the company has considerable influence. If they solve the relationship with the agencies well, I think GEC will have a bright future for the sake of its comprehensive ability." (Yu, the major customer manager of Shanghai Mitsubishi elevator CO. LTD, 2016) The competitive strategy focuses more on the industry, while competitive advantage pays more attention to organizations. When making a decision on competitive strategy, there are two questions need to be considered. The first one is to what extent the industries can stay long-term benefits and what factors affect it. The second one is a competitive strategy which plays a key role in standing in a relatively competitive position within one industry. According to interviews, competitive advantages are generated by creating values for customers in GEC. The resource-based view of the firm mainly contains two hidden contentions: the first is resource heterogeneity, which means that different companies within the competition possess different resources; the second one is resource immobility, which means that this difference of possessing resources can exist for a long period. These two underlying assertions are linked with sustained competitive advantage.

Industry under the background of the integration platform for enterprises to choose the platform envelope strategy is the key on the cognitive from support competition "difference" to "common support competition", a deeper theoretical logic analysis paradigm is the competitive advantage theory, the "supply side" to the "demand side". Platform, as a support for the development of infrastructure, different from traditional enterprises to consider how to apply their heterogeneous resources, capabilities, and network to the new product, service or other industry to make a profit of thinking, has more competition between enterprises in considering despite taht there is some common support, and such common resources and capabilities are a common need.

The value proposition of the company is for the people who pursue higher life quality but who don't have enough time on decoration. The profit formula for the company is mainly generated from the price margin for the decoration materials, as GEC manages its own supply chain, which means the company is capable to get decoration materials with quantity discounts. In addition, the company also provides the IT service (SaaS) for partnering decoration companies and also receives advertisement fee from decoration material suppliers as well. The key resources for GEC include the good reputation of the company, a 30,000 square meters experience pavilion, abundant financial support from the capital market, excellent human resources and teamwork, decoration styles by stylists, reliable suppliers, and decoration companies.

The key processes are the one-stop service for customers with the platform decoration service and cheaper price. Moreover, good marketing for the product and good aftersales service for the customers are also very important for managing the business well. The key capabilities of GEC can be concluded into subjective and objective capabilities. The outstanding leaders who have the great capacity to lead the company and the professional and hard-working staffs are the subjective key capabilities. There are also some objective key capabilities, such as well-functioned information systems. Since GEC develops quite well by adopting its platform business strategies, many other companies have started to imitate the business model of GEC's. Nevertheless, it turns out that once a well-functioned platform established, it's no longer easy for the others to build another one. "The GEC's working process is simple, and procurement is open. What's more, compared with us, the GEC can guarantee the quality and have enough cost advantage." (Liu, purchase department, 2016)

After coming up with the platform business model in 2015, the managers in GEC have focused on the key elements thus to enrich their key resources, reinforce their key capability and optimize their key processes. These changes lead to improvement of the operations and customers' experience. Data talks, as the report of GEC, show that the sales volume has increased considerably since the adoption of the online platform. Apart from delimitating the company's business logic, the business model also presented promising business logic for the housing decoration e-commerce industry as we saw. The GEC is a typical company in this industry and performed very well as the platform leader. As a summary of the case study, Figure 4 indicates how GEC was established and diffused platform, and then successfully achieved the competitive advantage with the SaaS-based platform.

As the cornerstone of the platform, such generic resources can be used to "dance" on the same platform by users from different industries and different products and services. This book case analysis shows that such common resources and capabilities are user data resources and the development and service capabilities based on user data resources. Previous study of competitive advantage theory is from the "supply side" analyzing the competitive advantage, holding value but difficult to imitate and difficult to replace with heterogeneous characteristics of resources and capacity to support enterprises to build "isolation mechanism" in order to get competitive advantage. This supply-side paradigm values "value acquisition" and ignores the more important "value creation". Value creation needs to truly provide users with the product or service of "pain point". Improving user value through service is the fundamental of competition and the "common rule" of competition among different industries. Platform enterprises precisely grasp this common rule, the platform infrastructure covers the user data and other key resources.

Therefore, the company shared based on the basic architecture in the background of industry integration, so as to improve the user value experience and implement the strategy of covering different industries, products, services and functions. The new service function of the platform envelope and the complementary symbiosis of the original platform ecosystem further enhance the competitiveness of the platform business ecosystem. Envelope strategy is not visible, selecting the platform of the Internet platform of the "patent" of the enterprise. Traditional enterprises can also adopt this strategy. The key to competitive advantage from the management idea and strategy of cognitive level build paradigm from "supply side" to the "demand side". Thus, it is believed that the competitive advantage to highlight the "different support competition" and "supply-side paradigm" over support competition "generality" paradigm.

6.6 Conclusion

This chapter introduces the other case study – a famous online housing decoration platform company in China, GEC. The case study is expressed through several aspects, including the background of the company, the platform business model, the dynamics of the platform, as well as how competitive advantages are generated.

Dynamics of GEC's Platform Business

GEC's online decoration platform dynamics has enclosed multiple translations since the idea first came out, including initiation of the platform, adopting by organizational actors with agreed objectives and specifications and diffusing of the platform around all partnered organizations. The platform both are shaped by translations among other organizations, and it shapes the network in which it becomes embedded in the other way. It is an on-going interactive process of translating and exploring new OPP to advance the platform. During problematization, the GEC assigned its interests to other participators, including both suppliers and customers to be consistent with its own initiatives. The company attempts to render itself independent by defining the OPP which under its control that the other participators must pass through to achieve their own interests.

In the stage of establishing the platform, organizations used to imagine or hypothesize alternative actor-network configurations, which are shaped by the organizations' interests. During this translation process, GEC took their best efforts to ensure the alignments. During the stage of intersegment, GEC executed many strategies to convince other organizations to accept its definition of their interests, and therefore to ensure the negotiations and interactions which could lead to the establishment of a platform. During the stage of enrolment, the organizations accepted interests that were defined by GEC. For the online decoration platform to success, the interests of a range of organizations, especially core suppliers and core decoration teams, must be translated into an agreement on the platform configurations and the institutions.

Platform Business and GEC's Competitive Advantages

The key resources for GEC include the good reputation of the company, a 30,000 square meters experience pavilion, abundant financial support from the capital market, excellent human resources and teamwork, decoration styles by stylists, reliable suppliers, and decoration companies. The key processes are the one-stop service for customers with the platform decoration service and cheaper price. Moreover, good marketing for the product and good after-sales service for the customers are also very important for managing the business well. Key capabilities for GEC can be concluded into subjective and objective capabilities.

The outstanding leaders who have the great capacity to lead the company and the professional and hard-working staffs are the subjective key capabilities. There are also some objective key capabilities, such as well-functioned information systems. Apart from delimitating the company's business logic, the business model also presented promising business logic for the housing decoration e-commerce industry as we saw. GEC is a typical company in this industry and performed very well as the platform leader.

CHAPTER 7: FINDINGS AND DISCUSSIONS

7.1 Introduction

On the basis of the theoretical framework guided by two case studies, this chapter makes a comprehensive analysis of the dynamic and competitive advantages of platform business, thus answering the research questions of this thesis. Generally speaking, this study is composed of two steps. The first step is to study the type and dynamics of platform strategies. Therefore, this study employs two cases to understand how to build comparative advantages in the process of platform construction and development.

In the second step, the core elements and strategies that must be considered in the three stages of the platform business model are analyzed using ANT. This is done in accordance with established procedures, including three secondary procedures. In the first sub-process, the attributes and characteristics of each stage of the platform business model are analyzed by referencing the previous literature. For the second sub-process, a conceptual framework is established on the basis of the previous theory, and the strategy and model of each stage are established. In the final sub process, the results of case study are analyzed, and the proposition is presented from an inductive perspective. By matching and comparing the coding content with the conceptual framework, the proposition is deduced.

In this chapter, we present the results of this analysis as findings and discussions, which is accomplished under a conceptual framework analytic technique. In this study, dynamic methods are used to analyze the life cycle of the business model of the platform, and the required business strategies for each stage are evaluated according to the detailed proposition derived. Thus, in line with the systematic analysis of the case study, this chapter mainly discusses the following questions: first, what factors propel the use of platform business? Second, what is the pattern of platform business, and what are the characteristics of platform organization? Third, how do we understand the dynamics of platform business from establishment to diffusion? Finally, how to build and maintain competitive advantage in the dynamics of the platform business? The last two questions are the primary research questions here, and some findings are made when comparing these two cases; the first two questions are just for discussion to express our thoughts after the case study.

7.2 Patterns and Characteristics of Platform Business Model

7.2.1 Patterns of Platform business

As a matter of fact, based on literature review and case analysis, this study analyzes two kinds of platform business models based on the first central theoretical proposition, i.e., in line with the particularity of bilateral market, there are two main value chain models in the platform. That is to say, according to the business model, there are finally two types of platform business models. First, the platform starts from the supplier, and the supplier leads the platform (supplier type). Second, the platform starts from the demand side and the consumer-oriented platform (tailor type).

This study conceptualizes data from three aspects of background, context and meaning by explaining the specific statements of respondents. In order to deduce the above two platform business models, this study first classifies the strategic types of each company or institution by reading and explaining the information of the platform model type pursued by the company or institution to which the interviewee belongs. Subsequently, when the respondents from the corresponding companies or institutions are duplicated, the study confirms the classification of platform model types. Next, by reading and explaining the information provided by the interviewees, the type of strategy with the corresponding company or institution is classified. Then, whether these classifications are consistent with the platform model strategies adopted by the other companies is checked. They are categorized as the same type if they are consistent; they were categorized as a new type if they are inconsistent.

This study reconfirms the classification of platform models and conducts the same analysis when the corresponding company or institution has repeated respondents. If necessary, a new policy type will be added. These tasks are repeated until all responses are reviewed and both models are inferred.

Platform Starts from the Supply Side: 'Supplier' Type

On the basis of value chain, the first model of the platform business model is the 'producer-oriented platform'. In this model, certain products and services to the consumers (demand side) are delivered by the producers (supply side) via the platform. Thus, it is required to have a producer-centered approach where the producers supply products or services via the platform. Here, this model is named as the 'supplier type'. The VJ case is particular.

Due to the pattern matching, a normal value chain emerges for the vendor type. Since the producer creates and delivers value to the consumer through the platform, there is no reverse flow value chain. Sellers deliver products and services to the consumers via the platform. For example, app store of VJ enables app developers (or content providers) to develop applications and sell them to users. Besides, the platform also allows a large number of partners to offer their products and services to consumers through it, where consumers can easily buy their products and services. The significant difference between the platform and the traditional value chain business model is that the platform expands the previous value chain within the organization, including the external world (the historical transaction and development of VJ can be taken as a typical reference). From a competitive strategy perspective, platform companies focus on connecting processes between organizations while engaging various third parties through bilateral markets. In the traditional value chain, closed systems are the foundation of the organization, while the value chain is only internal.

Yet, the overall competition has intensified due to the expansion of the network and the emergence of more companies. It is impossible to achieve competitive advantage only by relying on the internal value chain. Competitive advantage can only be achieved by adopting an inter-organizational value chain that includes suppliers behind the organization and consumers at the front. This allows these stakeholders to be interconnected in a large process, including the compan's own value chain, the value chain of back-end service/product suppliers, and the value chain of front-end channel

participants (distributor, purchaser, and consumer).

Platforms stand for a novel business strategy and have emerged from need. As an open system in accordance with a bilateral market, the platform leads to the external expansion of the value chain, which enables each participant to expand the value chain by participating in one platform. In addition, it can ensure more customers by offering more diversified services. Finally, it is able to build and optimize a business ecosystem on the basis of a virtuous cycle structure as well as network effects. This expansion of the value chain is driven by platforms that not only increases the number of suppliers and consumers, but also significantly reduces process, inventory, and transaction costs by sharing information in real time. Also, the synergy effect is maximized through the cooperation between relevant organizations.

In a vendor-type value chain, value creation occurs, whereas co-creation does not occur because the vendor-type chain is producer-centric. Yet, the provider type has both direct and indirect network effects. As theoretical models predict, no indirect network effects exist in the supplier type chain, whereas this study confirms that there are indirect (cross) network effects in these chains due to the observed patterns. The market dominance of a platform company to gain a profitable model and a monopoly depends on its ability to create a lot of trading (interaction) between the supplier and the demand side, which is the platform's two customers. Accordingly, platform providers can form of bilateral markets merely by ensuring the safety of direct networks and indirect networks.

Value Chain Starts from the Demand Side: 'Tailor' Type

The second platform business model refers to a 'consumer-oriented platform'. Under such this model, the consumers request products or services from the producers via a platform. Subsequently, the producers deliver them to the consumers through the platform. GEC is the particular case for of the above platform pattern. The model employs a consumer-centered approach, on which consumers are in a leading position in the use of the platform. Through pattern matching, the reverse flow value chain appears in the customized value chain. This results from the fact that consumers first request products or services through the platform, and then producers produce them through the platform and deliver them to consumers. The business model of GEC as introduced has effectively expressed the above type of business patterns. For example, GEC will provide details of their desired products for the computer parts suppliers (supply side) when the consumers (demand side) make a request via GEC's ordering platform. The relevant idea platform also makes the products through the suppliers (supply side), when the users (demand side) present their idea via the Kick starter platform, and subsequently sells the products to the users.

Since platform is actually a two-sided market, there in fact exists another pattern – a platform pattern starting from both sides. Yet, we think this pattern can be understood in terms of both supply and demand, so we do not define this pattern as an isolated pattern. Our model utilizes a producer-centric approach and a consumer-centric approach. Consumers and producers directly produce and consume products and services through the platform. Accordingly, the producers and consumers has blurred boundary, and the platform facilitates the activities of presumes. A very representative case is that the users can view desired user-created content (UCC) on YouTube (demand side) and create and upload their own UCC (supply side) to the platform. Likewise, users of Facebook and Blogger upload their own content to the platform (supply side) and view the content of other users (demand side) simultaneously. In the case of the Yahoo answers platform, the prominent platform for knowledge search, users pose questions (demand side) and

also answer them (supply side) via the same platform, thereby producing and consuming content once again.

Likewise, in the case of GEC and VJ, on the one hand, they can provide products and services to customers, but on the other hand, they allow customers to make personalized requests to them, especially in the case of GEC. In brief, we seek to interpret the platform in the perspective of the value chain. Despite whether it is reversed, value chain integration can be horizontal or vertical, as the value chain always flows in one direction in the platform business model. The traditional supply side is only responsible for producing products or services, while the traditional demand side is only responsible for requesting or consuming products or services. In the third pattern, both the supply side and the demand side produce and consume products and services simultaneously. As Instagram and YouTube show, this creates an accelerative value chain in both directions and allows for exponential growth in business.

The platform does not distribute existing comics to consumers; instead, it allows people the freedom to create and upload their own comics while reading others. Readers in this model do not consume comics in one direction any more: they are now content providers as well. Accordingly, to sum up, this study believes that every platform business, no matter which mode is adopted in the initial stage, is likely to develop into the third mode we mentioned - integration mode. As the integration pattern represents the highly legalized mode that the platform should develop into. Otherwise, it will be hard for the mode platform in each direction to maintain its established comparative advantage and thus be replaced in the future competition.

7.2.2 Characteristics of Successful Platform Organization

Our analysis suggests that for most organizations operating platform businesses, they usually have the following characteristics: 1. the existence of products or services serves as the basis for other products or services to approach users and create value, which is platform products or services serving as the cornerstone; 2. consumers will get less utility if there is only a platform product or service, and other supporting products and services are lacked; 3. before offering platform products or services, due to the problem of "eggs and raw chicken", no supplier is willing to invest in special assets to develop various supporting products and services; 4. after the product or service to offer the platform, under "eggs and raw chicken" network positive feedback effect, when there is a growing number of cable supply of complementary products, more users will join the platform and demand for more products, since it is easier to create scale economy demand for minimum threshold, more suppliers are encouraged to join the platform; 5. network effect will build the mutual reinforcement mechanism of supply and demand if the supporting product or service is up to a certain critical scale.

As the noted characteristics also suggest, the platform ecosystem is characterized by dynamic evolution and system opening. In other words, the success of a product or service supply system with sequential attribute is uncertain about which participants will join to this system, and what type of products and services will be involved in the ecosystem. This makes it difficult to use the traditional contract analysis framework - the uncertainty of product supply time and the inability to determine goals. We try to figure out how to offer the noted products or services effectively. Practically, an "open contract" has been employed by companies to solve the noted problems.

Platform enterprises provide platform functions to the market and then decide the public rules for other enterprises to produce supporting products or services. The rule stipulates under what conditions other enterprises can use the functions or services of platform products. When, what price, what market, what product and so on are decided by other companies. This open contract has two basic meanings: one is that the partner's identity in the product ecosystem is open. Any participant meeting certain rules can participate in whether he has specific skills, knowledge, capital, identity, etc. Second, all possible product parameters are open and the contract does not specify the specific content of any product or service provision. From the perspective of contract structure, open contract can be divided into two parts: the accuracy and applicability of the contract. Some general rules must be followed for all current or potential partners. For instance, all partners who participate in Amazon's e-commerce platform must abide by the platform's technical and business ethics requirements. This part can be thought of as a very precise contract. In case of any violation of these provisions, the right to use the platform and its related functions will be cancelled, and other parts may be deemed to be related to contractual adaptability.

In other words, certain provisions are designed to cope with difficult circumstances arising from the limited validity of the contract to achieve the transaction's ability to adapt to unpredicted events. As Luo (2002) stated, adaptability refers to the relationship between the contract and the accuracy of the other party's contract. As a measurement standard for relatively complete contract, adaptability refers to the opportunity for the contract to anticipate the opportunity of interpretation and describe all principles of the overall level. Its major purpose and content are to build a "consensus tolerance area city", emergency management rules and feasible alternatives. The purpose of the special design is to improve the adaptability through the design of the contract terms to reduce the impact of future changes and uncertainties on joint production or cooperation.

Besides, they believe that such adaptation can be interpreted by specific terms. The book argues that the most adaptive provision is not to set specific terms, but to allow the competitive mechanism of the market to regulate the various parameters of the supply of products or services. Therefore, when providing products or services, Microsoft enterprises can actually use their own platform products, services and corresponding interface technologies, and create an open contract and fulfill an objective. We believe that the reason why the open contract addresses the aforementioned product or service supply problem can be interpreted as follows: first, it is actually to open the general rules set in the contract, and all potential partners signed a similar contract - or by platform, which can exploit the platform to resources; or leave the platform and lose platform resources and relevant benefits. This clause seems not to differ from the average corporate contract largely, as miller (2002) states, "the enterprise simply offers a platform to multilateral cooperation". Yet the noted terms and platform products or the particularity of the function are combined to generate a unique connotation. Since platform enterprises have established access interfaces technically, they can terminate contracts between trading objects that do not conform to the rules of the platform, and the cost is relatively low. For instance, opportunists who sell fakes on Amazon and harm trading partners will be wiped out for good. Products and services not meeting apple's requirements will be "removed" from the app store. With the ensured technical support, this rule also guarantees the supply of all products or services and the compatibility between platform products. It also enables a platform enterprise to adopt an integration mode where all participants share a common goal.

Second, under the noted rules, any participant can access to the platform and provide products and services according to their own understanding of user value creation. This essentially differs from the reliance on the entrepreneur's authority in a business contract. Obviously, platform owners and partners have no employee-employer relationship and no management costs within the enterprise. In the meantime, the open contract allows any partner to join the platform anytime, creating a market that can replace the original product anytime and provide complementary products and services anytime, bringing all incumbent competitive pressures to other participants to reduce costs and realize professional economic opportunities. Thus, The general contractor needs to maintain its partners, curb the strong incentives for opportunistic behaviour, and create space to constantly develop new products and services as well as new space (Williamson, 2014).

Finally, network platform in the ecological system is a pure relationship as mixed with

comparison system under new institutional economics or network organization. It does not usually present artificial constraints on the basis of product and service value of external network of social relations. Accordingly, there is no cost of maintaining relationship. As a result, open contracts turn out to be more spiritual than new classical contracts. In the meantime, it does not depend on the arbitration or other third-party governance hierarchy to address trade disputes, depending on a competitive market and the benefits of network externalities to each partner instead.

It is noteworthy that the production or trading effects achieved by the "open" features of the noted contract are consistent with the contract structure. Actually, platform enterprises create a very special contract structure while designing the open contract content. The previous analysis suggests that platform products and services are a complement to many partners' products and services. If only a single contract, the nonintegrated structure of the two and the investment of specific assets involved must make both of them a bilateral dependent or mixed structure. Yet the bilateral dependency structure will be converted to unilateral dependence if the "one-to-many" features of these contracts are considered. Bargaining power normally tends to be on the platform side since its platform products and services are scarce resources in the process of cooperation, while resources of other partners always have an alternative or alternative opportunity.

Such contract structure is considered as a platform for enterprise core contractor superposition of countless bilateral contracts, the formation of "scarcity" assets plus alternative assets "one-to-many" contract structure. This enables platform enterprises to gain bargaining power of leading and commanding other enterprises without vertical integration. Numerous alternative competitive partners create high-energy competitive incentives that avoid the cost of controlling opportunistic behavior. In the meantime, the positive effect of network externalities is the inherent benefit for all partners, thereby saving the cost of maintaining relationships. Accordingly, we believe that the contract feature of platform ecosystem can be summarized as the open contract content and the competitive "one-to-many" contract structure centered by the platform.

We adopt the metaphor of market to describe the attributes consistent with the characteristics of the contractual economic organization mentioned above, and think that platform organization is essentially a market with product or service trading platform as the core market. But it is different from the platform organization we usually understand, since it is in a special mechanism, covering authoritative command or management mechanism, free market competition mechanism and market mechanism, as well as network relationship. The access of authority is based not on the employment relationship but its platform indispensable resources for all partners to create and capture value function and to achieve its technical control of connection interface, because an opportunity to enter the market is controlled by the platform owners, the market competition mechanism and deliberately led by the platform owners, thereby creating a management of product production and market. Because of the platform for enterprise sustainable development, the competitive advantage in competitive conditions depends on the size of the platform production system partners and cooperation quality, the platform firms have the incentive to maintain the long-term relationship with every partner, though the long-term relations of cooperation does not rely on social relations and form.

Therefore, associating with the case studies, the section 7.2.1 is about platform business patterns, while the section 7.2.2 discusses the characteristics of a platform and what are the particular ones for a successful platform. According to the discussions, a brief summary could be generated into a proposition, as:

Proposition 1: The platform business can start either from the supplier side or from the demand side. No matter which mode the platform business adopted in initial stage, it is likely to develop into a highly legalized integration mode. The key characteristic for a platform to success is to establish open contract content and the competitive "one-to-many" contract structure center-controlled by platform owner.

7.3 Driving Factors and Mechanism of Platform Strategy

The market is a type of trading system having been prevalent in the rural areas and progressively declined during industrialization and urbanization. Generally, the smallersize individual producers exist in small-scale peasant economy, and establishing its own sales channels for the broad market scale is not economic. Thus, in the form of "hub" market search market information, we found that price,- a fair deal, is a group from the efficiency perspective. A regional convention will effectively organize the following production and allocate resources once it is formed.

When economic society underwent industrialization and urbanization, the pursuit of economies of scale in factory production technologies, lower transport costs, market expanding of deepening of division of labor, and professional services companies have been boomed as impacted by various causes, e.g., various trading space gradually replaced the regional distribution center, and the market system declined. Yet, for the case studies, the market system that once served as a public sales channel, providing opportunities for production and trading, has not disappeared, but left its legacy in various new mutations. Especially with the development of Internet economy, the traditional market is a kind of institutional arrangement of economic organizations, showing an unusual prosperity. Uncovered from the case studies, it has been perceived that the pressures for a platform strategy to adopt and survive can be emerged with varied origins like market integration, industrial integration, as well as data expansion in today's big data environment. This section conducts a discussion about the issue of the driving factors for platform strategies.

7.3.1 Pressure from Market Integration

A significant feature of the Internet economy, in particular the development of the mobile Internet economy, is the establishment of an infinitely open trading market. Clearly, any company can strike deals with consumers or merchants at Amazon, Taobao, jd.com and anywhere else. One consequence of this market of unlimited availability in time and space is the eventual deepening of the division of labour. This is because in such a large market any individual demand can find a corresponding supply; conversely, in such a large consumer demand market, any specialized supply can easily achieve its demand size threshold beyond the marginal cost curve.

From a consumer's perspective, clearly, consumers want to buy all the complements through the market and keep their transaction costs to a minimum. This means that there needs to be a function that integrates the production and supply of all complementary products simultaneously, which the pressure is posed by infinite integration. Under the influence of professional economy and the specialization of enterprise's competitive advantage, it is obviously not possible for traditional enterprises to provide unlimited integration of functional organization. A mechanism is required to create all specialized producers to provide complementary spaces or trade channels.

Here this is suggested as a pressure to stimulate the marketplace. Of course, this type of Internet market differs from traditional markets. Traditional markets are constrained by space, management and transaction costs and are only effective in specific markets. Once the scope of the transaction exceeds a certain threshold, the efficiency will be lower than the private sales channels established by large enterprises. Accordingly, it is said that the development of Internet economy promotes the market organization's revival.

7.3.2 Pressures from Industrial Integration

One reason for the pressure is the convergence and networking of different industries. This is because, once the industries with clear boundaries are under extreme pressure from the division of labor, the value chain will inevitably be further broken down and dispersed. This makes the integration of the value chain fragments of different industries and the creation of cross-border integration easier, e.g., the fragmentation of the music, computer, and camera industry value chain achieves low cost integration of digital music, smart devices, and camera functions. Without the noted division of labor and the fragmentation of the value chain, the mentioned integration will be inevitable due to the high cost.

In the meantime, with the Internet everywhere and everything interconnected, many of consumers' complementary needs are easily connected to suppliers via network nodes. To save transaction costs, consumers are inclined to select nodes connected to all the suppliers. This suggests that a particular value chain node once at some point become "channel". At the ends of the connection of supply and demand on the demand side economies of scale, the supply-side economics formed under the mutual reinforcement of positive feedback mechanism become specialized, and the "channel" function of the node is improved.

If the enterprise at the node seeks profit gains by providing this channel function, it has the incentive to become a professional platform independently from the entire economy. This platform can achieve positive profits once it is traded through the platform, and user size reaches a certain threshold. Also, in the "chicken eggs, eggs, chicken" of network externalities under the impact of increasing returns, it has the specialized platform of objective conditions. These suggest that the development of Internet economy poses the pressure of extreme division of labor and lays the objective conditions for the rise of the platform as well.

7.3.3 Pressures from Data Expansion

A platform for enterprises in ACTS as an integral role to provide complementary functions to consumer "integration of the product or service", it must be able to effectively manage numerous "joint" between complements manufacturers supply. In the meantime, the platform itself, the pursuit of profit maximization and platform's survival is dependent on supply and demand persisted by the trading of both sides. Thus, platform enterprise must also be able to effective governance of market order. Given the number of third-party companies such as Apple, Taobao and Amazon, as well as thousands of transactions, why platform companies must have this capability. It is believed that the management of the market is different from the management of the market "invisible hand" of the self-adjusting function, make the market characterized by self-organization. On the other hand, besides the deepening of the noted division, the economic development of the Internet has another significant result, which leads to production and trading of embedded software and digital.

This suggests that any production and transaction can be platformed through data representation, and through the cloud computing, big data modeling process tracking, group characteristics analysis, based on the data of objective supervision, evaluation and prediction, etc. This suggests that the costs of human judgment, experience management, communication and coordination will be significantly reduced in the management process, making the management boundary of platform enterprise expand significantly. Besides, this extension due to the platform architecture design and further enlargement: modular design is to create a platform for enterprises to acquire complementary assets replacement mechanism. In the "joint" supply management, setting the rules of a market bargaining has natural ability with the similar efficiency and bureaucratic authority but it does not need to pay a similar to hierarchical management costs.

The study to clarify the current several fuzzy understandings of the platform has the

following enlightenments: first and foremost, the traditional enterprise transformation to the platform type enterprise is a type of transition of process from "business" to "do the bazaar". Thus, business thinking must be transformed. Only the platform ecosystem with favorable market order and large co-creation value has the potential of sustainable development. Therefore, platform enterprises must enforce laws fairly, effectively manage third-party opportunistic behavior, keep their ecosystem open enough, and maintain market competitiveness and self-organization mechanism. Thus, platform enterprises must be able to develop technologies or design systems to combat disorganization in counterfeit, shoddy products, services and transactions on platform.

Second, since market products and services cannot be quantified in advance, nor can they be defined by their nature. Therefore, market development is dynamic and unpredictable. The requirement to the platform service is also "advancing with The Times". This suggests that a sustainable market must be a market organization capable of constantly upgrading its governance capabilities to harness and lead the evolving market. Thus, platform enterprises must be able to innovate their products or services continuously.

For the government, the management of various platforms at the Internet age is able to make regulations in accordance with its market attribute. This book argues that platform enterprises make various platforms the responsibility of the market by creating profits in the market. Thus, the government can entrust the management power of the platform market to the platform enterprise to clarify the current very vague platform management functions. At this point, the government can set the threshold for the qualification and management of the platform. Besides, since the organization is fair, the size of the market in the sense of increasing returns and the negative impact of monopoly power is likely to be a whole.

In addition, the traditional thinking restriction policy of government supervision platform does not conform to the scale and business scope of enterprises, but encourages more competitive platforms as far as possible, and it is possible to create third-party partners and reduce the cost beyond. Because at the Internet era, various platforms are virtual, without spatial structure and fixed position, the government can selectively cultivate and cultivate some platforms to form various market competition structures. On the one hand, it adjusts the scale of various platforms through competitive self-organizing mechanism to prevent monopoly. On the other hand, it is able to raise the pressure on the platform enterprises to control the market order, thereby forming the governance system of multi-level platform market, contributing to the healthy development of various platform markets.

Therefore, to sum up with the discussions on driving factors and mechanisms of platform strategies especially within nowadays' big data context, this section could conclude a proposition as:

Proposition 2: Drivers for a platform strategy to adopt and survive emerge with varied origins, including market integration, industrial integration and data expansion; in the context of big data, any production and transaction can be platformed through big data techniques such as data representation and group characteristics analysis, thereby leads to a significant cost reduce in platform management; platform enterprises should be able to develop technologies or design systems, and also able to innovate their products or services continuously, in big data context.

7.4 Dynamics of Platform Establishment and Diffusion

Due to the lack of a dynamic understanding of the platform's business, further research on platform diffusion is also recommended. As mentioned earlier, what platforms are more likely to be successfully diffused, or the common features contained in successful diffused platforms require further exploration. Besides, apart from the attributes of the platform itself, what strategies can we adopt to promote its diffusion process, and how? Those questions still need further discussion, and in this section, we try to answer them to unpack the dynamic of platform business by adopting ANT perspective into case studies. The case studies enabled us to learn which platform business model could be applied, which was an essential element of corporate strategy, in relation to platform. Yet, this typology needs to account for each stage of the platform business life-cycle, depending on the market growth of each platform business.

Particularly, enterprises need to make strategic analysis of each period according to the growth of the market to start and develop the platform business. There is less research on dynamic analysis of the platform business model, and the existing literature relies on static strategy model and performance model. Yet, strategy is increasingly dynamic (Gunther et al., 2004), and there are many different strategic issues for each growth stage. Dynamic models of strategy and performance are particularly important for platform businesses for two reasons.

First, it is necessary to have an adequate strategy and analysis for each stage if the corporation is to grow successfully. Platform enterprises are a two-way market, which is much more complicated than traditional unilateral markets, so they must consider various factors affecting the platform at all stages of enterprise ecosystem. Second, platform is an essential element of constructing and operating a business ecosystem with a virtuous cyclical structure. Thus, it is essential to make adequate decisions on platform strategy and consider each factor in the decision-making process to establish a successful growth model for the enterprise ecosystem.

According to actor-network theory, the growth model of platform can be classified into three translation stages (problematization stage, interessement stage, and enrolment stage). In terms of platform strategy and enterprise ecosystem development, different problems need to be solved at each stage. In addition, each issue contains a different set of decision items and factors to consider. Problematization stage: internal and external analysis for the selection of the platform business. Interessement stage: solutions to the chicken and egg problem that is endemic in the construction of two-sided markets. Enrolment stage: a method of reaching critical mass to accelerate network effects. Accordingly, the purpose of the case study is to propose strategic propositions and performance from a dynamic approach perspective through a conceptual framework.

7.4.1 Problematization: how should a platform business service be chosen?

As discussed earlier, it is important to find a platform business before entering the market. Platform business services can be selected by determining which platforms the market needs. Platform providers are required to must decide what kind of platform they will deliver, so this study examines the ways in which the corporations can choose their platform business service. Anything can be a platform, but that doesn't mean choosing anything as a platform is a good idea. One of the fundamental requirements for the success of a platform provider is the identification of valuable platforms. Thus, in order to choose a valuable platform business from a wide range of possibilities, an enterprise must analyze both internally and externally. For this reason, it is extremely important to find the intersection of "participants", "issues" and "capabilities". Such intersections will constitute a novel growth platform that can be understood in accordance with the actor - network theory.

To find a new growth platform, three questions are proposed: 'what trends will enable markets to grow faster or bigger? (Actors)', 'where can we make a difference? (Problems)' and 'how can we make a difference? (Capabilities)'. In other words, a new growth platform should be able to address customer needs (customer problems) that previously could not be met by capturing new technologies or deregulation (enablers). This framework will identify, through external analysis, what platform customers and is consistent with the 'platform potential' proposed by Gawer and Cusumano (2008). Besides, corporations own or create new platforms using newly acquired competencies (capabilities). This suggests that novel platform services are found in the existing businesses using internal analysis. This agrees with the 'platform thinking' proposed by Sawhney (1998).

In other words, new platforms and new platforms with certain capabilities are created using newly acquired capabilities, which are called platform thinking, and those that enable the enabler to capture the emergence of new technologies, or deregulation and customer issues, which refer to a potential platform. In the end, it is important for the corporations to analyses industrial environments, market competitiveness, market needs, and internal corporate competence in relation to which platform should be designed before entering a new market. Accordingly, a platform business that the market wants should be selected using both external and internal analysis.

External Analysis: Platform Potential

The first step is to conduct external analysis and plan a new platform business. The analysis is expected to assess the potential of the platform (Gawer and Cusumano, 2008). There are some prerequisites for a platform to achieve a corporation's strategic vision and become the basis of its operating ecosystem. As Gawer and Cusumano (2008) stated, if objects e.g., products, services, and technologies have platform potential, the two prerequisites given below should be met.

First and foremost, "The object shall perform at least one basic function within the scope that can be described as using the system or solve a basic technical problem in the industry" (Gawer and Cusumano, 2008). It should also be a technology, product, or service that addresses technical or business problems or customer pain points in the industry by providing basic functionality to potential customers. Second, "It should be easy to connect to or to build upon to expand the system of use as well as to allow new and even unintended end-uses" (Gawer and Cusumano, 2008). That is, the supply side and demand side should be connected easily, and a virtuous cycle should be established through various expansions. An important strategic element in choosing a successful platform service is identifying the enablers that can help it grow rapidly, as well as the difficulties and problems between the market and customers.

Internal Analysis: Platform Thinking

Besides to the external analysis, platform thinking is what people need the most for an internal analysis (Sawhney, 1998). Accordingly, platform thinking is a strategic process of identifying and leveraging shared logic and structure in corporate activities and products to achieve leveraged growth and diversification (Sawhney, 1998). This concept

can be applied to a variety of products, services, brands, and development processes to obtain a successful strategy by using resources efficiently. The strategy can start with the selection of generic modules, a comprehensive analysis of technology, components, manufacturing and distribution processes, and other organizational capabilities. This is called the process of building blocks. A platform can then be established by combining the blocks. There may be one platform or many platforms, depending on need. Also, it is likely to configure different platforms for product, process, and function. A variety of new products can be developed on this platform. In particular, many third parties can be invited to participate in a platform. The GEC Home shopping network platform was created by the GEC, which is one of the largest department stores in Hangzhou, China. The company expanded its offline-centric department business into an online platform business. GEC discovered some common structures in the process of developing and selling various products and applied them to the GEC home shopping platform. In such a way, the company can grow rapidly in the market and become a leader while offering a wider range of products.

When discussing platform strategy, there is usually too much emphasis on "opening to the outside world". In contrast, platform thinking, from a platform strategy perspective, aims to discover and reinforce the core logic inherent in products/services, i.e., to grow by creating a virtuous cycle in which revenue is reinvested into the platform by leveraging the above core logic to increase utilization and create a variety of products and ecosystems. In the case of the GEC Store, it can grow rapidly in the market by focusing on the core logic of the department store and by strengthening it on the level of its online sales service.

The GEC platform is currently working onto public on Chinese Shanghai Stock market to better launch its service and its market capitalization; rather, it is a means of examining a corporation's strategic vision and making all corporate activities consistent with that vision. In other words, relationships with other products or services can be leveraged by implementing product and service development and growth strategies from
a platform perspective. In such a way, new platform businesses can be used in conjunction with other products or services. Finally, the use of the platform will increase enough to create a virtuous cycle. In the problem phase, it is necessary to use external and internal analysis to select the right platform business as soon as possible. First and foremost, it is important to use external analysis to determine the latest technology trends and market changes.

This study finds that the two conditions must be met to assess platform potential: first, the basic functions of meeting market and customer needs must be clearly defined. Second, you must find ways of expanding to include third parties that are sufficient to start a virtuous cycle. In the end, internal and external analyses should be conducted simultaneously. For an internal analysis, it is important to conduct a sequential analysis using the three processes based on platform thinking. The first process creates building blocks by analyzing products, services, and processes comprehensively. The second process is the construction of a platform by combining these blocks. The final process is to develop new products and services based on existing platforms. After that, the company will select a suitable platform business and try to lobby other participants to agree to its interests, i.e., OPP.

Proposition 3.1: To establish a platform, in the problematization stage, both internal and external analyses should be conducted simultaneously. For internal analysis, three processes can be followed in sequence: creates building blocks through analyzing products, services and processes; constructs platform by combining the blocks; to develop new products and services on created platform. For external analysis, the enterprise should select suitable platform business strategies and try to lobby other participants. With big data technology, strategies like aggregation, user integration and stimulation can be adopted.

7.4.2 Interessement stage: how should a platform is established?

It's not easy to start and grow a new business on such a large scale, so it's surviving on an on-going basis. Most new companies fail before they become that way. Platform businesses are even more complicated, because they must not only resolve those problems that the new companies usually face, but also the so-called chicken and egg problem, which is endemic in any two-sided market. Questions including "which of the two consumer groups should be the platform user group first?" and "how should two consumer groups use a platform at the same time?" are the essential parts of the chicken and egg problem (Rochet and Tirole, 2003b).

The platform business model can expand rapidly in the market and achieve success. In addition to the direct services of the platform, it can also induce various participants to create cross-border (indirect) network effects and value co-creation. So, a platform company should establish a two-sided market. Yet, it faces the 'chicken and egg problem' in the early phase of establishing a two-sided market. Accordingly, creating a two-sided market by solving 'chicken and egg problem' is critical for a platform business to grow and succeed in a market in its growth stage.

According to our understanding, a perfectly competitive market, as understood in economics, has unit costs and profit margins for available products and services. Customers who purchase products and services in the market determine marginality. Thus, the price-determination structure is simple. Platforms yet are a two-sided market, with two different properties, unlike the conventional one-sided market of economic theory. Accordingly, it is hard to build an optimized price structure, and the chicken and egg problem is therefore one of many challenges encountered by a platform company. Which of the two parties should be first attracted to a platform in the process of participating in the platform should be considered. And platform companies should fall into two different groups and pay for their participation in the process of participating in the platform. Thus, the biggest challenges faced by platform providers in the growth stage are deciding which of two mutually different customer groups should be made the

initial platform user group and how to encourage two user groups to become platform users in the meantime. After determining the type of the platform business model, the platform supplier provides subsidies and cross-subsidies according to the attributes of the platform business model, which is named envelope. The first participant of each platform is critical for operating the corresponding platform. Besides, each of the early participants does not know whether the platform used will become a major platform, so their participation comes with a high degree of risk. On that account, a large number of consumers refuse to use a platform before it has enough users. Solving this problem is the top priority for successfully creating a bilateral market.

Platform operators can help with active interventions in price structures: "Providing low prices or transfers to one side of the market helps the platform solve the chicken and egg problem by encouraging the benefited group's participation" Evans (2003b, p. 196). Price structure is a generic term used to describe various benefits, including monetary compensation, free services, deregulation, and solution offering. Rochet and Tirole (2003b, p. 992) defines price structures as the 'instruments of cross-subsidisation. The initial free versions of software programs and initial low prices of games consoles are types of price structure intervention undertaken by the platform operator. At the early stages, the cost of participation in a platform should be reduced through subsidisation or by giving benefits and rewards. Eisenmann et al. (2006) highlights the significance of vitalizing one side of the market first through subsidisation and then encourages the vitalized side to affect the other side.

Thus, the platform provider must decide which party to subsidize at the establishment stage. At this time, the essential point is the value chain and stream. Platform can fall into producer-oriented platforms (supplier type), consumer-oriented platforms (tailor type), and both-oriented platforms depending on the features of the value chain. In other words, it is likely to know that all the platform business models concentrate predominantly on the early formation of the business model.

First and foremost, the value chain in the case of supplier type - the VJ case starts on

the supply side as it is producer-oriented, i.e., the producers deliver products and services to the consumers through the platform. VJ offers an open app market allowing users to download various apps to their smartphone. It was critical for VJ to secure the applications (the supply side) in the early phase. Hence, a producer-centered approach was appropriate here. Consequently, to secure as many application providers as possible after the service was launched. VJ offered marketing tools, e.g., ad banners, coupons, and cash in application providers for free (subsidisation). In such a way, VJ aimed to create a producer-friendly environment. In this way, VJ could attract a numerous content providers and also plenty of users.

In terms of the tailor type – the GEC, the platform starts on the demand side as it is virtually a consumer-oriented platform. Consumers request products or services from producers through the platform. For tailor type platforms, a consumer-centered method should be adopted. In the case of GEC, various applications in the GEC Apps are offered for free (subsidisation) to secure initial users. In such a way, GEC Apps are able to attract the demand side as well as advertisers. It is introduced that the two cases are eventually developing towards the two-sided platform, both producer- and consumer-oriented. Hence, producer- and a consumer-centered approach should be used. The producers and consumers has blurred boundary, unlike the noted two platform business models. Thus, both the supply and the demand side should be subsidised, as VJ's social media platform did when it allowed users a free storage service to upload pictures.

Cross-subsidisation means the process to distribute the costs associated with production of goods or services arbitrarily for a certain purpose, other than distributing them in line with the incurred costs. Accordingly, it often refers to covering deficits in one area of an industry with profits generated in other areas. Market-dominating companies are able to subsidize other side (less developed) businesses or services with windfall profits, leading to market dominance. That is, it is a way to support less profitable businesses financially with the profits from more profitable businesses. Since those receiving the relevant goods or services are not matched with those bearing costs, cross-subsidisation violates the 'beneficiary pays principle'. Yet, this cross-subsidisation is accepted in economics as it allows for the pursuit of various economic objectives, e.g., balanced development, redistribution effects, and focused growth in specific areas. As Rochet and Tirole (2003b) stated, a two-sided market could be completed if the platforms were cross-subsidised effectively. On that basis, they stated that cross-subsidisation was a critical factor for platform strategy.

Cross-subsidisation refers to a strategy to attract participants to one side using another. Thus, cross-subsidisation should be implemented together with subsidisation to allow participants on one side to gain new benefits. As a supplier type platform, the case of GEC provides marketing tools (e.g., ad banners, coupons and cash) to application providers (supply side) for free (subsidisation) and makes them pay for benefits. In such a way, customers on the demand side can are able to gain new benefits (crosssubsidisation). Finally, there will be a virtuous cycle creating a larger two-sided market. Thus, the advertisers on the supply side can gain benefits (crosssubsidisation), Ad inventories, in which they are enabled to advertise. VJ's social media platform, a facilitator type where the producers and consumers have blurred boundary, creates a two-sided market by providing storage space to upload pictures for free (subsidisation), and the Application providers should develop and upload applications diligently.

The services developed by the subsidies provide users with various cross-subsidies, maintain and expand bilateral markets, and create the exclusive competitiveness of the platform. That is, they continue to develop subsidies and cross-subsidies to maintain permanent relationships with bilateral customer groups and remain competitive. Accordingly, the most serious challenges encountered by the platform providers in the growth stage are determining which the two-sided groups should make the platform's first user group and how to create a two-sided group of platform users. Platform providers are required to identify which type of business model their platform business pertains to by conducting internal and external analysis at the entry stage. Accordingly, they can use subsidisation and cross-subsidisation smoothly. For the supplier type, some subsidisation of the supply side is required since it is some cross-subsidisation of the demand side. On the contrary, the tailor type requires the demand side to be subsidised and the supply side to be cross-subsidised. For the facilitator type, both the demand and supply sides should be subsidised and cross-subsidised.

Proposition 3.2: To establish a platform, at the interessement stage, the first thing is to decide which of two mutually different customer groups should be made the initial platform user group and how to encourage two user groups to become platform users in the meantime; then the platform provider must decide which party to subsidize, and strategies could be taken to promote the interessement stage, such as offer subsidies, monetary compensation, free services, deregulation, and solution offerings; crosssubsidisation is an effective strategy to support less profitable groups financially with profits from more profitable groups, thereby to attract participants.

7.4.3 Enrolment stage: how should network effects be exploited?

Network effects occur when a two-sided market is constructed, and two groups are attracted to each other (Eisenmann et al., 2006). Network effects (or externalities) propel the growth of a platform company (Cusumano, 2010a). Both direct (same-side network effect) and indirect (cross-side network effect) network effects are prerequisites of two-sided markets (Eisenmann et al., 2006; Cusumano, 2010b). Thus, the growth rate is risen if network effects can be encouraged between the users of the two-sided market. Thus, network effects are one of the critical determinants of the success of platform businesses.

In the case of VJ, the number of users increased when it had various content as well as a platform established adequately. Initial users also attracted other people, thereby increasing the value of the VJ platform and causing network effects. People prefer a platform service that has more content and more users, so it attracts even more users and is likely to become bigger and stronger. In the case of VJ, the 'winner-take-all' phenomenon is common in the market, principally as a result of network effects. Networks with enough users will be likely to grow continuously, whereas networks that have fallen behind their competitors will fail to expand, and consequently contract. There will be a starker contrast between winners and losers over time. Thus, the benefits of platforms reaching critical mass points to increase network effects are very important, as this allows platform providers to grow and create an enterprise ecosystem to attract more participants.

Both direct network effect and indirect network effect occur on the platform. Network effects occur because participants attract other participants. Therefore, after a certain threshold, the number of participants will continue to increase without the company needing to take any additional action. Yet, this is only true when the number of participants is high. Network effects are a blessing for those who have grown already and a challenge for those who have not. Early platforms without many participants may struggle to attract new participants and, as they have been waiting for the number of

participants to rise, no one is willing to take the risk of participating. In other words, the penguin effect will still occur even if the two-sided market is already established.

Accordingly, it is significant for the platform to reach the critical mass point in order to promote network effects. Once it reaches critical mass, network effects will attract other participants and become a powerful driver of the corporate ecosystem. Thus, it is essential that the number of participants is increased for all types of platform in order for critical mass be reached. Yet, each platform business model has different features, suggesting that different approaches to reaching critical mass are appropriate for each one. Only when direct and indirect network effects are applied within the platform in the bilateral market can the platform gain economic benefits.

Proposition 3.3: To establish a platform, in the enrolment stage, network effects are the most significant and critical determinants of the success of platform businesses establishment. Only when direct and indirect network effects are applied within the platform in the bilateral market can the platform gain economic benefits. With big data technology, strategies like offering heterogeneous user experiences, providing infiltrative advertisements and subsidizing potential customers can be adopted.

7.5 Constructing Competitive Advantages for Platform

7.5.1 Constructing competitive advantages during platform dynamics

Industry under the background of integration platform for enterprises to choose the platform envelope strategy is the key on the cognitive from support competition "difference" to "common support competition", a deeper theoretical logic analysis paradigm is the competitive advantage theory, the "supply side" to the "demand side". Platform as a support for the development of infrastructure, different from traditional enterprises to consider how to apply their heterogeneous resources, capabilities, and network to the new product, service or other industry to make a profit of thinking, it is of more competition between enterprises in considering whether there is some common support, such common resources and capabilities are a common need.

As the cornerstone of the platform, these common resources can be danced on the same platform by users from different industries, different products and services. Case studies in this book show that these common resources and functions are user data resources and development and service functions based on user data resources. Previous competitive advantage theory study is from the "supply side" analysing the competitive advantage, holding value yet difficult to imitate and difficult to replace with heterogeneous characteristics of resources and capacity to support enterprises to build "isolation mechanism" in order to get competitive advantage. This supply-side paradigm values "value acquisition" and ignores the more important "value creation". Value creation requires a product or service that truly provides users with "pain points". Enhancing user value through service is the root of competition and the "common rule" of competition in different industries. Platform enterprises accurately grasp this common law, and platform infrastructure covers key resources such as user data.

Accordingly, platform enterprises will share based on infrastructure in the context of industrial integration, so as to improve user value experience and implement strategies covering different industries, products, services and functions. The new service function

of the platform envelope and the complementary symbiosis of the original platform ecosystem further enhance the competitiveness of the platform business ecosystem. Envelope strategy is not visible, selecting the platform of the Internet platform of the "patent" of the enterprise. Traditional enterprises can also adopt this strategy, the key to competitive advantage from the management idea and strategy of cognitive level building paradigm from "supply side" to the "demand side". Therefore, in this framework, it is considered that the competitive advantage of highlighting "differentiation supports competition" and "supply-side paradigm" is superior to the "generic" paradigm that supports competition. In a word, based on data analysis, to find common or generality can be more helpful than finding differences as traditional theories implied, and this can be viewed as a significant shift in the context of big data.

It can be seen from the framework that on the basis of understanding the process of platform establishment and using ANT for communication, many specific strategies or technologies can be used to promote platform formation and communication at different stages. There is no "one-size-fit-all" method for promoting the procedure and constructing competitive advantages. Considering the context of big data, several typical strategies can be adopted as reviewed literature suggested. First, it is the basic user precipitation. Ayt the Internet era, enterprise management has shifted from "enterprise departmentalism" to "user-oriented doctrine".

Platform architecture lays the basis for platform envelope, and user data is the foundation of platform architecture. It determines the design, platform, content, experience and evaluation of platform operation. Therefore, it is different from previous enterprises to build competitive advantages from acquiring or accumulating heterogeneous technical ability and asset elements. The construction of platform the envelope strategic competitive advantage refers to a "reverse" process. It starts from the client, improves the user experience, and integrates different resources and capabilities to create value for users and gain competitive advantages. The competitive advantage of the build process and the key is the basis of user data. User data resources must be

controlled by platform enterprise, access to resources and capabilities needed for the user data resource which itself can adopt diverse means.

Network effect excitation is another considerate strategy. The basic user database setting up in the platform enveloping strategic exploration stage is the cornerstone of the longterm development of the platform. In the context of industrial integration, platform enterprises find that barriers and boundaries of different industries are gradually broken. Meanwhile, data resources in the platform infrastructure can be shared by multiple industries. Therefore, the main work of the platform envelope strategy is to share and leverage basic user data. New service development promotes the positive feedback between service content growth and user scale growth.

Through service binding and service platform integration, the strength of the relationship between user groups and users is increased. And the strong cross-boundary network effect will be stimulated when it exceeds a certain critical mass. In previous platform studies, the scale of platform users has been widely concerned, and the increase of scale can inspire the "winner-take-all" effect of the same side and cross-boundary network effect. Scale is important, but is it just the size of the network? The network relationship strength is also a critical factor impacting the network effect, and the process of the platform envelope process is exactly the process of enhancing the strength of the relationship among the multilateral users.

It can be seen that enterprises increase the platform function module through platform envelope, which can provide services to more suppliers and users, thus significantly increasing the user scale. In the meantime, the platform to provide users with a variety of "bundled" service, the user dependence between the platform and users are on the rise, multilateral trading frequency and reciprocal degree are increasing, according to the grand victor strength of relationship between classical elaborations, multilateral relations within the user network platform strength in ascension. When the network size and relationship strength exceed a certain threshold, it will stimulate the same side and cross-boundary network effect, thus helping the enterprise gain competitive advantage. At last, commercial system symbiosis can be adopted as well. After being bundled and integrated with multiple services developed by user value, the platform actually covers the multi-user community. What "platforms" are adopted within each user community to ensure order, and what "rules" are adopted between different user communities to achieve interfacial interoperability and complementary functions. The establishment of an orderly commercial ecosystem becomes the main work of the platform envelop strategy maturity stage. Platform and the difference between ordinary alliances are not only a business cooperation network, or connected to the supply of community, the demand of community and complements providers of business ecosystem. The initiative of multilateral users in the system has been fully developed, which has significantly promoted the complementarity innovation.

Thus, we suggest that the concrete forming process of the dominant architecture includes three key actions: basic user precipitation, network effect excitation and commercial system symbiosis. In the strategic exploration stage, basic users can lock users' consumption habits and increase user conversion cost. Strategic growth, services and integration increases user scale and the relationship between strength, when the strong relationship between size and long span a certain critical point will inspire the same side and across the side of network effects and can cause a "winner-take-all", leading architecture prototype to begin to emerge. At the strategic stage, the business ecosystem is established through the integration of the platform envelope with multilateral users in different markets. The new ecosystem means the formation of new architecture, whereas the platform provider dominates the industrial structure and becomes the rule of the modeler, commercial ecosystem designer and system administrator. As the architecture solidifies, it will lock the platform enterprise's leadership in the ecosystem, thus ensuring the sustainability of its competitive advantage.

Furthermore, platform enterprise through the platform envelopment to model a new business ecosystem "dominant architecture", the architecture is locked leadership as a platform strategy to construct the guarantee of sustainable competitive advantage. According to the sources of competitive advantage theory, the internal logic and the general analysis framework of sustainability, above the industry under the background of integration platform building envelope strategy process is a concrete analysis of competitive advantage. Study found that with the traditional strategic competition advantage to build from the organization to services to meet different users' needs, the platform envelope the strategic competitive advantage is based on the user as a starting point, from the user data to service development and ecosystem "reverse" process.

Proposition 4.1: In big data context, platform for enterprise users as the envelope of different industries and the service function of common basis points, through the "Basic user precipitation – Inspire network effects – Commercial system symbiosis – Lock dominant architecture" mechanism chain, to "reversely" build up competitive advantage.

Proposition 4.2: At the exploration stage, platform should primarily exploit existing resources and capabilities, adopt its own transformation, acquisition and aggregation strategies, and build basic user database to acquire competitiveness.

Proposition 4.3: Platform competitiveness growth mainly through the development of new services, services and service platforms integration to increase user scale and the relationship between strength, inspire and cross with network effects to build competitive advantage.

Proposition 4.4: To secure and continuously develop competitiveness, platform open interface in the meantime also must strengthen the control architecture, the architecture control can promote the symbiosis between the populations depending on rather than competitive relying on, in the meantime, to ensure enterprise own platform for business leadership of ecosystem, providing the foundation for the sustainability of competitive advantage.

7.5.2 Maturity Stage: How should the business ecosystem be competed?

After choosing a platform business, building a two-sided market, and encouraging network effects, the business should complete its ecosystem. According to the Oxford Dictionary, an ecosystem is 'a biological community of interacting organisms and their physical environment'. In other words, an ecosystem is where organisms live and interacts with others while establishing their own independent system. The concept of the ecosystem has been applied in various fields; the term 'business ecosystem' was coined by Moore (1993). Moore (1993) defined a business ecosystem as a network of interdependent existences, that is, a self-conscious community of economic subjects that largely depend on the community as a whole. Iansiti and Levien (2004b) defined a business ecosystem as a network of companies which influenced and was also influenced by the provision of value for each individual company; examples include suppliers and producers of related products and services, technical suppliers, distributors, and outsourcing companies.

For example, VJ's ecosystem is based on communication between business holders, application developers, content providers, and smartphone users, who interact with each other through the platform provider. Business ecosystems provide value to platform participants and pay for the expenses incurred in the cycle. The participants exist and grow together. Besides, various types of platform and enriched value are created by complementary participants. These are then delivered seamlessly to the consumers, and hence, the business ecosystem is continuously growing and developing. The platform has a core role in establishing the company's ecosystem, while participating companies create value and perform the intermediary role. Many of the businesses are established based on it. The reason why VJ dominates the commercial real estate market is that its business ecosystem was created with support from the platform participants based on a well-established and outstanding platform.

Therefore, a platform will fail if the platform participants do not continuously support it,

even if it has already been established. It is necessary to establish a business ecosystem to create a win-win situation for all the participants in a platform business by building profit models and continuous quality management. VJ has succeeded in establishing an ecosystem platform through controlling the core architecture of platform. These businesses were able to grow and expand continuously with leadership in the market.

The literature review also supported the proposition that creating a business ecosystem was a core strategy for successful platform providers which completed the two-sided market model. Revenue structure (Nachira et al., 2007; Teece, 2010; Amit et al., 2012) and quality management (Boudreau and Hagiu, 2009; Hagiu, 2009; Riedl et al., 2009) are crucial factors for building and maintaining the business ecosystem. Firms adopt a platform business model in order to encourage the continuous innovative development of complementary products. Therefore, platform providers should manage the quality of platform, considering how to improve the loyalty of the participants and how to deal with profit and revenue structures for the participants and the platform so that they can grow in the meantime. This stage is designed to support the platform companies in completing a business ecosystem.

Platform quality management is needed to increase the number of participants, so that network effects can be improved and a powerful platform created. The issue is that merely increasing the number of participants might cause an increase in the number of unwanted participants or in opportunistic behaviors from the participants, potentially degrading the quality of platform and causing desirable participants to leave. If this happens, the platform business will fail, even if a two-sided market has already been established and a critical mass reached. In particular, participants have a high chance of encountering a market for "lemons" in a two-sided market. A platform business must counteract the effects of quality uncertainty.

The Lemon problem is easily confirmed by the example of VJ, which acts as a representative platform business. As VJ is always exposed to the risk of degraded quality. According to its official website, VJ has about a million users. Besides,

information about commercial real estates as well as demands from customers are uploaded every day. Among this massive amount of content, there might be some that is inappropriate. If the content is not filtered out correctly, users will leave the platform. VJ has been trying to solve the issue of the degraded quality of its platform since its establishment. There are two core issues of quality management of VJ. The first is selffiltering. Accordingly, to manage the quality of the platform and secure its continued growth, it is important to gain the trust of the participants.

Recalling reviewed literature, Boudreau and Hagiu (2009) highlighted the significance of regulating the platform. They argued that 'platform regulation' is necessary for quality management. As they insisted, platform regulation can even take the form of managing behaviors after or before they have occurred – 'ex post' or 'ex ante' respectively. They suggested 'hard' and 'soft' methods. The 'Hard' method is to limit the advancement of the platform or activities, if a certain criterion is not met, whereas the 'soft' method is to provide information of satisfaction about the products, or their reliability in evaluation, making the consumers select them. For instance, the GEC platform manages the products supplied and the characteristics of the participants based on hard certification that assesses sellers' stock, reputation, and competitiveness in the current market. On the other hand, GEC also manages quality by using soft authentication for free uploaded audio on the user score management platform.

The ultimate goal of any type of business is to generate revenue, and the platform business is no exception. If the profits are not stable, the platform business cannot be maintained even if the platform grows. Therefore, platform leaders must create economic incentives for ecosystem members (Gawer and Cusumano, 2008). Yet, since growth might be slowed by creating profits, it is to judge the profit model carefully, considering the platform strategy. In pricing, the willingness of participants to pay corporate fees is a central factor influencing future growth.

Platform business holders first need to determine the capital and subsidy aspects of the business (Eisenmann et al., 2006). In other words, they should consider each group's

price sensitivity. Money-side means platform participants who pay for services, a group that has relatively low price elasticity. On the other hand, the subsidy-side refers to those users who benefit from the platform, and this group has relatively high price elasticity. It is important to determine the funding and subsidy aspects because they can have different indirect network effects, especially cross-border network effects. If the platform providers are attractive enough to the subsidy-side, the money-side tends to be willing to pay for access. In this case, cross-side network effects occur. Likewise, in the opposite case: as there are more users on the money-side, the subsidy-side tends to be more attracted to the platform and therefore more likely to participate. Platform companies design price structures that are imposed on members to allow the entire business ecosystem to continue to grow and create their own profits.

The money-side can fall into three types. The first is the supply side. For instance, GEC can exemplify this side. For GEC, the demand side cannot produce profits, and the price sensitivity from the supply side is different. Thus, the money-side means the supply side: sellers for the platform. The subsidy-side for both platforms is the demand side, the purchaser. Most of the purchasers are individuals paying for the products or services produced by the supply side. They tend to be very sensitive to prices, while the sellers are largely companies, which are less susceptible to higher prices since they make profits by selling services or products. Efficiency is created by trading the products or services on the platform. Yet, the supply side is less price sensitive than the demand side. If both sides charge a commission, only the supply side will participate, and the demand side will not participate, eventually causing the trading on the platform to stop. Here, the demand side is the subsidy side as well. Second, it is the demand side. VJ is a representative example of it. VJ creates profits on the demand side through shop renters or estate purchasers. If the number of participants is small, buyers often do not see the value of using the platform, and the entire platform is degraded. Therefore, it is important to acquire various renters and purchasers in order to occupy the dominant position in the market from the beginning. Here, the supply side is the subsidy-side.

And finally, the sponsors. In this case, companies or individuals, rather than suppliers or demanders, pay the fee and are called sponsors. The profit model is a sponsored business model. This model is appropriate when the competition is keen or when both the supply and demand sides have high price elasticity, which often occurs in competitive markets or when both sides consist mostly of individuals. In typical cases, as for Facebook, users come from the subsidy side, and advertisers come from the money side, they provide ads to Facebook and pay for them. In our case study, this is not a case, whereas this model does exist.

Therefore, it is important to determine the monetary and subsidy aspects based on price elasticity to keep both sides in balance and improve the platform's trade. This happens specifically when economic efficiency is created, and the cross-network effects are internally applied to the platform. Accordingly, the platform should set an optimized price structure for both customer groups. Establishing a proper profit structure model is a critical strategy.

Accordingly, we should consider how to select participants in the platform's business ecosystem, how to promote their activities, improve participants' trust and loyalty, and how to create a revenue structure so that the platform and participants can grow together. First and foremost, platform quality management is needed to control the platform and solve the lemon problem caused by information asymmetry in the platform business according to "time" and "rules". Platform providers are in need of confirming whether to manage the adjustment and control the priority on the 'ex ante', or on the 'ex post', and determine whether to develop the 'hard' regulations, for controlling the advancement of the platforms, or the activities, if certain level of criteria are not met, or the 'soft' regulations that the consumers are in charge of controlling. Then, revenue structure in the platform business is important. Thus, the present study aimed to create profit structure in the platform through the money-side and subsidy-side analysis suggested by Eisenmann et al. (2006). Based on these characteristics, bilateral markets tend to be both monetary and subsidy. Accordingly, when the revenue structure of platform profit model should be established, "monetary" users who charge service fees should be separated, while "subsidized" users should contribute to the value of the platform.

Proposition 4.5: Establishing a business ecosystem is an important stage of making a platform business stable, if the platform is to grow and expand continuously.

Proposition 4.6: In the maturity stage, managing the quality of the platform through platform quality management is a core business procedure, as it is completing the business ecosystem by improving the profit structure through the revenue structure.

7.6 Conclusion

On the basis of the theoretical framework guided by two case studies, this chapter makes a comprehensive analysis of the dynamic and competitive advantages of platform business, thus answering the research questions that asked. By conducting a comparative case study, the market nature of the platform organization is first discussed in this chapter. Both cases have transformed themselves from traditional enterprises to platform organizations. Subsequently, the driving factors and mechanism of platform market formation and competition are discussed. We answer the questions of this study around two topics, one is the establishment of platform business and the communication process under the big data context, and the other is how to build competitive advantage in this process. Findings are explored and conclusions are given as several propositions that summarized.

CHAPTER 8: CONCLUSION

8.1 Research Review

As the conclusion of this thesis, this section first conducts a brief but systematic review of the research process, which encloses the origination of this study, how the research aim and questions are identified, as well as how this thesis is designed and conducted. At the end, the answers for research questions are revisited as well.

This study first originated from an interesting phenomenon that observed, as recent years have witnessed a rapid emergence and expansion of platform organizations and business strategy. Many industrial leading enterprises have made great efforts to transform and upgrade into platform organizations, and to adopt platform business strategy to consolidate the leading place in the market. In recent years, with welladopted platform business strategies, many traditional industry leading enterprises in China have achieved better performance in the market. All these well-diffused platforms have granted considered profits and market share for the enterprises, thereby consolidating the leading places for the industrial leading enterprises.

Nevertheless, platform businesses change the normality and dynamics of a market. At the booming era of information technology, apart from the traditional giants, it is also witnessed that many new companies, or small/less-invested companies in the other words, with the help of information technology emerged like SaaS to establish their own platform business thus to enter the market and even dominate the market as a latecomer. In a word, in the current business context, especially big data era, most enterprises have interests in transforming and upgrading into platform enterprise, thus to launch platform business strategies to succeed. Therefore, the phenomena of platform business nowadays blooming in big data context have attracted massive interests both from academic field and market practice. Thus, in chapter 2 this thesis reviews the existing platform studies with the *aim to understand platform construction, adoption and competition within big data context in nowadays*. Through literature review, many relevant studies were reviewed and many platform business modes were learnt from various perspectives with varied theoretical foundations. Nevertheless, reviewed literature indicated that most existing studies on platform business tended to analyse existing platforms in a static manner, especially wild about interpreting how successful deployed platforms works or how successful platform enterprises operates with its platform (Gawer and Cusumano, 2014). Nevertheless, in reality, more and more enterprises are seeking to transform or upgrade into platform enterprises, which means more theoretical guidance and practical experiences are demanded. Therefore, more studies are suggested to understand the mechanisms of how a successful platform business is actually established and diffused, especially within the context of big data era.

In addition, in actual market competition, it is always observed that some new platforms emerge and dominate, while somehow it might be replaced by the latecomers later on. Nevertheless, we also have witnessed some dominating platforms still operates well within the market competition. The phenomenon inspires us to wonder how to construct competitive advantages for the platform, or to find the mechanism or the original source where its competitive advantages generate. Related platform studies still need to be extended.

Therefore, to fulfil the identified research divides in existing platform studies, this thesis proposed the research questions as follows:

RQ1: How to establish a platform business or enterprise, especially within the big data context?

RQ2: How to diffuse a platform business mode successfully, especially within the big data context?

RQ3: How to construct competitive advantages for a platform in the competition, especially within the big data context?

To answer the proposed research question, a conceptual framework is developed in chapter 3 with Actor-Network Theory and Resource-Based View as theoretical foundation. Associating with the conceptual framework that developed, the research questions are understood at the operational level, and thus the research is designed around the framework in chapter 4 in sequence. This work applies qualitative research as methodology. Structured by the conceptual framework, the experiences of two Chinese internet-based enterprises, the GEC and the VJ - who have successfully adopted platform business strategy with information technology, are selected as two comparative case studies in this thesis. Both documentary research and semi-structured interviews are adopted. The result of data collection and analysis are expressed as narratives of the two cases in the empirical chapters - chapter 5 and chapter 6. Specifically, in each case, the chronology, including the critical events in the process, as well as both platform development and diffusion, is generated. The platform, including the participators and key stakeholders are delineated. Associating with the conceptual framework, the comprehensive analysis for each case is conducted inside each chapter, and the synthesis analysis and findings are discussed in chapter 7, where the research questions were answered and the findings are summarized.

Through examining in-depth case studies of GEC and VJ, this work advances understandings on the dynamics of technological platform based on the actor-network perspective and platform competitiveness construction based-on the resource-based view. The key point of the justified argument is that an organization, or enterprise, could promote the establishment and diffusion of technological platform through establishing a well-functioned actor-network by pushing forward the phases of problematization, interessement and enrolment during translation. Apart from interpreting how platform is established based on theoretical foundations, this research also discusses the elements that may have high relevance for the platform to success. Competitive advantages are generated throughout the process of platform establishment and diffusion, but the mechanisms of how platform business generates competitive advantages are quite different if compared with traditional business models. In the case study, it is found that in the big data context, the key is no longer interpreted as heterogeneously distributed resources and capabilities, comparatively, the most important process is to adopt data mining techniques like classification, clustering and associations to descript and picture the different groups of actors, with the aim to deliver high level customized products or services thereby to distinct with the others. This thesis suggests that the industry under the background of integration platform for enterprise users as the envelope of different industries and the service function of common basis points, through the "Basic user precipitation – Inspire network effects – Commercial system symbiosis – Lock dominant architecture" mechanism chain, "reverse" build up competitive advantage.

8.2 **Revisit Research Questions**

By adopting developed framework to analyse case studies, this thesis answers proposed three research questions with several findings based on synthesis discussions.

RQ 1: How to establish a platform business or enterprise, especially within the big data context?

RQ 2: How to diffuse a platform business mode successfully, especially within the big data context?

These two questions are all asked about platform dynamics and are analysed using a conceptual framework based on the logic model and theoretically grounded in the literature review. During empirical case studies, this thesis unpacked that the entire platform dynamics have three major growth stages, and different core elements and strategies exist for each stage if interpreted based on actor-network perspective. These three stages jointly constitute development and diffusion process of a platform.

First of all, at the problematization stage, the strategic question of "how should a platform business service be chosen?" is provided, which deals with the ways to cultivate new platforms. Platform potential has an external analysis for the markets and industries, and platform thinking works as an internal analysis for their capabilities in the company, and should be used for cultivating the platform.

At this stage, several issues need to be first understood, including which platform pattern should be selected and what are the driving factors for enterprise to launch platform business strategies. Through discussions based on case study, this thesis suggests that the platform business can start either from the supplier side or from the demand side. No matter which mode the platform business is adopted at the initial stage, it is likely to develop into a highly legalized integration mode. The key characteristic for a platform to success is to establish open contract content and the competitive "one-to-many" contract structure centre-controlled by platform owner

(Proposition 1).

Drivers for a platform strategy to adopt and survive emerge with varied originations including market integration, industrial integration and data expansion; in the context of big data, any production and transaction can be platformed through big data techniques such as data representation and group characteristics analysis, thereby leading to a significant cost reduce in platform management; platform enterprises should be able to develop technologies or design systems, and also able to innovate their products or services continuously, in big data context (**Proposition 2**).

Then in terms of how to establish platform in the problematization stage and what are the strategies can be taken, this thesis suggests that, to establish a platform, at the problematization stage, both internal and external analyses should be conducted simultaneously. For internal analysis, three processes can be followed in sequence: to create building blocks through analyzing products, services and processes; to construct platform by combining the blocks; to develop new products and services on created platform. For external analysis, the enterprise should select suitable platform business strategies and try to lobby other participants. With big data technology, strategies like aggregation, user integration and stimulation can be adopted (**Proposition 3.1**).

At the interessement stage, a strategic question of 'how a two-sided market should be built?' is provided, which deals with the ways to acquire a two-sided market. For this, subsidisation and cross-subsidisation are exceedingly important elements, and a twosided market is required to be established in different parts of the world, depending on the platform of business model. For the supplier-type, producer-oriented platform, subsidisation and cross-subsidisation are applied to the supply side and demand side respectively. As for the tailor type, customer-oriented platform, subsidisation and crosssubsidisation are applied to the demand side and the supply side respectively. As for the both-oriented platform, subsidisation and cross-subsidisation are applied to both the supply side and the demand side, establishing the two-sides of the platform. Therefore, this thesis suggests that, to establish a platform, at the interessement stage, the first thing is to decide which of two mutually different customer groups should be made the initial platform user group and how to encourage two user groups to become platform users in the meantime; then the platform provider must decide which party to subsidize, and strategies could be taken to promote the interessement stage, such as offer subsidies, monetary compensation, free services, deregulation, and solution offerings; Cross-subsidisation is an effective strategy to support less profitable groups with profits from more profitable groups, thereby attract participants (**Proposition 3.2**).

An the enrolment stage, the strategic question of 'how should network effects be exploited?' is answered, assessing strategies for maximising network effects and establishing a dominant platform in an industry. In other words, it is important to increase the number of platform participants who are reaching out to the critical mass, to actively operate the growth engine. In addition, various methods shall be consistently applied, in order to improve the network effect for promoting the platform. Hereupon, as the number of platform participants and users' increases, the position of the platform in the market strengthens, especially if the relevant platform cannot easily be replaced by others. Therefore, this thesis suggests that, to establish a platform, at the enrolment stage, network effects are the most significant and critical determinants of the success of platform businesses establishment. Only when direct and indirect network effects are applied within the platform in the bilateral market can the platform gain economic benefits. With big data technology, strategies like offering heterogeneous user experiences, providing infiltrative advertisements and subsidizing potential customers can be adopted (*Proposition 3.3*).

Thus the two research questions are answered based on developed ANT-based conceptual framework and the synthesis analysis based on two case studies, several conclusions have been drawn for answering the research questions. Apart from understanding the dynamics of platform, this thesis also asks the third questions:

RQ3: How to construct competitive advantages for a platform in the competition, especially within the big data context?

This thesis also distinguishes the entire process of a platform to acquire competitiveness into two stages: the first stage is to construct the competitive advantages for the platform, while the other is how to sustain the competitiveness after the platform developed into a maturity stage as a strategic question of 'how a business ecosystem should be completed?' is answered, assessing ways to establish a business ecosystem that grows continuously and promotes the business. Resource-based view has provided theoretical foundation for this part of analysis. Associating with the given context – big data, this research also extends the understandings for competitive advantages as well.

According to the sources of competitive advantage theory, the internal logic and the general analysis framework of sustainability, above the industry under the background of integration platform building envelope strategy process is a concrete analysis of competitive advantage. Study found that with the traditional strategic competition advantage to build from the organization to services to meet different users' needs, the platform envelope the strategic competitive advantage is based on the user as a starting point, from the user data to service development and ecosystem "reverse" process.

In big data context, platform for enterprise users as the envelope of different industries and the service function of common basis points, through the "Basic user precipitation – Inspire network effects – Commercial system symbiosis – Lock dominant architecture" mechanism chain, to "reversely" build up competitive advantage (**Proposition 4.1**). At the exploration stage, platform should primarily exploit existing resources and capabilities, adopt its own transformation, acquisition and aggregation strategies, and build basic user database to acquire competitiveness (**Proposition 4.2**). Platform competitiveness growth mainly through the development of new services, services and service platforms integration to increase user scale and the relationship between strength, inspire and cross with network effect to build competitive advantage (**Proposition 4.3**). To secure and continuously develop competitiveness, platform open interface in the meantime also must strengthen the control architecture, the architecture control can promote the symbiosis between the populations depending on rather than competitive relying on, in the meantime, to ensure enterprise own platform for business leadership of ecosystem, providing the foundation for the sustainability of competitive advantage (**Proposition 4.4**).

In addition, according to the features of the platform, various participants tend to use a platform at the same time, and the lemon problem can occur easily. Therefore, platform quality management is important to prevent the quality from reducing, thereby encouraging the activities of participants and trading agents and preventing competitiveness deteriorating. The interviews confirms that platform quality management is very important in industrial fields for internalised growth. In addition, as for the second strategy for establishment of a business ecosystem, a method for acquiring the profit models of the platform is suggested. Therefore, this thesis suggests that, establishing a business ecosystem is an important stage of making a platform business stable, if the platform aims to grow and expand continuously (**Proposition 4.5**). Particularly, in the maturity stage, managing the quality of the platform through platform quality management is a core business procedure, as this is completing the business ecosystem by improving the profit structure through the revenue structure (**Proposition 4.6**).

To sum up, by examining in-depth case studies of GEC and VJ, this work advances understandings on the dynamics of technological platform based on the actor-network perspective and platform competitiveness construction based-on the resource-based view. The key point of the justified argument is that an organization, or an enterprise, can promote the establishment and diffusion of technological platform through establishing a well-functioned actor-network by pushing forward the phases of problematization, interessement and enrolment during translation. Competitive advantages are generated throughout the process of platform establishment and diffusion, but the mechanisms of how platform business generates competitive advantages are quite different if it is considered within the big data context. Research questions are answered based on case studies, findings are concluded with several propositions as discussed.

8.3 Research Contributions

This research provides contributions to platform literature (8.3.1), Actor-Network Theory (8.3.2) as well as practical implications (8.3.3).

For instance, this study's literature review summarises different academic approaches, such as operations management, industrial economics, and business strategy, which will contribute to a better understanding of the multifaceted phenomena of platforms, allowing further research to be carried out to obtain more conclusive and specific information. In particular, this literature review research develops academic understanding through its integrated analysis of the platform's core academic theories: two-sided market theory, network effects, and business ecosystem.

On the other hand, this research presents the core elements and strategies for each of the three major growth stages of platform business from a dynamic perspective - ANT, which has not been done before. Unlike previous platform business research that depicts platform strategy and each factors in static approach, the platform business strategy from the perspective of dynamic approach shows the overall business picture for platform providers.

The integrated comparative-case analysis makes it possible to conduct an in-depth analysis of the life-cycle of a platform business model. Through the analysis, this study suggests the 'Platform Business Model Dynamic Framework', a model for the life-cycle of a business ecosystem with three main stages and one extended stage, which serves as the conceptual framework. This finding helps corporations that are preparing or currently running platforms on how they can grow and expand on a continuous basis. An account, an accurate understanding of the strategies of a dynamic approach will likely become critical factors for those corporations that aspire to become platform providers and use a competitive advantage strategy to follow a successful platform business model. In this section, theoretical contributions, literature contributions as well as practical implications are briefly summarized respectively.

8.3.1 Contributions to Platform Studies

This thesis contributes to platform studies from two aspects: to understand platform business within big data context and extend the understandings of platform dynamics.

In recent years, platform organizations have rapidly emerged and grown. In the current business environment, especially at the era of big data, most enterprises are interested in transforming and upgrading to platform enterprises so as to start platform business. Some of these companies exploited information technology to build their platform businesses, thereby accessing to the market and even dominating the market as a latecomer. In addition to the changes in the business environment at the era of big data, the technical platform of big data features is also different from the traditional platform. Therefore, it is obviously not enough to understand observed platform-related phenomena only within traditional frameworks or contexts, or only with traditional understandings in business studies. The studies or understandings of platform business are required to be extended within the new context – big data. In this new context, understanding how to build a platform business not only has considerable practical implications, but also maintains great significance for broadening platform studies. Through examining two Internet-based enterprises as case studies, this thesis expresses a new scenario, which shows how platform business works with the help of big data technologies. By doing so, this thesis delivers the contribution to current platform studies by extending or updating the research context,

Besides, not every platform strategy succeeds, and most of them end up struggling to survive, leading to another type of discussion - how to spread the platform business. Yet, due to a lack of dynamic understanding of the platform's business, more in-depth research on platform diffusion is required. However, the literature review shows that most of the existing research on platform business tends to analyse existing platforms vertically, with particular interest in explaining how successfully deployed platforms work or how platform enterprises operate through platforms, but studies to understand how a platform business establish and diffuse from the very beginning still quite insufficient. Thus, more studies are committed to analysing how a platform business is actually established and diffused successfully with a dynamic manner. By adopting actor-network theory, this thesis develops a conceptual framework with both structural and analytical capability to examine two case studies from the very beginning when platform started to establish till well-diffused later on. This effort provides the contributions to current platform studies to understand platform business with dynamic manner but not static like most existing literature.

At last, with the establishment and diffusion of platforms, another important or nonnegligible problem is platform competition. Once the platform is deployed, it may always face competitive pressure from traditional industry competitors and potential market entrants. Therefore, to cope with market competition, especially at the age of big data, how to build or cultivate the competitive advantages of platforms is an attractive topic for platform owners and potential entrants. In the practical market competition, there are always new platforms emerging and dominating, and it may be replaced by newcomers. Yet, we also see that some mainstream platforms are still performing well in the market competition. This prompts us to think about how to build competitive advantages for the platform, and how to find the mechanism or source of platform competitive advantage. However, based on literature review, most existing platform studies addresse how platform that is established can contribute to enterprise, but the number of platform studies put the focus on understanding how to construct competitive advantages for a platform itself is quite limited. By adopting conceptual framework, this thesis conducts two case studies and particularly collects and analyses data to understand how these selected case enterprises construct or increase competitive capabilities for their platforms that are established. Thu, s this thesis offers contribution to platform literature in the current time by extending the understandings of how to

make platform better in fierce market competition.

8.3.2 Contributions to Actor-Network Theory

Apart from providing contributions to current platform studies, this thesis also provides theoretical contributions both to Actor-Network Theory and to Resource-Based View that have been adopted for developing conceptual framework in this research. As what is introduced in Chapter 3, associating with the research questions to answer, ANT is adopted to understand how platform business dynamics from the initial stage to the stage that is well-diffused, while RBV is adopted to understand how to construct competitive advantages to a platform for its long-term survival. By adopting ANT and RBV to address the research question, this thesis also contributes to both theories with theoretical contributions.

In terms of actor-network theory, it has been widely adopted in social-technical studies (e.g. Montenegro and Bulgacov, 2014). It has been well-adopted to examine the actions and motivations of human actors who align their interests around non-human actors, and understand the world as complex networks of three symmetrical actors, namely natural, social and technical actors (Latour, 2005). The process of building the actor network could be viewed as a process of persuading other actors to participate (Latour, 2005).

In this thesis, by adopting ANT, the network-building for a technical platform starts with saying an initial idea or the recognition of the need for such a platform. A focal actor or set of actors strives to enroll others: first is to agree that a platform is required, then perhaps to engage in designing or negotiating the platform in a committee setting, and finally to adopt it. The initial idea, the interim drafts, and the final platform are not transmitted unaltered. Rather they move through space and time in the hands of actors who react to them in different ways. The transformation by actors to suit their own needs often entails some loss of control by the initiating actor. Accordingly, the widespread adoption of a platform or its failure to diffuse can be determined by the extent to which focal actors can align the interests of many types of actors. ANT provides a useful way of conceptualizing and describing how platform stabilizes and how it can become irreversible.

Nevertheless, in traditional social-technical studies, scholars have made the criticism that adopting ANT can hardly address dynamics of a social technology throughout the entire innovation process, as ANT normally lacks enough attention to explore the network establishment, which means little attention is paid to understand how actor-networks come to be built from the very beginning (Howcroft et al., 2004, Wessells, 2007). For instance, Tilson (2008) even suggests that ANT cannot systematically address the actual technology development and diffusion process, since most ANT analyses are conducted to explore established networks and have already introduced technologies, which means the ANT-based analytical framework is better at historical description but weak in understanding unfinished phenomena.

Furthermore, some scholars criticize that the ANT is more like an analytical framework rather than a theoretical frame, because it is normally well-adopted to structure the analysis but with limited capability for interpreting as itself just provides three stages for translation but do not provide any specific strategies in detail. Fairly speaking, theories that adopt in empirical studies normally have some limitations, more or less. However, such deficiencies might exist because of the original limitations in nature, but in most cases the theory itself does not have problem, the limitations emerge due to the specific context in which the theory actually adopted. By adopting the ANT in this work, the thesis contributes to this theory from three aspects at least.

Firstly, this thesis extends the adoption scale or range of ANT. Extending the adoption here does not mean to enhance the utility of theory, here we are talking about applying the ANT into a new research context – platform studies. In the other words, this thesis introduces a traditional social-technical theory into business studies, thus to extend the adoption of actor-network theory. This attempt has been proofed working well in this thesis. The significant point is to make this new adoption possible because most platforms in todays' business practices are based on information technologies such as SaaS, thus information technologies can be viewed as a bridge to introduce this traditional social-technical theory into business studies.

Secondly, apart from extending the adoption of ANT, the empirical case studies in this work also provide new practices to adopt actor-network theory to analyse unfinished or concurrent case. In this thesis, two case studies are adopted – the VJ and the GEC as introduced. The GEC has established a finished or matured platform, and it turns out the actor-network frame can be well-adopted for analysis. Comparatively, in the VJ's case, the enterprise was transforming into a platform enterprise, which means the platform is currently established based on actor-network theory also worked well in interpreting the translation process. What is more, in the VJ's case, it turns out that the developed conceptual frame not only helped to interpret the establishment of VJ's platform, but also contributed as a guidance to cultivate the development of the platform later on even in the diffusion stage. Therefore, the practices have demonstrated that criticizes from scholars not always right, the ANT could be adopted to analyse the unfinished events and both development and diffusion stages of a social-technology. This could be viewed as a theoretical contribution to the ANT as well.

Thirdly, some scholars criticize that the ANT is more like an analytical framework rather than a theoretical frame, because it is normally well-adopted to structure the analysis but with limited capability for interpreting. This criticism exists because the basic assumption of ANT is the technology adoption must go through three stages, but the theory itself does not indicate what strategies can be applied to promote each of these three stages and does not provide enough measurements to regulate these stages. This is the main reason that why many scholars have criticized that the theory itself lacks of capability in interpreting. In this thesis, the framework has been developed based on both ANT and platform studies. The framework in Chapter 3 maintains several detail points of strategies that can be applied in each stage during the translation. Those strategies turns out to be quite effective as examined by the case studies. This practice can be viewed as a contribution to the ANT as well, since this work not only introduces specific strategies in each stage for this scenario, the more important issue is that this practice indicated an example for further ANT to enhance the interpretive capability.

8.3.3 Practical contribution

This thesis providees practical implications meanly from two aspects. One practical contribution originated from the case studies, which provides two resourceful and insightful narratives for other enterprises in similar industries or with similar business paradigms to take as two success references. The other practical contribution mainly comes from the conceptual framework that has been developed and tested in this thesis, since this framework has provided many detailed and systematic strategies for an enterprise to launch its platform business strategies.

This study aims to identify the typology and dynamics of platform businesses to understand the platform value chain, business model and strategy based on a dynamic approach. Moreover, this study also offers suggestions about how the business performance can be substantially improved through platform strategy. It is imperative that a platform business has many participants, so it is difficult for them to succeed without a clear vision and good leadership.

It is therefore important for platform providers to know the characteristics of platform service they provide from their own perspective and from that of other participants. This study analyses the different types of platform business models with an accurate understanding of the complicated value chains and streams and explores the step-by-step strategic propositions according to the key theories of platforms, two-sided markets, network effects, and business ecosystem, which have been relatively neglected. Furthermore, the findings of this research attempt to demonstrate to platform business providers how to establish themselves successfully in the markets and how to achieve sustainable growth and remarkable innovation, while reducing their rate of failure. Until now there has been insufficient discussion of the strategy of integrating, developing, and reorganising internal and external resources in accordance with the flow of time and environmental changes, which is provided by this study, it can help to allow platform provides to innovate and grow sustainably.
8.4 Research Limitation

Despite of the contributions which this thesis has delivered and the implications which the findings indicate, there also exist several limitations of this research. First, the inductive method that is adopted in this work may consist one of the limitation. This is because the prerequisite for exploring the mechanism of how varied things happen is difficult to be measured and quantified, especially in social science dialog. In this work, by adopting the interpretivism paradigm and qualitative case studies, a closed system is attempted to be established with the aim to test whether within the same closed social system the outputs are the same or not if the examinations are conducted with same mechanisms. Because of such a closed system, only if similar inputs lead to similar outputs, then the mechanisms that are proposed can be testified. However, in terms of social science research, the closed system that is built up can hardly be entirely closed, and difficult to be measured and quantified as indicated. Due to such a consideration, the case selections might be similar. Therefore, it might contain some bias to some extent because this research would like to establish a closed system as introduced, and this is one of the limitations in this work.

In addition, based on the selected cases, several implicit but relevant issues may also be missed and therefore they have not been tested, due to the theoretical framework which is developed based on the reviewed platform studies and is only revised based on selected events initially. Although the conceptual framework is developed exclusively with actor-network theory and resource-based view, it is sure that this framework cannot enclose all the relevant issues. However, this framework is adopted to guide the data collection and construct the data analysis, and thereby the findings and conclusions are structured. From this perspective, the development process of conceptual framework and the procedure of conducting qualitative case studies can therefore lead to several considerable limitations at last. However, based on reviewed relevant studies, it seems this limitation normally exists in almost every interpretivism based studies and can hardly be avoided. Learned from the experiences of this research, such kind of deficiencies can not be entirely erased, but applying the framework to exam more cases might have considerable possibilities to better revise the framework and findings.

At last, biases might also exist as the case studies are selected by the researcher due to close and tight connections between the researcher and the case organizations. On one hand, such a close connection cam guarantees the successes of data collection, especially the interviews; on the other hand, close connections might also introduce several deficiencies as well. For instance, the narrative cases might highly depended on the researcher's personal understandings from documentary research and the researcher's experiences, including the personal impressions; in addition, the interviewees might provide bias answers to the questions that were asked, and the interviewees' personal understandings about the selected events might also differ due to variety personal experiences and impressions. Although triangulation strategies are employed during both data collection and data analysis to relieve such kinds of bias, the biases still cannot be completely erased.

To sum up, the fundamental understanding of this thesis is that the biases cannot be completely erased in any research, but varied efforts can be taken to reduce the biases, taking triangulation strategies for example. In this thesis, limitations are meanly given rise to interpretivism philosophical standpoint and qualitative research methodology, especially the difficulty in controlling the closed system and the subjective case selection as well as analysis. However, if compared with other philosophical perspectives and research methodologies, the selection of this thesis is the best opinion if the research aim and questions are considered in specific. The deficiencies or limitations that are identified can be reduced significantly with additional efforts taken, such as examining the developed conceptual framework with more empirical case studies in practice and reducing the personal impressions as well as subjective influences during research process. The efforts are not entirely taken since considering the main focus of this research, but this leads to further studies.

8.5 Further Research

On one hand, last section just introduces several limitations of this research, which leads to several directions for the further platform studies; on the other hand, during the research process of this thesis, it has been figured out or inspired that there still exist several related interesting points which need further understandings in future.

First, as indicated above, limitations in this thesis are mainly caused by the nature of adopting interpretivism as philosophical standpoint and qualitative case study as research methodology. For instance, due to the consideration of establishing close system to mine the mechanism, the case selections might be similar therefore might contain some bias and limitations. Besides, based on the selected cases, several implicit but relevant issues might also be missed and therefore they have not been tested, due to the theoretical framework which is developed mainly based on the reviewed platform studies and is only revised based on selected events initially. Furthermore, biases might also exist as the case studies are selected by the researcher due to close and tight connections between the researcher and the case organizations. Therefore, to address these limitations in this research, a path for further research is clear then: more studies can be conducted by adopting the conceptual framework developed in this work. Future platform studies can adopt this frame to exam more and more cases in different context, or with varied industry backgrounds. On one hand, such efforts can exam the utility of developed framework, on the other hand, they can revise the framework and extend the current understandings.

Second, further platform studies can be taken to provide more innovative thoughts to introduce the traditional or other fields' theories to understand platform business like what this thesis did. Every theoretical perspective has its advantages and limitations in practical adoption, so introducing other theories into platform studies might be helpful to understand the platform in different fields. Furthermore, introducing theories from varied background will also extend the adoption and the utility of that exists in the theory itself, which can lead to another significant contribution.

REFERENCE

- AFUAH, A. & TUCCI, C. L. 2000. Internet business models and strategies: Text and cases, McGraw-Hill Higher Education.
- AHRWEILER, P. & KEANE, M. T. 2013. Innovation networks. *Mind & Society*, 12, 73-90.
- AMIT, R. & ZOTT, C. 2000. Value drivers of e-commerce business models, INSEAD Fontainebleau.
- APPLEGATE, L. M. & COLLURA, M. 2000. *Emerging E Business Models: Lessons from the Field*, Harvard Business School Press.
- ARCHER, M., BHASKAR, R., COLLIER, A., LAWSON, T. & NORRIE, A. 1998. Critical Realism: Essential Readings, London, UK, Routledge.
- ARMSTRONG, M. 2006. Competition in two-sided markets. RAND Journal of Economics, 37, 668-691.
- AERTS, A., GOOSSENAERTS, J.B., HAMMER, D.K. & WORTMANN, J.C. (2004). 'Architectures in context: on the evolution of business, application software, and ICT platform architectures', *Information & Management*, 41(6): pp. 781-794.
- ARMSTRONG, M. AND WRIGHT, J. (2007). 'Two-sided markets, competitive bottlenecks and exclusive contracts', *Economic Theory*, 32(2): pp. 353-380.
- AUSTIN, S., CANIPE, C., AND SLOBIN, S. (2015). 'The Billion Dollar Start-up Club' WSJ (18th February), Available at: http://graphics.wsj.com/billion-dollar-club/ (Accessed on 1 March 2015).
- BALDWIN, C. & VON HIPPEL, E. 2011. Modeling a Paradigm Shift: From Producer Innovation to User and Open Collaborative Innovation. *Organization Science*, 22, 1399-1417.
- BALDWIN, C. Y. 2007. Where do transactions come from? Modularity, transactions, and the boundaries of firms. *Industrial and Corporate Change*, 17, 155-195.
- BANNISTER, F. & WILSON, D. 2011. Over-Government? Emerging technology, citizen autonomy and the regulatory state. *Information Polity*, 16, 63-79.
- BAR, F., COHEN, S., COWHEY, P., DELONG, B., KLEEMAN, M. & ZYSMAN, J. 2000. Access and innovation policy for the third-generation internet. *Telecommunications Policy*, 24, 489-518.

- BAREGHEH, A., ROWLEY, J. & SAMBROOK, S. 2009. Towards a multidisciplinary definition of innovation. *Management Decision*, 47, 1323-1339.
- BARLEY, S. R. & TOLBERT, P. S. 1997. Institutionalization and Structuration Studying the Links between Action and Institution. Organization Studies, 18, 93-117.
- BAXTER, P. & JACK, S. 2008. Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *The Qualitative Report*, 13, 544-559.
- BERGEK, A., JACOBSSON, S., CARLSSON, B., LINDMARK, S. & RICKNE, A. 2008. Analyzing the functional dynamics of technological innovation systems: A scheme of analysis. *Research Policy*, 37, 407-429.
- BICHLER, J. & SCHMIDKONZ, C. 2012. The Chinese Indigenous Innovation System and its Impact on Foreign Enterprises. *Munich Business School Working Thesis*. Munchen: Munich Business School.
- BIRKINSHAW, J., HAMEL, G. & MOL, M. J. 2008. Management Innovation. Academy of Management Review, 33, 825-845.
- BLIND, K., GAUCH, S. & HAWKINS, R. 2010. How stakeholders view the impacts of international ICT platforms. *Telecommunications Policy*, 34, 162-174.
- BORR S, S. & EDQUIST, C. 2013. The choice of innovation policy instruments. *Technological Forecasting and Social Change*, 80, 1513-1522.
- BOUDREAU, K. 2010. Open Platform Strategies and Innovation: Granting Access vs. Devolving Control. *Management Science*, 56, 1849-1872.
- BRUSONI, S. AND PRENCIPE, A. (2011). Design rules for platform leaders, in Gawer, A. (eds.) *Platforms, Markets and Innovation*. Cheltenham: Edward Elgar Publishing, pp. 306-321.
- BRYMAN, A., BRYMAN, P.S.R.A., MILLS, A.J. & BELL, E. (2011). Business Research Methods. Oxford: Oxford University Press.
- CECCAGNOLI, M., FORMAN, C., HUANG, P. AND WU, D. (2011). 'Co-creation of value in a platform ecosystem: The case of enterprise software', *MIS Quarterly*, 36(1): pp. 263-290
- CHESBROUGH, H. (2010). 'Business model innovation: opportunities and barriers', Long Range Planning, 43(2): pp. 354-363. CALLON, M. 1991. Techno economic networks and irreversibility. In: LAW, J. (ed.) A sociology of monsters: essays on power, technology and domination. London: Routledge.

- CARLSSON, B. 2006. Internationalization of innovation systems: A survey of the literature. *Research Policy*, 35, 56-67.
- CARLSSON, B., JACOBSSON, S., HOLM N, M. & RICKNE, A. 2002. Innovation systems analytical and methodological issues. *Research Policy*, 31, 233-245.
- CARTON, S., VAUJANY, F.-X. D., MITEV, N. & ROMEYER, C. 2012. Applying institutional theoretical frameworks in MIS Research. *Sprouts, AIM*, 12, 12-35.
- CHAMINADE, C., LUNDVALL, B.-Å., VANG, J. & JOSEPH, K. J. 2009. Designing innovation policies for development: towards a systemic experimentation-based approach. *In:* LUNDVALL, B.-Å., JOSEPH, K. J., CHAMINADE, C. & VANG, J. (eds.) *Handbook of innovation systems and Developing Countries*. Chentelham: Edward Elgar.
- CHOUDRIE, J., PAPAZAFEIROPOULOU, A. & LEE, H. 2003. A web of stakeholders and strategies: a case of broadband diffusion in South Korea. *Journal of Information Technology*, 18, 281-290.
- CHUNG, S. 2002. Building a national innovation system through regional innovation systems. *Technovation*, 22, 485-491.
- COOKE, P., URANGA, M. G. & ETXEBARRIA, G. 1997. Regional innovation systems: Institutional and organisational dimensions. *Research Policy*, 26, 475-491.
- COURVISANOS, J. 2009. Political aspects of innovation. *Research Policy*, 38, 1117-1124.
- COUSINS, K. C. & ROBEY, D. 2005. The social shaping of electronic metals exchanges: an institutional theory perspective. *Information Technology & People*, 18, 212-229.
- CROSSAN, M. M. & APAYDIN, M. 2010. A Multi-Dimensional Framework of Organizational Innovation: A Systematic Review of the Literature. *Journal of Management Studies*, 47, 1154-1191.
- CURRIE, W. L. & GUAH, M. W. 2007. Conflicting institutional logics: a national programme for IT in the organisational field of healthcare. *Journal of Information Technology*, 22, 235-247.
- DAMSGAARD, J. & LYYTINEN, K. 2001. The Role of Intermediating Institutions in the Diffusion of Electronic Data Interchange (EDI) How Industry. *The Information Society*, 17, 195-210.
- DAVID, P. A. & GREENSTEIN, S. 1990. The Economics Of Compatibility Platforms:

An Introduction To Recent Research. *Economics of Innovation and New Technology*, 1, 3-41.

- DEEPHOUSE, D. L. & SUCHMAN, M. 2008. Legitimacy in Organizational Institutionalism. In: GREENWOOD, R., OLIVER, C., SAHLIN, K. & SUDDABY, R. (eds.) The Sage Handbook of Organizational Institutionalism. London: Thousand Oaks.
- DIMAGGIO, P. J. & POWELL, W. W. 1983. The Iron Cage Revisited Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, 48, 147-160.
- DOLFSMA, W. & SEO, D. 2013. Government policy and technological innovation—a suggested typology. *Technovation*, 33, 173-179.
- EDLER, J. & GEORGHIOU, L. 2007. Public procurement and innovation— Resurrecting the demand side. *Research Policy*, 36, 949-963.
- EDQUIST, C. & HOMMEN, L. 1999. Systems of innovation theory and policy for the demand side. *Technology in Society*, 21, 63-79.
- EISENMANN, T., PARKER, G. & VAN ALSTYNE, M. 2011. Platform Envelopment. *Strategic Management Journal*, 32, 1270-1285.
- ELDER-VASS, D. 2008. Searching for Realism, Structure and Agency in Actor Network Theory. *The British Journal of Sociology*, 59, 455-473.
- EPSTEIN, R. A. 2012. Can technological innovation survive government regulation. *Harvard Journal of Law & Public Policy*, 36, 87-104.
- EVANS, D. S. & SCHMALENSEE, R. 2008. Markets With Two-Sided Platforms. *Competition Law and Policy*, 12, 667.
- EVANS, D.S. AND SCHMALENSEE, R. (2013). The antitrust analysis of multi-sided platform businesses. National Bureau of Economic Research.
- FLICK, U. (2014). An introduction to qualitative research. London: SAGE Publications.
- FAGERBERG, J. 2005. Innovation A Guide to the Literature. In: FAGERBERG, J., MOWERY, D. & NELSON, R. R. (eds.) The Oxford Handbook of Innovation. Oxford: Oxford University Press.
- FAGERBERG, J. & SRHOLEC, M. 2008. National innovation systems, capabilities and economic development. *Research Policy*, 37, 1417-1435.

- FAN, P. 2006. Catching up through developing innovation capability: evidence from China's telecom-equipment industry. *Technovation*, 26, 359-368.
- FARRELL, J. & SALONER, G. 1985. Platform, compatibility, and innovation. *Research Policy*, 16, 233-245.
- FOMIN, V. V. 2008. Open Platforms and Government Policy Results of a Delphi Survey. Communications of the Association for Information Systems, 22, 459-484.
- FREEMAN, C. 1987. Technology Policy and Economic Performance: Lessons from Japan, London, Pinter Publisher Ltd.
- FREEMAN, C. 1995. The 'National System of Innovation' in historical perspective. *Cambridge Journal of Economics*, 19, 5-24.
- FREEMAN, C. 2002. Continental, national and sub-national innovation systemscomplementarity and economic growth. *Research Policy*, 31, 191-211.
- FUCHS, E. R. H. 2010. Rethinking the role of the state in technology development: DARPA and the case for embedded network governance. *Research Policy*, 39, 1133-1147.
- FUNK, J. L. & METHE, D. T. 2001. Market- and committee-based mechanisms in the creation and diffusion of global industry platforms the case of mobil. *Research Policy*, 30, 589-610.
- GAMBARDELLA, A. & MCGAHAN, A. M. 2010. Business-model innovation: General purpose technologies and their implications for industry structure. *Long range planning*, 43, 262-271.
- GAO, P. 2006. Platform in Developing Countries An Actor-Network Perspective. *ECIS*, 57, 41-50.
- GAO, P. 2007. Counter-networks in platform a perspective of developing countries. *Information Systems Journal*, 17, 391-420.
- GAO, P. 2015. Government in the catching-up of technology innovation: Case of administrative intervention in China. *Technological Forecasting and Social Change*, 96, 4-14.
- GAO, P., YU, J. & LYYTINEN, K. 2014. Government in platform in the catching-up context: Case of China's mobile system. *Telecommunications Policy*, 38, 200-209.
- GAO, X. 2014. A latecomer's strategy to promote a technology platform: The case of

Datang and TD-SCDMA. Research Policy, 43, 597-607.

- GAWER, A. 2014. Bridging differing perspectives on technological platforms: Toward an integrative framework. *Research Policy*, 43, 1239-1249.
- GAWER, A. & CUSUMANO, M. A. 2014. Industry Platforms and Ecosystem Innovation. *Journal of Product Innovation Management*, 31, 417-433.
- GAWER, A. & HENDERSON, R. 2007. Platform Owner Entry and Innovation In Complementary Markets: Evidence From Intel. Journal of Economics & Management Strategy, 16, 1-34.
- GEELS, F. W. 2002. Technological transitions as evolutionary reconfiguration processes a multi-level perspective and a case-study. *Research Policy*, 31, 1257-1274.
- GEELS, F. W. & SCHOT, J. 2007. Typology of sociotechnical transition pathways. *Research Policy*, 36, 399-417.
- GHAZIANI, A. & VENTRESCA, M. J. Keywords and cultural change: Frame analysis of business model public talk, 1975–2000. Sociological Forum, 2005. Springer, 523-559.
- GOPALAKRISHNAN, S. & DAMANPOUR, F. 1997. A review of innovation research in economics, sociology and technology management. *Omega*, 25, 15-28.
- GORDIJN, J. & AKKERMANS, H. 2001. Designing and evaluating e-business models. *IEEE intelligent Systems*, 16, 11-17.
- HAGE, J. & HOLLINGSWORTH, J. R. 2000. A Strategy for the Analysis of Idea Innovation Networks and Institutions. *Organization Studies*, 21, 971-1004.
- HANSEN, M. T. & BIRKINSHAW, J. 2007. The innovation value chain. *Harvard business review*, 85, 121-142.
- HARGADON, A. B. & DOUGLAS, Y. 2001. Yellowlees Douglas When Innovations Meet Institutions Edison and the Design of the Electric Light. *Administrative Science Quarterly*, 46, 476-501.
- HAWKINS, R. 2004. Looking beyond the Dot Com bubble: exploring the form and function of business models in the electronic marketplace. *E-life after the dot com bust.* Springer.
- HEKKERT, M. P., SUURS, R. A. A., NEGRO, S. O., KUHLMANN, S. & SMITS, R. E. H. M. 2007. Functions of innovation systems: A new approach for analysing technological change. *Technological Forecasting and Social Change*, 74, 413-432.

- HOLLAND, J., THOMSON, R. & HENDERSON, S. 2006. Qualitative Longitudinal Research A Discussion Thesis. London: London South Bank University.
- HOWCROFT, D., MITEV, N. & WILSON, M. 2004. What we may learn from social shaping of technology approach. *In:* MINGERS, J. & WILLCOCKS, L. (eds.) *Social Theory and Philosophy for Information Systems*. London: John Wiley & Sons.
- HSU, C.-W. 2005. Formation of industrial innovation mechanisms through the research institute. *Technovation*, 25, 1317-1329.
- IANSITI, M. AND LEVIEN, R. (2004a). The keystone advantage: what the new dynamics of business ecosystems mean for strategy, innovation, and sustainability. Boston: Harvard Business Press.
- IANSITI, M. AND LEVIEN, R. (2004b), 'Strategy as ecology' Harvard Business Review, 82(3): pp. 68-81.
- IYER, B. AND DAVENPORT, T.H. (2008). 'Reverse Engineering: Google's Innovation Machine', *Harvard Business Review*, 86(4).
- JACOBSSON, S. & JOHNSON, A. 2000. The diffusion of renewable energy technology: an analytical framework and key issues for research. *Energy Policy*, 28, 625-640.
- JARVENPAA, S. L. & LOEBBECKE, C. 2009. Strategic management implications of a consumer value perspective on Mobile TV. *Journal of Information Technology*, 24, 202-212.
- JEPPERSON, R. L. 1991. Institutions, Institutional Effects, and Institutionalization. Florence: Robert Schuman Centre, European University Institute.
- KAPSALI, M. 2011. How to implement innovation policies through projects successfully. *Technovation*, 31, 615-626.
- KASH, D. E. & RYCROFT, R. W. 2002. Emerging patterns of complex technological innovation. *Technological Forecasting and Social Change*, 69, 581-606.
- KATZ, M. L. & SHAPIRO, C. 1986. Technology adoption in the presence of network externalities. *Journal of Political Economy*, 94, 822-841.
- KAISER, U. AND WRIGHT, J. (2006). 'Price structure in two-sided markets: Evidence from the magazine industry', *International Journal of Industrial Organization*, 24(1): pp. 1-28.
- KENNEDY, S. 2006. The Political Economy of Platforms Coalitions Explaining China's

Involvement in High-Tech Platforms Wars. Asia Policy, 2, 41-62.

- KING, J. L., GURBAXANI, V., KRAEMER, K. L., MCFARLAN, F. W., RAMAN, K. S. & YAP, C. S. 1994. Institutional Factors in Information Technology Innovation. *Information System Research*, 2, 139-169.
- KOSEOGLU, M. A. 2016. Growth and structure of authorship and co-authorship network in the strategic management realm: Evidence from the Strategic Management Journal. *BRQ Business Research Quarterly*, 19, 153-170.
- KRISHNAN, V. & GUPTA, S. 2001. Appropriateness and Impact of Platform-Based Product Development. *Management Science*, 47, 52-68.
- KSHETRI, N., PALVIA, P. & DAI, H. 2011. Chinese institutions and platform: The case of government support to domestic third generation cellular platform. *Telecommunications Policy*, 35, 399-412.
- KUKK, P., MOORS, E. H. M. & HEKKERT, M. P. 2016. Institutional power play in innovation systems: The case of Herceptin®. *Research Policy*, 45, 1558-1569.
- KWAK, J., LEE, H. & FOMIN, V. V. 2011. Government coordination of conflicting interests in platformisation: case studies of indigenous ICT platforms in China and South Korea. *Technology Analysis & Strategic Management*, 23, 789-806.
- LAM, L. W. & HARRISON-WALKER, L. J. 2003. Toward an objective-based typology of e-business models. *Business Horizons*, 46, 17-26.
- LATOUR, B. 2005. *Reassembling the Social: An Introduction to Actor-Network Theory,* Oxford, Oxford University Press.
- LAWRENCE, T. B., HARDY, C. & PHILLIPS, N. 2002. Institutional Effects of Interorganizational Collaboration The Emergence of Proto-Institutions. *The Academy of Management Journal*, 45, 281-290.
- LEE, H. & OH, S. 2006. A platforms war waged by a developing country: Understanding international platform setting from the actor-network perspective. *The Journal of Strategic Information Systems*, 15, 177-195.
- LEE, J.-D. & PARK, C. 2006. Research and development linkages in a national innovation system: Factors affecting success and failure in Korea. *Technovation*, 26, 1045-1054.
- LEV N, P., HOLMSTR M, J. & MATHIASSEN, L. 2014. Managing research and innovation networks: Evidence from a government sponsored cross-industry program. *Research Policy*, 43, 156-168.

- LE MASSON, P., WEIL, B. & HATCHUEL, A., (2011). Platforms for the design of platforms: collaborating in the unknown, in Gawer, A. (eds.) *Platforms, Markets and Innovation*. Cheltenham: Edward Elgar Publishing, pp. 273-305.
- LIM, J., NAM, C., KIM, S., LEE, E. & LEE, H. 2014. A new regional clustering approach for mobile telecommunications policy in China. *Telecommunications Policy*.
- LIU, X. & CHENG, P. 2014. National Strategy of Indigenous Innovation and its Implication to China. *Asian Journal of Innovation and Policy*, 3, 117-139.
- LIU, X. & WHITE, S. 2001. Comparing innovation systems a framework and application to China's transitional context. *Research Policy*, 30, 1091-1114.
- LIZARDO, O. 2010. The problem of the cultural determination of cognition in institutional theory. Notre Dame: Department of Sociology, University of Notre Dame.
- LUNDVALL, B.-Å. 1988. Innovation as an interactive process: from user-supplier interactions to the national system of innovation. *In:* DOSI, E. A. (ed.) *Technical Change and Economic Theory.* London: Francis Pinter.
- LUNDVALL, B.-Å. 1992. National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning, Londons, Pinter.
- LUNDVALL, B.-Å., JOHNSON, B., ANDERSEN, E. S. & DALUM, B. 2002. National systems of production, innovation and competence building. *Research Policy*, 31, 213-231.
- LYYTINEN, K. & KING, J. L. 2002. Around the cradle of the wireless revolution: The emergence and evolution of cellular telephony. *telecommunications Policy*, 30, 587-604.
- MADDEN, G. & SAVAGE, S. J. 1999. Telecommunications productivity, catch-up and innovation. *Telecommunications Policy*, 23, 65-81.
- MAGRETTA, J. 2002. Why business models matter. Harvard business review.
- MALERBA, F. Sectoral Systems of Innovation and Production. National Innovation Systems, Industrial Dynamics and Innovation Policy, 1999 Saint Francesco. 1-36.
- MANGELSDORF, A. 2011. The role of technical platforms for trade between China and the European Union. *Technology Analysis & Strategic Management*, 23, 725-743.

- MARKARD, J. & TRUFFER, B. 2008. Technological innovation systems and the multi-level perspective: Towards an integrated framework. *Research Policy*, 37, 596-615.
- MARKUS, M. L., STREET, F., STEINFIELD, C. W., WIGAND, R. T. & MINTON, G. 2006. Special Issue Industry-wide Information Systems Platform As Collective Action The Case of The U.S. *MIS Quarterly*, 30, 439-465.
- MATA, F. J., FUERST, W. L. & BARNEY, J. B. 1995. Information Technology and Sustained Competitive Advantage: A Resource-Based Analysis. *MIS Quarterly*, 19, 487-505.
- MEKONNEN, S. M. & SAHAY, S. 2008. An institutional analysis on the dynamics of the interaction between platformizing and scaling processes: a case study from Ethiopia. *European Journal of Information Systems*, 17, 279-289.
- MEYER, J. W. & ROWAN, B. 1977. Institutionalized Organizations Formal Structure as Myth and Ceremony. *American Journal of Sociology*, 83, 340-363.
- MIGNERAT, M. & RIVARD, S. 2009. Positioning the institutional perspective in information systems research. *Journal of Information Technology*, 24, 369-391.
- MINGERS, J. 2002. Real-izing Information Systems Critical Realism as an Underpinning Philosophy for Information Systems. *ICIS 2002 Proceedings*, 3, 295-303.
- MINGERS, J. & WILLCOCKS, L. 2004. Social Theory and Philosophy for Information Systems, Sussex, England, John Wiley & Sons Ltd.
- MINTZBERG, H. AND LAMPEL, J. (2012). 'Reflecting on the strategy process', *MIT Sloan Management Review*, 40(3): pp. 21-30.
- MONTEALEGRE, R. 1999. A Temporal Model of Institutional Interventions for Information Technology Adoption in Less-Developed Countries. *Journal of Management Information Systems*, 16, 207.
- MONTENEGRO, L. M. & BULGACOV, S. 2014. Reflections on Actor-Network Theory, Governance Networks, and Strategic Outcomes. *Brazilian Administration Review*, 11, 107-124.
- MOON, M. J. & BRETSCHNEIDER, S. 1997. Can State Government Actions Affect Innovation and Its Diffusion An Extended Communication Model and Empiri. *Technological Forecasting and Social Change*, 54, 57-77.
- MORRIS, M., SCHINDEHUTTE, M. & ALLEN, J. 2005. The entrepreneur's business model: toward a unified perspective. *Journal of business research*, 58, 726-735.

- MU, Q. & LEE, K. 2005. Knowledge diffusion, market segmentation and technological catch-up: The case of the telecommunication industry in China. *Research Policy*, 34, 759-783.
- MYERS, M. D. 1997. Qualitative Research in Information Systems. *MIS Quarterly*, 21, 241-259.
- NEGRO, S. O., HEKKERT, M. P. & SMITS, R. E. 2007. Explaining the failure of the Dutch innovation system for biomass digestion—A functional analysis. *Energy Policy*, 35, 925-938.
- NELSON, R. R. 1988. National systems of innovation: preface and institutions supporting technical change in the United States. *In:* DOSI, E. A. (ed.) *Technical Change and Economic Theory*. London: Francis Pinter.
- NELSON, R. R. & NELSON, K. 2002. Technology, institutions, and innovation systems. *Research Policy*, 31, 265-272.
- NEMET, G. F. 2009. Demand-pull, technology-push, and government-led incentives for non-incremental technical change. *Research Policy*, 38, 700-709.
- NORTH, D. C. 1991. Institutions. Journal of Economic Perspectives, 5, 97-112.
- NOCKE, V., PEITZ, M. AND STAHL, K. (2007). 'Platform ownership', *Journal of the European Economic Association*, 5(6): pp. 1130-1160.
- NOOR, K.B. (2008). 'Case study: A strategic research methodology', *American Journal* of Applied Sciences, 5(11): pp. 1602-1604.
- OLIVER, C. 1991. Strategic Responses to Institutional Processes. *The Academy of Management Review*, 16, 145-179.
- ORLIKOWSKI, W. J. & BAROUDI, J. J. 1991. Studying Information Technology in Organizations Research Approaches and Assumptions. *Information Systems Research*, 2, 1-28.
- PAPAZAFEIROPOULOU, A. & POULOUDI, A. The governent's role in improving electronic commerce adoption. The Eighth European Conference on Information Systems (ECIS 2000), 2000 Vienna, Austria.
- PATELI, A. G. & GIAGLIS, G. M. 2004. A research framework for analysing eBusiness models. *European Journal of Information Systems*, 13, 302-314.
- PATTON, M. Q. 2002. *Qualitative Evaluation and Research Methods*, Thousand Oaks, Sage Publications.

- PAVITT, K. 1988. Uses and abuses of patent statistics. *In:* RAAN, V. (ed.) *Handbook of Quantitative Sudies of Science and Technology*. Amsterdam: Elsevier.
- PAVITT, K. 2000. Sectoral patterns of technical change Towards a taxonomy and a theory. *Research Policy*, 13, 343-373.
- PORTER, M.E. (2008). Competitive advantage: Creating and sustaining superior performance. New York: Simon and Schuster.
- RAUS, M., FL GGE, B. & BOUTELLIER, R. 2009. Electronic customs innovation: An improvement of governmental infrastructures. *Government Information Quarterly*, 26, 246-256.
- RAVISHANKAR, M. N. 2013. Public ICT innovations: a strategic ambiguity perspective. *Journal of Information Technology*, 28, 316-332.
- ROBERTSON, M., SWAN, J. & NKWELL, S. 1996. The Role oE Nntworks in The Diffusion oF Technological Innovations. *Journal of Management Studies*, 33, 333-360.
- ROCHET, J.-C. & TIROLE, J. 2003. Platform Competition in Two-Sided Markets. Journal of The European Economic Association, 4, 990-1029.
- ROCHET, J.-C. & TIROLE, J. 2006. Two-sided Markets: A Progress Report. RAND Journal of Economics, 37, 645-667.
- ROTHWELL, R. 1982. Government Innovation Policy Some Past Problems and Recent Trends. *Technological Forecasting and Social Change*, 22, 3-30.
- RYCROFT, R. W. & KASH, D. E. 2004. Self-organizing innovation networks: implications for globalization. *Technovation*, 24, 187-197.
- RYSMAN, M. 2009. The Economics of Two-sided Markets. Journal of Economic Perspectives, 23, 125-143.
- SAMARA, E., GEORGIADIS, P. & BAKOUROS, I. 2012. The impact of innovation policies on the performance of national innovation systems: A system dynamics analysis. *Technovation*, 32, 624-638.
- SAMARAJIVA, R. 2000. The role of competition in institutional reform of telecommunications lessons from Sri Lanka. *Telecommunications Policy*, 24, 699-717.
- SAXENIAN, A. 1994. Inside-Out Regional Networks and Industrial Adaptation. *Regional Advantage: Culture and Competition in Silicon Valley and Route* Cambridge: MA:Havard University Press.

- SEAWRIGHT, J. AND GERRING, J. (2008). 'Case selection techniques in case study research a menu of qualitative and quantitative options', *Political Research Quarterly*, 61(2): pp. 294-308.
- SCOTT, W. R. 1995. Institutions and Organizations, Thousand Oaks, CA: SAGE Publications.
- SCOTT, W. R. 2001. Crafting an Analytic Framework I: Three Pillars of Institutions. *Institutions and Organizations*. Thousand Oaks: CA: SAGE Publication.
- SHARIF, N. 2006. Emergence and development of the National Innovation Systems concept. *Research Policy*, 35, 745-766.
- SHIN, D. H., KIM, W.-Y. & LEE, D.-H. 2006. A Web of Stakeholders and Strategies in the Development of Digital Multimedia Broadcasting (DMB): Why and How Has DMB Been Developed in Korea? *International Journal on Media Management*, 8, 70-83.
- SILVA, L. & FIGUEROA B, E. 2002. Institutional intervention and the expansion of ICTs in Latin America. *Information Technology & People*, 15, 8-25.
- SIU, W., LIN, T., FANG, W. & LIU, Z. 2006. An institutional analysis of the new product development process of small and medium enterprises (SMEs) in China, Hong Kong and Taiwan. *Industrial Marketing Management*, 35, 323-335.
- STACY, B. 2007. The Government at the Platforms Bazzaar. *Stanford Law and Policy Review*, 18, 35-101.
- STEEN, H. U. 2011. Indicators of development or dependency in disguise? Assessing domestic inventive capacity in South Korean and Chinese infrastructural ICT platforms. *Telecommunications Policy*, 35, 663-680.
- STENBACKA, C. 2001. Qualitative research requires quality concepts of its own. *Management Decision*, 39, 551-556.
- STRAUSS, J., FROST, R. & ANSARY, A. I. 2009. E-marketing, Pearson Prentice Hall.
- SUCHMAN, M. C. 1995. Managing Legitimacy Strategic and Institutional Approaches. Academy of Management Review, 20, 571-610.
- SWANSON, E. B. & RAMILLER, N. C. 2004. Innovating Mindfully with Information Technology. MIS Quarterly, 28, 553-583.
- T DTLING, F. & TRIPPL, M. 2005. One size fits all? Research Policy, 34, 1203-1219.
- TARAFDAR, M., SINGH, R. & ANEKAL, P. 2013. Impact of ICT-enabled product and

process innovations at the Bottom of the Pyramid: a market separations perspective. *Journal of Information Technology*, 28, 279-295.

- TEECE, D. J. 1986. Profiting from technological innovation Implications for integration, collaboration, licensing and public policy. *Research Policy*, 15, 285-305.
- TEECE, D. J. 2010. Business Models, Business Strategy and Innovation. Long Range Planning, 43, 172-194.
- TEO, H. H., WEI, K. K. & BENBASAT, I. 2014. Predicting Intention to Adopt Interorganizational Linkages An Institutional Perspective. *MIS Quarterly*, 27, 19-49.
- TILSON, D. & LYYTINEN, K. 2006a. The 3G transition: Changes in the US wireless industry. *Telecommunications Policy*, 30, 569-586.
- TILSON, D. & LYYTINEN, K. 2006b. Coordination of technology and diverse organizational actors during service innovation the case of wireless. *Telecommunications Policy*, 30, 569-586.
- TIMMERS, P. 1998. Business models for electronic markets. *Electronic markets*, 8, 3-8.
- TOLBERT, P. S. & ZUCKER, L. G. 1996. The Institutionalization of Institutional Theory. In: CLEGG, S., HARDY, C. & NORD, W. R. (eds.) Handbook of Organization Studies. London: Thousand Oaks, New Delhi: Sage Publications.
- TSANG, E. W. K. 2014. Case studies and generalization in information systems research: A critical realist perspective. *Journal of Strategic Information Systems*, 23, 173-186.
- ULRICH, K. 1995. The role of product architecture in the manufacturing firm. *Research Policy*, 24, 419-440.
- VAN DE VEN, A. H. 2005. The Innovation Journey, Oxford, Oxford University Press.
- VAN RIJNSOEVER, F. J., VAN DEN BERG, J., KOCH, J. & HEKKERT, M. P. 2015. Smart innovation policy: How network position and project composition affect the diversity of an emerging technology. *Research Policy*, 44, 1094-1107.
- WEILL, P. & VITALE, M. 2013. Place to space: Migrating to eBusiness Models, Harvard Business Press.
- WESSELLS, A. T. 2007. Reassembling the Social: An Introduction to Actor Network Theory by Bruno Latour. *International Public Management Journal*, 10, 351-356.

- WILLIAMSON, O. 1985. Transaction cost economics An overview. *The Economic Institutions of Capitalism*. New york: Free Press.
- WILLIAMSON, O. 1999. Political Institutions: The Neglected Side of the StoryComment. *Journal of Law, Economics & Organization*, 6, 263-266.
- YASUNAGA, Y., WATANABE, M. & KORENAGA, M. 2009. Application of technology roadmaps to governmental innovation policy for promoting technology convergence. *Technological Forecasting and Social Change*, 76, 61-79.
- YIN, R. K. 2009. *Case Study Research Design and Methods*, Thousand Oaks, Sage Publications.
- YIP, G. S. 2004. Using strategy to change your business model. *Business Strategy Review*, 15, 17-24.
- YONGWOON, S. & SHIN, D. H. 2015. Analyzing The Development of 4th Generation Mobile Network in China: Actor Network Theory Perspective. *Info*, 17, 22-38.
- ZENG, S. X., XIE, X. M. & TAM, C. M. 2010. Relationship between cooperation networks and innovation performance of SMEs. *Technovation*, 30, 181-194.
- ZOTT, C. & AMIT, R. 2010. Business Model Design: An Activity System Perspective. Long Range Planning, 43, 216-226.
- ZOTT, C., AMIT, R. AND MASSA, L. (2011). 'The business model: recent developments and future research', *Journal of Management*, 37(4): pp. 1019-1042.
- ZUCKER, D. M. 2009. How to Do Case Study Research. Massachusetts, US: School of Nursing Faculty, University of Massachusetts.
- ZUCKER, L. G. 1987. Institutional theories of organization. *Annual Review of Sociology*, 13, 443-464.

APPENDIX 1: INFORMATION PAGES AND CONSENT FORMS

Participant Information Sheet

You are being invited to take part in a study as part of a student project. Before you decide it is important for you to understand why the study is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

Who will conduct the study?

Shenglei Qian, DBA candidate in the University of Manchester, UK

Title of the study

UNDERSTANDING PLATFORM BUSINESS, PLATFORM ADOPTION AND PLATFORM COMPETITION WITHIN THE CONTEXT OF BIG DATA: CASE STUDIES IN CHINA

What is the aim of the study?

From the theoretical view, thesis aims to further extend the understandings about platform construction, platform adoption, as well as platform competition, especially in the big data context.

Why have I been chosen?

You have overall knowledge in this professional area, which are the most cherished capability and information for this research.

What would I be asked to do if I took part?

Just sit and talk in free style, this would become a very open interview based on predesigned guideline but flexible.

What happens to the data that been collected?

All data collected in this study will be used for writing a student thesis, with no commercial purpose and harmful intension.

How is confidentiality maintained?

Researcher will remove all identifiers and ID numbers or pseudonyms are used as a means of breaking the link between data and identifiable individuals. Where the links need to be preserved in order to match data sets in a repeated measures design, coding frames including participant identities are to be kept securely. Under no circumstance should they be stored on the same laptop as the database, and the data base storage would be encrypted. The data will be kept for no less than six years after last publication from this data. In the case of unpublished studies, the data will be kept for no longer than 1 year after graduation from the programme. The data should then be destroyed.

Will I be paid for participating in this study?

Basically not, but small gifts not exceed £10 in a value might be provided.

What happens if I do not want to take part or if I change my mind?

It is totally up to you to decide whether or not to take part. If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you still free to withdraw at any time without giving a reason.

What is the duration of the study?

2 half an hour's interviews based on pre-designed guideline would be conducted in *flexible*.

Where will the study be conducted?

In office or school, depends on participants but should be in public place.

Will the outcomes of the study be published?

Probably will, the study is for student's thesis, which might be published when finish.

Criminal records check

The researcher does not have any criminal records previously.

Contact for further information

If there are any further questions, please contact the researcher via email: <u>shenglei.qian@postgrad.manchester.ac.uk</u>, otherwise you could contact the supervisor team directly also by sending email to <u>ping.gao@manchester.ac.uk</u>.

What if something goes wrong?

If there are any further questions, please contact the researcher via email: <u>shenglei.qian@postgrad.manchester.ac.uk</u>, otherwise you could contact the supervisor team directly also by sending email to <u>ping.gao@manchester.ac.uk</u>.

If there are any issues regarding this research that you would prefer not to discuss with members of the research team, please contact the Research Practice and Governance Co-ordinator by either writing to 'the Research Practice and Governance Co-ordinator, Research Office, Christie Building, The University of Manchester, Oxford Road, Manchester, M13 9PL', by emailing to <u>research-governance@manchester.ac.uk</u>, or by calling 0161 275 7583/8093

CONSENT FORM

If you are happy to participate please complete and sign the consent form below

- 1. I confirm that I have read the attached information sheet on the above study and have had the opportunity to consider the information and ask questions and had these answered satisfactorily.
- 2. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason.
- *3. I* understand that the interviews will be audio/video recorded.
- 4. I agree that any data collected may be passed to other researchers.
- 5. I agree that any data collected m be published in anonymous form in academic books or journals.

I agree to take part in the above project

Name of participant_____

 Name of person taking consent_____
 Date______

APPENDIX 2: EXAMPLE OF PRE-INTERVIEW QUESTIONNAIRE

Translated example

The objective of using this questionnaire is to gain overall information about your experience and opinions about your worked enterprise's platform business.

- 1. How did you and your department/company relate with the platform business in your enterprise, in terms of development or diffusion?
- 2. What was your role in relation to the project for platform development or diffusion?
- 3. What are your opinions or experiences regarding to platform business in terms of development and diffusion?
- 4. Did you perceive any pressures from both inside and outside the enterprise with respect to the TD project that you participated? How it worked and affected the project?
- 5. Can you recommend any other potential informants that might help understanding this topic?
- 6. Can you provide any statistics/reports about platform business project in your company?

APPENDIX 3: SAMPLE INTERVIEW TRANSCRIPTS FOR VJ CASE

万街董事会访谈(中英)

Q: 公司规模?

A: 现在有 400 多人, 万街这个项目 13 年年底启动时(公司 14 年注册), 大概有 50 个人 O: the company size?

A: There are now more than 400 people. Wanjie This project was started at the end of 13 (the company has 14 years of registration) and about 50 people

Q: 那这 400 多人包括在外面跑的人吗?

A: 包括业务员、销售和招商运营的人,都包含在里面,大概有 467 人。而 16 年底只有 260 多个人

Q: Does this 400 people include people who run outside?

A: Including salesman, sales and investment operators are included, there are about 467 people. By the end of 16 only 260 people

Q: 这是两年增加一倍啊

A: 因为业务量有增加,业务扩展也很快,但是,今年的业务其实是收着的。就是,人 虽然是增长的,但是业务其实是收着的,但是效益其实是要比去年前年要好,因为之前 没做营销这一块。然后还是主要是想做招商运营线,去年是启动了一项销售,想到二三 线城市销售还是有机会的,而且因为街道的项目,倒也不是我们想做,人家还是有需求 的。之前我们比较擅长做这一方面,很多开发商,比如二三线城市有项目啊,正好有大 的营销的项目要开,然后就顺带着。所以人扩张到一定规模后,还是会收回来的。去年 年底的时候,算上储备的项目,有26个。而今年将近40个在做的,60个储备的。 O: It is doubling in two years

A: Due to the increase in business volume, business expansion is also fast, but this year's business is actually received. That is, although the growth of people, but the business is actually received, but the benefit is actually better than last year's previous year, because the marketing did not do this one. And then still mainly want to do investment operation line, last year started sales, think of sales in second and third tier cities still have a chance, and because of the street project, it is not what we want to do, people still have demand. Before we are more good at doing this, many developers, such as second and third tier cities have a project ah, just a big marketing project to open, and then go along. So people expand to a certain size, or will be recovered. At the end of last year, there were 26 projects counted as reserves. Nearly 40 are doing this year, 60 reserves.

Q: 这些项目都是销售跑来的吗?

A:项目拓展,他们会合圈子里的开发商有联系,开发商有可能合作之后,之后还有会新项目交给我们去做。

Q: These items are sold come from?

A: Project expansion, they will meet developers in the circle of contacts, developers may cooperate, then there will be new items to us to do.

Q: 那新的项目怎么扩展呢?

A: 我们也有地拓的团队,比如说在建之类的,就去了解。

Q: How to expand the new project?

A: We also have the team to expand, for example, in the building and the like, to understand.

Q: 这种业务占比多吗?

A: 不多,大部分来自圈子里。因为有一些,房地产行业会在年初,在网上报一批那些 地块会开,有一些公开信息。还有一些坏的不良资产,比如一些抵押给银行的抵押给法 院的,也有一些渠道可能会找到我们,问我们要不要去收。但我们一般做轻资产,一般 不收。

Q: This business accounted for more than it?

A: Not much, mostly from circles. Because of some, the real estate industry in the beginning of the year, reported a batch of those online will be open, there are some public information. There are also some bad non-performing assets, such as mortgages that are mortgaged to banks, to courts, and some channels may find us and ask if we want to close them up. However, we generally do light assets, generally do not charge.

Q: 那企业的重资产比例怎么样呢?

A: 很少。我们今年收购的项目,今年大概是3个。

Q: What about the proportion of heavy assets of the enterprise?

A: very few. The items we acquired this year are about three this year.

A: 是因为有嗅到有一些客户的一些需求,接触的那些业主,比如说卖房子,最早开始 做过中介,后来和一个合作伙伴一起开过一家公司,然后做了一些代理的盘子,后面代 理做的比较有经验,然后就自己有入股,参与了一些开发。后面再转到招商运营是因为 之前积累的一些客户,让他感觉到嗅到一些市场的味道,让他觉得好像,对于投资客, 如果说前段柜台吹牛吹的很大,投资回报率比较高,那些可会就不会进行第二次销售, 不会有回头客来,不断进行投资。是因为之前卖出去的盘,很少有人去经营管理,他说 的西藏的点是什么点啊,他从西藏回来之后,就发现,可能之前承诺的一些没有兑现 (入住率这类)。回过头再来看,心理上有一些愧疚,反过来用商人的思维去看,这是一 个市场的空白,也没有人做这个。他发现开发商更多的是关注资金规划,不会关注招商 运营,不够中心,不是接下来的发展趋势。

A: Because there are some customers smell some of the needs, the contact with those owners, such as selling a house, started as an intermediary, and later with a partner to start a company, and then made some agents plate, behind Acting more experienced, and then own shares, involved in some development. Back to the investment operation is because some customers accumulated before, so that he felt some of the market smell, let him feel as if, for investors, if the front of the counter blowing a big blow, the return on investment is relatively high, Those who will not be the second sale, there will be no repeat customers, continuous investment. Because of the plates sold before, very few people go to operation and management. What is the point of Tibet he said? When he returned from Tibet, he found that some of the commitments he promised earlier may not be fulfilled (such as occupancy rates). Looking back, psychologically guilty, in turn, with the businessman's thinking to see, this is a market gap, no one to do this. He

found that developers are more concerned about capital planning, investment will not focus on operations, not the center, not the next trend.

Q: 有做特色小镇的项目吗?

A: 刚刚接触到一个项目,杭州的桃源小镇(绿地的?)。所以做这一行都是由前面的故事所引发的,而对于为什么要做平台,在我看来没有那么复杂。不是为了搭一个平台而搭一个平台,而是因为市场的倒逼,那个时候做平台的企业,比如淘宝都是在那个时候起来的。所以整个的趋势就是往互联网平台这方面走,之前其实有搞过互联网,一直没做起来。做预付卡也做过,比如说平台的预付卡消费,客户端这块也做过,后来认为走流量这件事是有问题的,所以就做半年左右就结束了。

Q: Do you have a project of a characteristic town?

A: Just come into contact with a project in Hangzhou Taoyuan town (green?). Therefore, this line is caused by the previous story, and for why to do the platform, in my opinion, not so complicated. Not to take a platform and take a platform, but because of the market forcing, at that time to do platform companies, such as Taobao are up at that time. So the whole trend is to go to the Internet platform in this area, before actually engaging in the Internet, has not done it. Prepaid cards have done, for example, the prepaid platform spending, the client has done this piece, and later that the flow of traffic is a problem, so it is about six months to end.

Q: 为什么会有问题呢?

A: 第一,没有找到细分的市场,没有找到我们的优势点。而那个时间点,也有很多小的互联网企业也起来了,很多在做。因为那时互联网烧钱的,需要大量的钱去做地推,所以我们当时认为这不是一个发展趋势,他的市场是越来越窄的。

Q: Why are there any problems?

A: First, we did not find a breakdown of the market, did not find our advantage. And that time, there are many small Internet companies are up, a lot of doing. Because at that time the Internet burned money and needed a lot of money to push it, so we did not think this was a trend at that time. His market was getting narrower and narrower.

Q: 那是没有找准定位的问题, 找错了竞争对手?

A: 是的,做了一段时间有不做了,当时认为扎扎实实做商户的这块儿更好一点。现在 看起来,量已经在那里了,而且走的是轻资产路线,不再是重资产投资或者是开发商开 发销售的方针,所以自然而然就成了做平台。除了做平台,也看不到眼下的其他办法。 所以我认为是倒逼的,客户和市场的压力,才做了平台。

Q: That is not pinpointing the problem, find the wrong competitor?

A: Yes, I did not do it for a period of time, and I thought it would be better to do a solid job as a merchant. Now it seems that the amount has been there, and take the light asset line, is no longer a heavy investment in assets or developers to develop sales approach, so naturally became a platform. In addition to doing the platform, but also do not see the other options now. So I think it is forced, customer and market pressure, only made a platform.

Q: 您认为, 公司现在眼下的核心利润点在哪里?

A: 其实有蛮多人来问这个问题,万街的核心竞争力是什么,在我个人看来,企业暂时 还没有找到特别强的核心竞争力。第一点是进入市场早,第二是地盘占得比较多,第三 是我觉得团队比较优秀,另外一个方面我们抓住了小商户的需求,这是其他地产行业的 领头企业都没有关注到的。他们也不会过多关注小商户的收租情况,因为这只占他们很 小的一部分比例,甚至他们可以选择选择性放弃,不会对企业产生实质性影响。而对于 我们来说,很小比例的欠租、或者一部分资金没有回笼的话,对我们来说可能会是很大 的影响。所以我们会关注这一块,关注这一块市场,势必就会衍生出对于,比如如何去 更好维护商户、如何去为商户不断增值吸引人流,或者说商户融资租赁这类业务。关于 收租,有可能其他公司都没有具体总结过一些结论,但是我们有,也就是说我们特别针 对这些人群有我们自己的处理办法的。所以我个人认为,我们相比较于他们,我们更有 经验,这也是我们企业的一个优势。我们关注了别人可能不关注的点,积累出了一定量。 但目前公司的规模不算大,只有 400 多个人,100 万平方米的体量,可以说还是很小。 Q: In your opinion, what is the core profit point of the company right now?

A: In fact, there are quite a few people to ask this question. What are the core competitiveness of Wanjie? From my personal point of view, the company has yet to find a particularly strong core competitiveness. The first point is to enter the market early, the second is the site accounted for more, the third is that I think the team more excellent, the other one we seized the needs of small businesses, which is the leading real estate industry are not concerned about of. They will not pay too much attention to the rent collection of small businesses because it only accounts for a small proportion of them. Even they may choose to give up one by one and will not have any substantial impact on the enterprises. And for us, a small percentage of rent owed, or a portion of the money back in circulation, could have a huge impact on us. Therefore, we will pay close attention to this one. If we focus on this market, we will surely derive from such things as how to better maintain the business and how to continuously increase the value of the business to attract more people or businesses such as commercial leasing. Regarding rent collection, it is possible that other companies did not conclude with any specific conclusions, but we have, that is to say, we have our own approach specifically for these people. So I personally think we are more experienced than we are and this is an advantage for our business. We focus on other people may not be concerned about the point, accumulated a certain amount. However, the current size of the company is not large, only 400 people, one million square meters of body mass, it can be said is still small.

Q: 市场上有其他人在做吗?

A: 有,但是我感觉,比如绿地万科这些企业,他们只是没关注到这些点,如果他们一 旦有从上游走到下游的意愿,资金和人员进入这块市场,我们将会很困难。

Q: Anyone on the market doing it?

A: Yes, but I feel like greenfield companies like Vanke are just not paying attention to these points. If they have the will to go downstream from upstream and capital and personnel enter this market, we will find it difficult.

Q: 所以万街现在也是争取赶在他们进入之前,把市场规模做起来。

A: 我个人认为,企业现在需要找到一个,衍生品(金融、服务、B2C产品)可能会成为我们的另一个盈利点或者说是竞争优势。但现在看来,还没有这个苗头,现在还是在铺量的一个阶段。

Q: So Wanjie is now trying to get the market to scale before they get there.

A: I personally think that companies now need to find one. Derivatives (financials, services, B2C products) may be another point of profit for us or a competitive advantage. But now it seems that there is no sign of this, it is still a phase of the shop.

Q: 张总也提到过, 之后可能也会做金融这类服务

A: 是的会做,但是是接下来的衍生产品了。张总可能也已经思考过这个问题了,但是还没同我们去讲。

Q: Zhang total also mentioned, after may also do financial services

A: Yes, but it is the next derivatives. Zhang may have thought about this issue, but have not talked to us yet.

Q: 商铺的装修业务你们有涉及吗?

A: 有的,我们有装修公司。相应的,我们也成立了广告公司。

Q: Are you involved in the shop decoration business?

A: Yes, we have a decoration company. Accordingly, we also set up an advertising agency.

O: 是一站式的, 基本都能解决吗?

A: 是的, 甚至代办营业执照的业务, 我们也有涉及。

Q: One-stop, basic can solve it?

A: Yes, even the business license agent business, we also have involved.

Q: 这些主要是针对经营者,而不是投资人的业务吧?

A: 是的,投资人一般来讲,只有一个融资需求。

Q: These are mainly for business operators, rather than investors business?

A: Yes, investors generally have only one financing need.

Q: 实际经营者,选择万街的衍生服务的比例大吗?

A: 地域性区别还是很大的。如果你有项目正好迎合得上,他可能就会选择你,所以为 什么铺量就是这个概念。所以商户对于市场拓展,对于地域的要求最大。对于一站式服 务,我觉得基本都是在做,上下游(包括资金链)都有涉猎。但是重点并没有放在提供 一站式服务的业务上。现在的主要任务还是想把根扎稳。

Q: The actual operators, the proportion of derivative services Wanjie choose large?

A: Regional differences are still great. If you have a project that is just right, he may choose you, so why is this concept? Therefore, business development for the market, the greatest demand for the region. For a one-stop service, I think basically are doing, upstream and downstream (including funding chain) are covered. But the focus is not on one-stop services. The main task now is to stabilize the roots.

Q: 现在公司也运行了几年了,总体收入来看,您觉得最赚钱的业务是什么?

A: 2017 年大概收入接近 15 个亿 (营销 12 亿,招商运营 2 亿),净利润大概在 6、7 千 万的水平 (营销 5000 多万,招商运营 1、2 千万)。

Q: Now the company has been running for a few years now. What do you think is the most profitable business in terms of overall revenue?

A: Probably about 15 billion in revenue in 2017 (1.2 billion for marketing and 200 million for business operation), and the net profit is about 67 million (more than 50 million for marketing and 12 million for business operation).

Q: 主要的成本都发生在哪些地方?

A: 成本主要是人,没有特别大的成本。收入的 12 个亿,因为我们做的是差价,去年做 了两个包销项目,所以整体都算到财务核算的收入了,营销线基本上收入大概会在 30% 不到(20 几个点)的利润率。招商运营方面,因为有一部分还在免租期项目,所以他们 的收入会全额计入我们的收入,这个部分会有 60%,40%会和小业主分润了(这段实在 没听懂,11 分左右),就是服务费的一个收入。成本的话,基本上就是人,要不然就是 一些工程改造,工程改造在去年其实也没有几个,大概 2 个项目左右。其他的还是做服 务为主。

Q: Where are the major costs?

A: The cost is mainly people, there is no special big cost. Revenues of 12 billion, because we are doing the difference, did two underwriting projects last year, so the overall count to the revenue of financial accounting, the marketing line basically income will be less than 30% (20 points) Profit rate. As for the operation of investment promotion, since some of them are still under the rent-free period, their income will be fully included in our income. This part will be 60% and 40% will be sub-run by small proprietors (this period really did not understand, 11 minutes or so), is a service fee income. The cost is basically human, or else it is some engineering renovation. In fact, there are not many engineering reconstruction projects in the past year, about 2 projects. The rest or service-based.

Q: 公司主要的人员学历水平是什么样子的?

A:现在如果招人的话,大专会比较多一点。400多人的团队,真正平台员工只有 100多 个其中这一部分基本都是本科,硕士也有一部分(接近 20%的比例)。一线员工基本都是 专科,中专和大专都有,都是销售型的。

Q: What is the educational level of the main staff of the company?

A: Now if you recruit people, college will be a little more. More than 400 teams, the real platform staff only more than 100 of which this section are basically undergraduate, master part (nearly 20% of the ratio). Front-line staff are basic specialist, secondary and college have, are sales.

Q: 每年会校招吗?

A: 很少,公司一般都是员工自己做,之后再推荐员工进来。因为销售的圈子还是比较固定的,比如,之前有在合作过的员工,会一起过来。

Q: Annual school trick?

A: Few, the company usually staff to do their own, and then recommend the staff to come. Because the sales circle is still relatively fixed, for example, before the cooperation of staff, will come together.

Q: 公司下面有代理人的模式(代理销售)吗?

A: 没有,基本都是自己做。我们有找分销公司,分销公司的责任是带客进来,作为渠 道方,不负责销售。

Q: There is a proxy model (sales agent) below the company?

A: No, the basic is to do it yourself. We have to find the distribution company, distribution company's responsibility is to bring customers in, as a channel, not responsible for sales.

- Q: 企业的本科生和硕士生也是自己进来的吗?
- A: 不,采用的是网招的方式,校招的很少。

Q: Business undergraduates and masters come in their own?

A: No, using the way the network trick, school trick very little.

Q:待遇如何呢?

A: 一般来讲, 工作年限都是不是特别长, 所以是基本水平, 和市场基本持平。

Q: What is the treatment?

A: Generally speaking, the working years are not particularly long, so they are basically the same level as the market.

Q: 人员流动比例大吗?

A: 销售流动很大,业务员流动比例接近一般,其他部分比较少。业务员的流动比较好 理解,开盘的强推期,业务量比较大,收入比较好,那时人就会更多一点。或者有些楼 盘接近清盘,但也看楼盘属性,有些户型大的比较难销,实际上效益不错,但这时业务 员可能会认为当前工作环境不太有利,就会选择离开。所以流动比较大,去年业务员, 招进 100 多人,离职 100 多人。

Q: a large proportion of staff turnover?

A: sales flow is large, the proportion of salesman close to the general, the other part is relatively small. Salesman better understanding of the flow, opening a strong push, the business is relatively large, better income, then people will be a little more. Or some real estate close to the liquidation, but also to see real estate properties, some units more difficult to sell large, in fact, good, but then the clerk may think the current working environment is not favorable, you will choose to leave. So the flow is relatively large, salesman last year, recruiting more than 100 people, leaving more than 100 people.

Q: 我听说企业有跟投基金,可以大概了解一下吗?

A: 企业自己有一个基金公司, 之后会跟投一些项目。

Q: I heard that companies have to follow the Fund, you can probably know about it?

A: The company has a fund company of its own, after which it will vote for some projects.

Q: 跟投基金管理的资金池来源于租户的押金吗?

A: 不是的,资金来源于外部,等于说是单独的一个体系,没有涉及体系内部的业务。 资金来源于外部,但不是以基金的形式发行的。

Q: with the fund management investment fund from the tenant deposit?

A: No, the funds come from the outside, which means that it is a separate system and does not involve the business within the system. Funding comes from the outside, but not in the form of a fund.

Q: 基金主要跟投的是企业的项目吗?

A: 有一些投进了企业, 但他是个人投资。

Q: What is the main investment projects with the enterprise?

A: Some have invested in the business, but he is a personal investment.

Q: 所以说和公司没有关系对吗?

A: 是的。

Q: So it has nothing to do with the company? A: Yes.

Q: 企业的收租方式决定了企业充足的资金流动性,为什么没有考虑过这项业务呢?如果没有做金融业务的话,这部分的资金池是如何处理呢?

A: 企业在承接一些销售型项目的时候,是有一些预付的内容,比如预付房款,这样才能拿到销售权。所以一般都是投进项目了,或者是当做项目的保障金。

Q: The way a company collects rent determines the adequacy of the firm's liquidity. Why not consider this business? If you do not do financial business, this part of the capital pool is how to deal with it?

A: When a company undertakes some sales-oriented projects, it has some prepaid content, such as prepayments, so that it can get the sales rights. So generally put into the project, or as a guarantee of the project.

Q: 基本上流动起来的话, 也不会剩下很多对吧?

A: 偶尔有一些时间差。比如说,资金有时间差,保证金两三个月后才付,那段时间比 较短,所以也不会做其他的投资,基本会放进银行做短期产品。

Q: It basically does not leave a lot of right, right?

A: Occasionally there is some time difference. For example, the time difference between funds, the margin paid only two or three months, that period of time is relatively short, so it will not do other investments, the basic will be put into the bank to do short-term products.

Q: 您这个资料中是企业的介绍? 更新到什么时间点?

A: 是的, 更新到去年(2017年) 9月 10月。

Q: In your information is the introduction of the company? Update to what time? A: Yes, it is updated to last year (2017) in September of October.

A: 现在在网上搜索万街, 能找到咱们的网站吗?

Q: 网站更新不是很频繁。因为现在还没有到登场的时机。

A: Now search online Wanjie, can find our website?

Q: Website update is not very frequent. Because it is not yet time to debut.

APPENDIX 4: SAMPLE INTERVIEW TRANSCRIPTS FOR GEC CASE

GTE: 核心管理层访谈

GTE: core management interview

- CFO: 德勤金融咨询;成商行 CFO;淡马锡担保公司做副总;
- 信息化: 世界 500 强保时德 CIO; 工贸;
- 目标: 全国性;
 - 13: 全国打开,年末区域收缩策略
 - ◆ 自身:人才限制、成本问题、品牌;
 - ◆ 厂家:经销商;
 - ◆ 南: 13 签了
 - 14: 江浙沪上百亿;
 - ◆ 住宅:安置房(义务改造房 400 多万方);旧城改造;政府采购部门;
 - 浙江: 40-50个亿;
 - 江苏
 - ◆ 苏南为主;苏北也发展很快(盐城);南京、苏州、张家港;标杆项目,有 一定周期;
 - ◆ 江苏和浙江差不多;
 - ◆ 14年: 3.5亿;
 - ◆ 产业集群不同;品牌会有所不同;
 - 上海
 - ◆ 浙江渗透 150 个片区, 需要 90-100 个项目经理;
 - ◆ 地级市渗透了 6 out of 11; 县级市真正渗透的 1/3;
 - 上海房地产规模比较大;大鳄切市场比较多。注重发展商业地产;
 - 重庆/西南; 需求很大、市场很乱, 空间大; 龙湖?
- 项目经理的依赖性
 - 2年时间才能成为项目经理, 3-4年高级经理;
 - 项目经理: 100多人,能力还要培养;
 - 项目经理认证制度;
 - 培养计划: 3年以下工作经验比较多;
 - ◆ 专业:产品基础知识(一页纸);运营(七步大法); e-learning;
 - ◆ 综合:滚动式培训;商务、市场;
 - 30万年薪;
 - 区域两级;
 - 明年 100 个; 5000 万每人;
- 省级
 - 管十几个区域; 三级管理;

- CFO: deloitte financial consulting;CFO of a cheng shang bank;Temasek guarantee company as deputy general manager;
- Informatization: CIO of baoshide, fortune 500;Industry and trade.
- Target: national;
 - 13: opening up the whole country, and regional contraction strategy at the end of the year
 - Self: talent limitation, cost problem, brand;
 - Manufacturer: distributor;
 - Nan: 13
 - 14: over 10 billion yuan in jiangsu, zhejiang and Shanghai;
 - Housing: resettlement housing (more than 4 million square meters of compulsory renovation housing);Old city reconstruction; Government procurement department;
 - Zhejiang: 4-5 billion yuan;
 - jiangsu

- Su nan is the main one. The north of the Soviet union also developed rapidly (yancheng). Nanjing, suzhou and zhangjiagang; Benchmarking projects with a certain period;
- Jiangsu and zhejiang are similar.
- 14 years: 350 million;
- Different industrial clusters; Brands will be different;
- Shanghai
 - Zhejiang has infiltrated 150 districts and needs 90-100 project managers.
 - Prefecture-level cities have penetrated 6 out of 11.1/3 of the real penetration of county-level cities;
- The real estate scale in Shanghai is relatively large. There's a lot of market for alligators. Developing commercial real estate;
- Chongqing/southwest; There's a lot of demand, a lot of chaos in the market, a lot of space; Longhu?
- Project manager dependencies
 - 2 years to be a project manager, 3-4 years to be a senior manager;
 - Project manager: more than 100 people, ability should be cultivated;
 - Project manager certification system;
 - Training plan: more than 3 years working experience;
 - Major: basic product knowledge (one page); Operation (seven-step method);E learning;
 - Synthesis: rolling training; Business, marketing;
 - 300,000 yuan a year;
 - Regional level;
 - 100 next year;50 million per person;
- At the provincial level
 - Over a dozen areas; Three-level management;

- 销售开拓
 - 500 个, 活跃 300 个; 100 亿, 有 300 亿储备;
 - 去年拓 30000 会员费,就给 8000;今年 6 万会费,给 4 千,和销售额挂钩;有 效度 60%;
 - 今年抓客户有效性;
 - 今年 300 个目标, focus 在订单;
 - 未来将拓客责任放在三级;当地开发项目的比例;
 - 拓客的前置性: 拿地时候就要介入;
 - 会员管理:项目前期信息搜集、信用等级评估;
- 经销商
 - 省级比较多,地方做工程少、零售为主;
 - 和省级竞争比较多;
 - 深圳佳美乐:主动要合作;
 - 和经销商的合作;
- ▶ 对于厂商的价值——必须把品牌方当成客户(唯品会;刚开始保证付款快)
 - 公司:最需要的是厂家的支持;
 - 主要: 业务量、资金、品牌提升;
 - 品牌提升:区域性;跨区域;
 - 半排他;单一品牌做到渠道前三;
 - 电梯:也要攻下来;通力、西奥、东芝;
 - 品牌市场——微鲁克斯: 欧洲覆盖 80%,中国销售 10 亿,覆盖 70%,北京 95%; 市场能做到 100 个亿;
 - 产品像解决方案走;(采光、透气解决方案,前置性介入);
 - 更多资源向一线倾斜;
 - 渠道渗透——大金:过于分散的渠道会做整合;合作/竞争有发挥空间;和第二 梯队合作;
 - 厂商希望找到实力强的合作伙伴;
 - 方案解决商能力——欧普:
 - ◆ 整体解决方案:设计、施工、供应链管理;
- Sales to develop
 - 500, 300 active;10 billion, 30 billion;
 - Last year, we paid 8,000 for 30,000 membership fee. This year 60,000 dues, to 4,000, linked to sales;60% validity;
 - Capture customer effectiveness this year;
 - This year, 300 targets, focus on orders;
 - In the future, we will place our responsibilities at the third level.Proportion of local development projects;
 - The presupposition of tuoko: to intervene when taking land;

- Member management: information collection and credit rating evaluation in the early stage of the project;
- dealers
 - More provincial, less local projects, mainly retail;
 - More competition with the provincial level;
 - Shenzhen jiamei music: take the initiative to cooperate;
 - Cooperation with distributors;
- Value to the manufacturer -- the brand must be regarded as the customer (Vipshop;At the beginning, the payment is guaranteed fast)
 - Company: the most needed is the manufacturer's support;
 - Major: business volume, capital, brand promotion;
 - Brand promotion: regional; Across the region;
 - Half exclusive; Single brand achieves the top three channels;
 - Elevator: take it down, too; Kone, theo, Toshiba;
 - Brand market -- wechat lux: 80% in Europe, 1 billion in China, 70% in Beijing, 95% in Beijing; The market can reach 10 billion;
 - Products are like solutions; (lighting and ventilation solutions, proactive intervention);
 - More resources are on the line;
 - Channel penetration -- dajin: too scattered channels will be integrated; There is room for cooperation/competition; Working with the second team;
 - Manufacturers want to find strong partners;
 - Solution vendor capability -- op:
 - Overall solution: design, construction, supply chain management;
- 跨区域扩张:
 - 电梯:外部合作;
 - 空调:设计标准、施工标准、辅材标准;
 - 每个品类不同的价值链的亮点;
 - 南方需求大: 但建材发达;
 - 西南市场看好:
 - 管理模式成熟之后,省级公司团队直接派驻,现在一级还没有人,往下做,强 人开远店,老人开新店,
 - 恒大也在做;
 - 宓总:今年重点拜访重点厂家;
- B2B2C
 - 8月份,1000多套交房,订单300多套,累计600多套;套餐完全对接;
 - 线下——10套样板房;线上——订单转化;
 - 客户界面设计;数据维护——未来卖家装,二次加装;
 - 基础方案差不多, 增配; 套餐采购: 500-1000/平米;
 - 困扰:运营负责人;市场负责人;
 - 开发商很支持——房开资金链恶化,精装转毛坯;希望用户迅速入住;
 - 标准化:户型不是太大的问题;
 - 安装:暖通、橱柜需要安装;其他由当地安装队完成;土巴兔;
 - 南方: 中国科勒第二大代理商, 反对到支持;

- Cross-regional expansion:
 - Elevator: external cooperation;
 - Air conditioning: design platform, construction platform, auxiliary material platform;
 - The highlights of different value chains in each category;
 - Southern demand: but building materials developed;
 - Southwest market bullish:
 - When the management mode is mature, the provincial company team will be directly stationed. There's no one at the next level; To do; Strong men open stores, old people open new stores;
 - Evergrande is doing it;
- Mi: we will visit key manufacturers this year.
- B2B2C
 - In August, more than 1000 sets of rooms were delivered, and more than 300 sets of orders were placed, amounting to over 600 sets. The set meal is fully connected.
 - Offline -- 10 model rooms;Online -- order transformation;
 - Customer interface design; Data maintenance -- sell home decoration in the future, reinstall;
 - The basic scheme is similar and added. Package purchase: 500-1000/ m2;
 - Trouble: head of operations; Market leader;
 - Developers are very supportive the housing open capital chain deterioration, hardcover to rough;Users are expected to check in quickly.
 - Platform: the house type is not too big a problem;
 - Installation: hvac, cabinets need to be installed; Others are done by local installation teams;Mediating rabbit;
 - South China: the second largest agent of China kohler.
- 电商 C2B
 - 仓储:只要中转仓;需求明确;
 - 淘宝键盘: 2700 万/天,双十一;利润空间没有;先铺货,量大之后库存风险大; 未来竞争大;
 - 和淘宝、天猫重合度高;经销商做;
 - 厂商:价格、渠道;
 - 规避方式:套餐;个性化——计算方式;模糊单价;
- O2O: 成本小;
- 建材电商难做:经销商绑架厂商;垫资、填货;经销商 B2C 有很多货出不去;
- 项目经理效率
 - 服务半径缩小,客户产出更高;市场占有率、项目占有率;
 - 销售工具:销售机会管理;
 - 蒋:预算;3年2000万;
- 毛利率的考量
 - 精装修占比不高;品类有侧重点;
 - 事业部成长速度不同;
- 行业发展趋势;
- 管理层
 - B2C
 - 物流管理
- 事业部价值链的梳理(商总);业务系统梳理;产品解决方案;
- 五个区域头
 - 吕总比较快(销售),张渊、朱总比较慢,但后劲强;
- Electricity C2B
 - Storage: as long as the transit warehouse; Clear requirements;
 - Taobao keyboard: 27 million/day, double eleven; There is no profit margin; Lay out the goods first, the quantity is big, then the inventory risk is big; Great competition in the future;
 - High degree of integration with taobao and Tmall;Dealers do;
 - Manufacturer: price, channel;
 - Avoidance: package; Personalization -- computing method; Fuzzy unit price;
- O2O: low cost;
- Building materials e-commerce difficult to do: dealers kidnap manufacturers;Padding and loading; The dealer B2C has a lot of goods that cannot be shipped.
- Project manager efficiency
 - Smaller service radius and higher customer output; Market share, project share;
 - Sales tools: sales opportunity management;
 - Jiang: budget;20 million in 3 years;
- Consideration of gross margin
 - Fine decoration proportion is not high; The categories have emphasis;
 - The growth rate of the business department is different.
 - Industry development trend;
- management
 - B2C
 - Logistics management
- Sorting out the value chain of business department (general manager of business);Business system combing; Product solutions;
- Five area head
 - Lu zong faster (sales), zhang yuan, zhu slower, but strong momentum;
- 金融:
 - 已经到位。研讨会;
 - 经销商痛点:资金;融资成本高; 6-12 个月帐期, 99%做不到; 空调做到 6 个月, 经销商 20%利润都没哟 u;
 - 杠杆;
 - 找钢网:金融是核心;

- B2C: 京东(百套业务)
- 物流
- Finance:
 - It's in place. Seminar;
 - Dealer pain point: capital; High financing costs;6-12 months, 99% of which cannot be achieved; Air conditioning achieved 6 months, the dealer 20% profit did not yo u;
 - Leverage;
 - Looking for steel network: finance is the core;
 - B2C: jingdong (100 sets of business)
- logistics

- 融创的影响;上海5个项目,上海玫瑰园;融创营销做得很好;
- 120个项目梳理:已结束的 1/3;烂项目 1/10;蓝城 53个,代建为主;
- 原来绿城项目拿到的 1/3; 全年 10+亿, 70 多个项目; 去年绿城销售 650 亿, 1/3 土地, 1/3 工程营造(1/2 材料), 至少 40-50 亿相关采购;
- 融创原先管理更粗放(只考虑进入成本、销售时间、现金流);1级半管理,7个小组/地域区分,放权到项目,集团弱化、只做报备;欠款很厉害、甚至抵房子;
- 16年上市计划:
- The impact of fusion injury;5 projects in Shanghai, Shanghai rose garden;Rongchuang marketing is doing well;
- Sorting out 120 projects: 1/3 of the completed projects;Bad project 1/10;53 blue cities, mainly built by the agent;
- 1/3 of the original green city project; More than one billion and more than 70 projects throughout the year; Last year, sold 65 billion yuan, 1/3 land, 1/3 engineering construction (1/2 material), and at least 4-5 billion related purchasing.
- Rongchuang's original management is more extensive (only considering the entry cost, sales time and cash flow);1 level and half management, 7 groups/regions, delegating power to projects, weakening the group and only making reports;The debt is heavy and even worth the house.
- 16 year listing plan:

Manager Lai

- 采供管理:100多人;20%参与原来采购管理;70%项目现场收验工作(不参与决策);20人从本部搬迁,基本在电商成为管理岗位;回去的以70%人为主,这两年参与电商工作较少、转型交困难;
- 绿城采购:设计、成本、采购三权分立;
- 并未进行充分标准化;但树立了高端形象;
- 融创入资后:未来可能换仓、并拖延支付政策;同时欠缺标准化,对于电商有吸引力的 20 个;地区、品牌、支付;弱集团化;
- 蓝城: 蓝城公司本身没有交割;
- 绿城:未来收入持平,单个项目做深;
- 压力最大来自于供应商;
- Procurement and supply management: more than 100 people;20% participated in original purchasing management;70% of on-site project inspection (not involved in decision-making);20 people moved from the department and became management positions in e-commerce basically. The majority of those who returned to China were 70%. In the past two years, they had less work experience in e-commerce and had difficulties in transformation.
- Green city procurement: design, cost, procurement division;
- Not sufficiently platformized; But it has a high profile;
- After capital raising: it may change positions in the future and delay the payment policy; At the same time, the lack of platform is attractive to e-commerce 20; Area, brand, payment; Weak collectivization;
- Blue city: blue city itself is not delivered;
- : future income is equal, individual project is done deep;
- The biggest pressure comes from suppliers.

赖总

蒋总

Manager Jiang

- 2000-10: 跨国公司 TI, 硅谷, 新加坡, 回国;
- 民企: 电动工具制造; 全球 5000; 30 亿; Bosch; 4年; 江苏省信息化标杆、示范企业; 市场小、不愿上市;
- 13年:中国优秀 CIO;
- 管理问题:
 - ERP, CRM; 呈现现状;
 - 信息化的认识程度不够;经验不足、或来自传统行业;
- 思路
 - ERP: 9月份开始,明年1季度能够上线;
 - ◆ 模块:销售,采购,库存,财务,组数据;考虑是否上BI;
 - ◆ 现金流管理; 金融;
 - CRM: marketing, sales, 售后服务;
 - ◆ 基本数据搜集; KYC;
 - 与客户做 EDI 对接;
 - 二次销售: BI;
- C端——医疗器械;患者追踪;
- 最需要信息化的环节
 - 销售: 商机、售前行为、售中管理、收款;
 - Process 在,线下,没有流程化;无法支撑扩张;
 - B2B: optimization; B2C: restructuring;
 - 可以标准化的环节
 - 合同管理;
 - 销售订单到采购订单;
 - 供应商的多次协同;
 - 物流追溯
- 项目经理

- 50%时间做沟通,软性;
- 辅助支持:销售工具——产品配置;
 - ◆ 产品包库——项目经理原来需要记住所有产品,过去几个月时间,现在一 个月,产品包推荐——按照价格、装修风格;缩减 SKU;
 - ♦ 知识管理、专家库;
- 效率提升:项目上的时间比较难;

President Jiang

- 2000-10: transnational corporation TI, silicon valley, Singapore, return to China;
- Private enterprises: electric tools manufacturing; The world's 5000;3 billion;Bosch;4 years; Jiangsu provincial information benchmark and demonstration enterprise; The market is small and unwilling to go public;
- 13 years: excellent CIO of China;
- Management issues:
 - ERP, CRM;Present the status quo;
 - Insufficient knowledge of informatization; Inexperienced, or from a traditional industry;
- Train of thought
 - ERP: from September, it will be available in the first quarter of next year.
 - Module: sales, procurement, inventory, finance, group data; Consider BI;
 - ◆ Cash flow management; Financial;
 - CRM: marketing, sales, after-sales service;
 - ♦ Basic data collection;KYC;
 - EDI docking with customers;
 - Secondary sales: BI;
- End C -- medical devices;Patient follow-up;
- Information is most needed
 - Sales: business opportunity, pre-sales behavior, management in sales, collection;
 - Process is in, offline, without Process.Unable to support expansion;
 - B2B: optimization; B2C: more;
 - That can be platformized
 - Contract management;
 - Sales orders to purchase orders;
 - Multiple supplier collaborations;
 - Logistic tracing
 - The project manager
 - **\square** 50% of the time for communication, soft;
 - Auxiliary support: sales tool -- product configuration;
 - Product package library -- the project manager needed to remember all the products. In the past few months, now one month, the package recommendation is based on the price and decoration style. Cut SKU;
 - Knowledge management and expert database;
 - Efficiency improvement: time on projects is difficult;

- 支持人员节约空间
 - 发生在执行层;
 - 财务月结、人事考核;
- 决策层,管理层,执行层面;
 - 决策层——商务智能, BI;
 - 管理层——规范, control;
 - 执行层面——效率,只要重复都可以通过系统;
- 采购环节效率提升
 - 吉利——采购招标平台;信息化管理,招标价格不断下降;
- 系统原形;产品包;
- 总体效率提升:产品包;
- 团队建设/投入
 - IT 团队: 应用系统建设; 业界标准 1: 50 到 1: 100;
 - 关键用户:人员诉求、激励措施;
 - 1-3%;
 - 项目建设+云维成本
- 个人目标:
 - IBM 信息化水平测试:目前 40 分;三到五年 70 分;之前公司 50 分到 70 分;
 - 参与业务,技术向业务转型,运营管理;
- Support people save space
 - Occurs at the executive level;
 - Finance monthly statement, personnel assessment;
- Decision level, management level, implementation level;
 - Decision level -- business intelligence, BI;
 - Management specification, control;
 - Execution level efficiency, as long as repetition can go through the system;
- The efficiency of purchasing is improved
 - Geely -- procurement bidding platform; Information management, bidding prices are falling;
- System prototype; Product packages;
- Overall efficiency improvement: product package;
- Team building/investment
 - IT team: application system construction;Industry platforms: 1:50 to 1:100;
 - Key users: personnel demands, incentive measures;
 - 1-3%;
 - Project construction + yunwei costs
- Personal goals:
 - IBM information level test: currently 40 points;3 to 5 years 70 points;The previous score was 50 to 70.
 - Participate in business, technology to business transformation, operation management;

吕总

Manager Lv

- 大学毕业一直做材料;之前11年在杭州最大建材市场新时代;飞亚达,杭州连锁商场总经理;天翼集团、网络平台;宓总;对于每一个品类、部门都管理过;
- 体验馆;
- 11 年 2 月; 第三个员工;
- 一部: 32人; 杭州、宁波、瞿洲、湖州、嘉兴;
 - 项目经理: 17人; (4人在招)
 - 项目助力: 13人;
 - 市场部经理:1;
- 选人
 - 项目经理: 传统建材行业; 工程领域; 家具类营销;
 - 更倾向于厂家对于工程类的销售人员;
- 拓客: 13年96个房产项目;在手123个项目合同;已经启动的37个;
 - 个人关系 (商场的人脉资源);
 - 与绿城设计、景观、物业公司:对接;经纪人;
 - 13年全年合同金额2千万;
 - 14年:1季度完成目标;浙江比例 60%;浙江之外(江西、苏州、江苏、福建);
 - 上半年 1.5 亿; 全年目标 5.5 亿;
 - 去年10月份开始放量;
- I've been doing material since I graduated from college. 11 years ago in hangzhou's largest building materials market new era; Feida, general manager of hangzhou chain store; Tianyi group and network platform; Mi total; I have managed every category and department.
- Experience pavilion; 11 February; Third employee;
- Part I: 32 people;Hangzhou, ningbo, qu zhou, huzhou, jiaxing;
 - Project manager: 17 people;(4 people are hiring)
 - Project assistance: 13 people;
 - Marketing manager: 1.
- The candidates
 - Project manager: traditional building materials industry; Engineering field; Furniture marketing;
 - More inclined to manufacturers for engineering sales personnel;
- Tuoko: 96 real estate projects in 2013;123 project contracts in hand;37 have been started;
 Personal relationships (business contacts);
 - With design, landscape and property companies: docking; Agent;
 - The annual contract amount of 13 years is 20 million yuan;
 - 14 years: achieve the target in the first quarter; Zhejiang accounts for 60%; Outside zhejiang (jiangxi, suzhou, jiangsu, fujian);
 - 150 million in the first half;Annual target: 550 million yuan;
 - Last October, the volume began to increase.

- 压力来自地产行业调控;
 - 123 个项目很多处于半停工状态; 6 月底占到 30%, 7 月转好;
 - 6月招聘了市场部经理;多元化市场渠道积累;酒店、写字楼、商超、政府采购;
 - 6月启动新一轮项目拓客;为15年作铺垫;
 - 10万方毛坯房:如果中期介入,只能做到1000万;从头介入,3500-5000万, 80%在项目开动6个月需要签约(门窗、电梯),楼书、预售;
- 住宅市场——杭州
 - 国内二线城市:存量房大;精装房销售比较难、去化率偏低;土地供给量处于 下滑态势;
 - 住宅房地产: 电梯 15000 多台; 门窗 500 万方;
 - ◆ 公建材料 4000/平, 电商 3000/平;
 - 绿城的采购量(加上政府): 30多个楼盘, 1630亿, 保守估计; 5%;
 - 大部分是公建项目:毛坯房;
 - 杭州一年 310 个楼盘;
 - 电商覆盖 30 多个; 17 个启动;
 - 大房开不愿意合作; 滨江等; top 5 占比 40%; 万科合并南都; 龙湖、金地;
 - 能够覆盖的达到 30%;前十之外;
- 杭州市场:今年杭州住宅市场在总销量占30%;商业占比20%;
- 商超:刚开始一个毛坯项目做 50万,现在做 2000万;
- B2C 已经开始做;在谈三个;
- 梯队
 - 去年7个;今年再培养10个;第三批销售助理培养10个;
 - 学习型公司,人员不会不够用;
- The pressure comes from the regulation of the real estate industry.
 - Many of the 123 projects are half-closed; At the end of June, it accounted for 30%.
 - Recruited marketing manager in June; Diversified market channels accumulation; Hotels, office buildings, supermarkets, government procurement;
 - A new round of projects was launched in June.Prepare for 15 years;
 - 100,000 square billet: if the medium term intervention, can only achieve 10 million; From scratch, 35 million to 50 million yuan, 80% of which need to sign contracts (doors, Windows, elevators), building books and pre-sales within 6 months after the project starts;
- Residential market hangzhou
 - Domestic second-tier cities: large stock of housing; Hardcover house sales are difficult, the rate of dehua low; Land supply is declining.
 - Residential real estate: more than 15,000 elevators;5 million square meters of doors and Windows;
 - ◆ Public construction materials 4000/ ping, e-commerce 3000/ ping;
 - Green city's procurement (plus the government) : more than 30 buildings, 163 billion, conservative estimates;5%;
 - Most of them are public works: blank houses;
 - There are 310 buildings in hangzhou in one year.
 - E-commerce covers more than 30;17 starts;

- Big houses are unwilling to cooperate. Riverside, etc.; Top 5 accounts for 40%. Vanke merged with nandu; Dragon lake, golden land;
- Up to 30% can be covered;Beyond the top ten;
- Hangzhou market: hangzhou residential market accounts for 30% of total sales this year. Business accounts for 20%;
- Shang chao: just started a blank project to do 500,000, now do 20 million;
- B2C has already started; Talking about three;
- echelon
 - Seven last year; Ten more will be trained this year. The third batch of sales assistant training 10;
 - Learning company, the staff will not be insufficient;
- 布局
 - 4个杭州,3个外地;
 - 地级市布点 OK, 明年开始布点县级市;
 - 宁波市场即将起来;市场需要1年放量,下沉县一级;
 - 15年底: 地级市销售饱和;
 - 14年底做县级市人员储备和布局;海宁、桐乡、嘉善;十来个;3-5年时间;
 - B2B: 浙北区 5 年做到 50 亿, 50 个项目经理;
- 县级市遇到的问题:人员不愿意去;本地化;
- 项目经理效率
 - 一年能够做 15-20 个毛坯项目; ——全生命周期!
 - ◆ 毛坯:集中爆发期4个节点; ——10万方;
 - 门窗签订合同; 10 天左右; 系统门窗 3000 万; 非系统 1500 万左右;
 - 电梯:投标、仪标、决标,6天时间;助理就可以;标准明确,三大件 (速度、xx、装饰装潢);1600万;
 - 进户门、防护门; 600-1000 万;
 - 基础照明、地材;做品质,300万;
 - ◆ 总包:都能做;配合费 3-5 个点;门窗厂打点关系,甲方付钱;
 - 精装项目效率更低; 派助理去搞; 做口碑;
 - ◆ 毛坯项目都有样板房; 服务必须要做;
 - ◆ 大批量:设计院做第一轮对接、深化、分拆;各事业部分开报价、做图纸 深化;5个工作日回馈(橱柜 20 天),25 天分拆好,报价;项目评审会(设 计院、项目方对接);项目方主导;厂商当地经销商做服务;
 - 电商负责供货进度;项目经理;
 - 精装环节全纬度1个月时间;
 - 理想状态: 5000/平精装标准: 四六开, 电商占到四;
 - 会员精装项目 1500-3500/平; 做起来能够做到六成, 实际做到两成(目前做到一成); 毛坯房能做到五成(目前做到两三成);
 - 甲方照顾利益:更多是政府审批部门;
 - ▶ 图纸深化环节需要更专业;
 - 目前1个项目经理做了7个项目,1.1个亿;2700万;

- 事业部调动跨度时间长;报价、供货、打款;
- 签订合同之后:备货、勘察(洁具);应该由事业部完善,现在都在项目经理做, 牛刀杀鸡;
- 事业部,服务好了,后面订单签约会很吃力;
- 如果做好服务能做 2.4 亿;
- layout
 - 4 Hangzhou, 3 other places;
 - Prefecture-level city layout OK, starting next year the layout of county-level cities;
 - Ningbo market is about to rise. The market needs a year of volume, sinking county level;
 - End of 2015: prefecture-level city sales saturation;
 - At the end of 2014, the county level city personnel reserve and layout; Haining, tongxiang, jiashan; A dozen; 3-5 years;
 - B2B: 5 billion and 50 project managers in north zhejiang in 5 years;
- Problems encountered by county-level cities: people are reluctant to go; Localization;
- Project manager efficiency
 - Able to do 15-20 blank projects in one year; Whole life cycle!
 - Blank: 4 nodes in the central explosion period;- 100000 square;
 - Contracts for doors and Windows; About 10 days; 30 million system doors and Windows; About 15 million non-system users;
 - Elevator: bid, bid award, 6 days; An assistant will do. Platform is clear, 3 big pieces (speed, xx, decoration);16 million;
 - Door of entry and guard;600-10 million;
 - Basic lighting and floor materials; Quality, 3 million;
 - Main package: all can be done; The cooperation fee is 3-5 points;Party a shall pay for the relationship between the door and window factory.
 - Hardcover projects are less efficient;Send an assistant; Do word of mouth;
 - There are model houses for the blank project. The service must be done;
 - Large quantities: the design institute made the first round of docking, deepening and splitting; Each business division separately offers quotation and makes drawings for deepening;5 working days feedback (cabinet 20 days), 25 talent removed, quotation;Project appraisal committee (contact between design institute and project party); Project leader; Manufacturer's local distributor service;
 - The e-commerce company is responsible for the supply schedule; Project manager;
 - Full latitude of the hardcover link for 1 month;
 - Ideal condition: 5000/ flat hardcover platform: four six, e-commerce accounts for four;
 - Membership hardcover project 1500-3500/ ping; We can achieve 60% when we do it and 20% when we actually do it (we can achieve 10% now). The rough house can reach 50% (at present, it can reach 20% or 30%);
 - Party a shall take care of the interests of the government.
 - Drawing deepening needs to be more professional;
 - Currently, one project manager has done 7 projects, 110 million projects.27 million;
 - The time span of the division's transfer is long; Quotation, supply and payment;

- After signing the contract: prepare goods, survey (sanitary ware); It should be improved by the business department. Now it is all done by the project manager.
- Business department, the service is good, it will be difficult to sign the order later.
- 240 million if you serve them well;
- 和事业部的配合
 - 电梯、地材、墙材: 做的比较好;
 - 空调: 做绿城系项目为主; 空调主要在做绿城项目, 安装精力都在空调;
 - 安装:
 - ◆ 通力电梯安装:当地安装公司,吃尾保;所以安装会拼命做好;顾虑小很多;
 - ◆ 空调没有尾保,1年质保期;一年不会出问题;
 - ◆ 服务质量自己做更高;经销商安装队有时候故意做坏了;
 - ◆ 绿城精装;
 - ◆ 安装品类都很痛苦,门窗第二年尾保会出现问题;故障率低于全行业 3%;◆ 监理:
 - 厂家指定/外协/自己做
- ▶ 品类不牵涉安装,好做一些;
- 全品类:报备问题;
- 暖通:量最大,矛盾最突出;
- 房地产:未来 3-5 年
 - 二线:郊区;
 - 地级市:新城区、旧城改造;
 - 县级市:公建、商超、学校;
- 服务能力完善: 15年上半年,第一轮;浙北区;
 - 自行安装

■ 空调;

- 部分电梯:东芝;
- 壁纸;
- 地板:部分自己,部分厂家;
- 进户门、防火门;一半外包单位、一半自己安装;
- 橱柜; 固定的外包单位;
- 弱电;
- 门窗、石材:第三方;

- Cooperate with the business department
 - Elevator, floor, wall: done better;
 - Air conditioning: mainly engaged in projects; Air conditioning mainly in the green city project, installation energy in the air conditioning;
 - Installation:
 - Kone elevator installation: local installation company, tail protection; So the installation will work hard; Less worry;
 - There is no end guarantee for air conditioning, one year warranty period; A year won't go wrong;
 - The quality of service is better. The dealer installation team sometimes deliberately breaks down;
 - ♦ Green city hardcover;
 - Installation category is very painful, door and window second year end warranty will appear problems; The failure rate is lower than 3% of the whole industry.
 - Supervision:
 - Manufacturer's designation/outsourcing/make it yourself
- The category does not involve installation, so it is better to do some.
- Whole category: reporting problems;
- Hvac: the largest amount, the most prominent contradiction;
- Real estate: the next 3-5 years
 - Second line: suburbs;
 - Prefecture-level city: new urban area and old city reconstruction;
 - County-level city: public construction, business, schools;
- Service capability improvement: the first round in the first half of 2015; The north area;
- Its installation
 - Air conditioning;
 - Some elevators: Toshiba;
 - Wallthesis;
 - Floor: part of themselves, part of the manufacturer;
 - Doors and fire doors; Half of the outsourcing units and half of their own installation;
 - Cabinet; Fixed outsourcing units;
 - Weak current;