Role of Chinese National Science Park in Supporting Returnee Entrepreneurs' Resource Acquisition

Senmao Xia

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Abstract

Resource acquisition is a significant activity for new ventures but, inevitably, brings significant costs. These costs are particularly large for returnee entrepreneurs (REs) as they lack local social networks. Although Chinese National Science Parks (NSPs) offer various services for REs to reduce those costs, they struggle to find the right mix of services for this specific client group.

The objective of this study is to empirically explore the approaches through which Chinese NSPs help REs to reduce the costs of their resource acquisition from resource holders (RHs). This study uses a multiple case study method and takes a transaction costs perspective (TCP). Data was collected from six NSPs in China, including 49 semi-structured interviews with REs and NSP staff members. The results reveal that four types of NSP services (mentoring & training, social events, promotion of REs, and accreditation of RHs), can reduce REs' resource acquisition costs. These services have both individual and joint effects on reducing REs' costs. Specifically, the 'accreditation of RHs' service directly helps REs reduce search costs. The combination of 'accreditation of RHs', 'promotion of REs' and 'social event' services enables REs and RHs to establish guanxi. Further, guanxi, working along with the 'mentoring & training' service, facilitates REs to reduce contracting costs. Finally, the combination of

the above four services indirectly helps REs reduce monitoring and enforcement costs through supporting the establishment of guanxi and legal contracts between REs and RHs.

This study makes significant academic contributions to the literature on RE, TCP and science park. Also, the findings are useful for governments and NSPs to develop the right mix of tailored services for REs. REs can refer to this study when they need to evaluate which NSP is more suitable to create their new ventures.

Key Words: Science Park, Returnee Entrepreneur, Resource Acquisition, China

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List of Abbreviations

Abbreviations	Term
REs	Returnee Entrepreneurs
RHs	Resource Holders
NSPs	National Science Parks
PWTC-NSPs	Prospective World-Top-Class National Science Parks
CEO	Chief Executive Officer
IPR	Intellectual Property Right
FDI	Foreign Direct Investment
TCP	Transaction Costs Perspective
OECD	Organization for Economic Cooperation and Development
TEA	Total Entrepreneurship Activity
MoST	Ministry of Science and Technology China
GDP	Gross Domestic Product
RMB	The Code of China's Currency
R&D	Research and Development
CPPCC	Chinese People's Political Consultative Conference
YC	Youth Committee
PC	People's Congress
SRE	Star of Returnee Entrepreneurs
MW	Model Workers
HTIP	High-Level Talents Introduction Programme
ISO	International Standard Organization
IEC	International Electrotechnical Commission
ITU	International Telecommunication Union
ETs	Entrepreneurship Tutors

Chapter 1 Introduction

1.1 Research background

1.1.1 The significance of returnee entrepreneurs (REs) to China

Entrepreneurship has long been considered as a key driver to employment, innovation and economic development, and gradually it has become a legitimate object of scholarly attention (Aldrich, 2012; Gartner, 1985, 1990; Radosevic & Yoruk, 2013; Short, Moss, & Lumpkin, 2009; Wong, Ho, & Autio, 2005). In the last several years, the importance of entrepreneurship has been emphasized and advocated strongly in China (Huang, 2008; Li, 2015; Phelps, 2013; Xi, 2016), and it is regarded as one of the two most significant wheels to drive China's economic development and upgrade (Li, 2015).

Among the group of entrepreneurs, REs receive more and more attention in multiple disciplines (Lin, Lu, Liu, & Zhang, 2016; Liu, Wright, Filatotchev, Dai, & Lu, 2010; Wadhwa, Jain, Saxenian, Gereffi, & Wang, 2011). REs are individuals who return to their home countries to run their business after working or studying in foreign countries for a substantial period of time (Li, Zhang, Li, Zhou, & Zhang, 2012; Liu, Wright, et al., 2010; Wright, Liu, & Filatotchev, 2012).

During the last three decades or so, over 4.04 million Chinese students studied in overseas countries and over 2.21 million of them

returned to China (Ministry of Education, 2016). According the same data source, the annual return rate of returnees against people staying overseas had increased from 1/3.15 in 2006 to 1/1.28 in 2015 (Ministry of Education, 2016). The year 2015 witnessed more than 400,000 Chinese people coming back after their study or work in overseas countries.

Increasingly, REs' role in improving cross-border knowledge transfer and upgrading China's industries has been recognized by businesses, governments and scholars (Liu, Lu, Filatotchev, Buck, & Wright, 2010; Liu, Wright, et al., 2010; Tung, 2008). For developing countries, such as China, the past 'brain drain' has gradually been replaced by 'brain circulation', thanks to the group of REs who act as vehicle to bring back advanced knowledge from developed countries and regions (Liu, Lu, et al., 2010).

International knowledge transfer from developed countries to China is important to the latter's development, but this type of activity faces two main obstacles. The first one is that knowledge has become not only harder to be separated from the knowledge holder or producer (Marvel & Lumpkin, 2007) but also harder to be acquired by learners (Kogut & Zander, 1992). This can be attributed to the fact that knowledge has become increasingly complex and tacit (Song, Almeida, & Wu, 2003). In this case, traditional knowledge transfer channels,

such as foreign direct investment (FDI) and trade, become less effective (Liu, Lu, et al., 2010).

The second obstacle facing international knowledge transfer comes from the concerns of developed countries about the threat of China's potential competition and issues related to intellectual property right (IPR) (Kroll & Schiller, 2010). As a result, governments or multinationals from some developed countries intentionally set a wide range of obstacles to the flow of high-tech technology to China (Guo, 2006; Yu & Chen, 2012).

Fortunately, the cross-border knowledge transfer via REs, as an emerging pattern of international flows (Lin et al., 2016), serves as an effective approach to overcome the above two types of obstacles. REs have gradually been viewed as an efficient and effective channel for transferring tacit and complex knowledge from OECD countries to China (Filatotchev, Liu, Lu, & Wright, 2011; Liu, Lu, et al., 2010).

Among the returnees, more and more people regard the creation of new ventures as a way to commercialize the advanced technologies, skills and expertise gained from developed countries (Li et al., 2012; Liu, Wright, et al., 2010). However, they face a wide range of obstacles and costs in the early stage of entrepreneurship.

1.1.2 Obstacles facing Chinese REs' resource acquisition

New ventures usually face a great number of difficulties (Van Geenhuizen & Soetanto, 2009), and it is especially true for REs' new firms. The survival and growth of new ventures require various resources (Aldrich & Martinez, 2001), and some of which are beyond REs' reach. Hence, networking with local resource holders (RHs) is critical for REs to acquire resources. Unfortunately, REs usually lack domestic networks and are unfamiliar with local business environment (Li et al., 2012; Lin, Lu, Liu, & Choi, 2014) after their working and studying in foreign countries for a long time. Further, the lack of legitimacy and reputation increases the difficulty of new ventures' resource acquisition (Schwartz and Hornych, 2008). Finally, it is also argued that the regulation environment in China is not conducive enough to entrepreneurs, compared with developed countries (World Bank, 2016).

In general, these obstacles inevitably bring significant costs to REs in their resource-acquisition activities for their new ventures. New ventures usually have extremely limited ability to overcome the above obstacles, which seriously threatens their survival. Therefore, REs need to seek external help to deal with the difficulties and to reduce costs in the resource acquisition.

1.1.3 The support of Chinese national science parks (NSPs) to REs

Science parks can provide valuable support to new ventures' survival and growth so as to drive local innovation and economic development (Bakouros et al., 2002; Chan and Lau, 2005). Chinese national science parks (NSPs) are favourable areas to new companies. The statistics indicated that in 2013 NSPs were home to over 50% Chinese high-tech firms, contributed to over 50% of Chinese invention patents and 11% of China's GDP (MoST, 2014).

Chinese NSPs are a key area in which returnees do business and the government has invested a large mount of funding into them, accompanied with a series of favourable policies (MoST, 2015). In 2013, the number of returnees working in NSPs increased to close to 100,000 (MoST, 2014). In recent years, the significance of REs to local innovation and employment has been widely recognized (Wang, Zweig, & Lin, 2011), and NSPs have gradually developed more and more services to support REs to overcome obstacles. Sometimes, NSP services become a selling point in the competition for outstanding REs. However, it is still unclear either what types of services really matter to REs' resource acquisition or the specific way by which Chinese NSP support REs to acquire resources.

1.2 Research motivations: gaps and challenges

1.2.1 The gaps in research on NSPs

There exist two major research gaps in the literature on science park, with the consideration of Chinese context and REs' requirements. First, the existing literature on science parks has not yet identified what types of services that significantly matter to REs' resource exchange with RHs for their new ventures. One key reason is the specific requirements of REs have not yet been taken consideration seriously. Specifically, Chinese REs share some similarities with local entrepreneurs on the one hand, but have distinct characteristics on the other hand. For instance, the new ventures of the two types of entrepreneurs lack legitimacy and reputation in market. However, REs lack both local social networks and understanding of the local environment, although they own relatively advanced knowledge acquired from overseas (Li et al., 2012). In addition, REs have long been exposed in both eastern and western societies, and as such two types of culture, such as guanxi and rule of law, simultaneously influence their behaviours. Therefore, the traditional science park services that are useful to local entrepreneurs might be less effective for REs. Thus, it is necessary to develop tailored science park services

for REs, especially at the stage of resource acquisition for the new ventures, when REs are in great need of help.

Second, extant research on science park has not yet clearly explained the specific mechanisms through which science park services support REs in Chinese context. Most scholars get used to analysing the individual influence of each service but few studies have considered the joint effect of multiple services. Further, most literature places the discussion on science park services in western society, but some of those findings might not be applicable to China where guanxi penetrates to every corner of society and NSPs have strong government characteristics. As a result, the above limited understanding of science park restricts academics' capability of reconciling the debate on science park's role. Currently, the existing literature holds mixed findings on the effect of science park services on firms. One stream of research argues that the effect is positive (e.g., Colombo and Delmastro, 2002; Löfsten and Lindelöf, 2002), while another stream contends that the effect is not significant or even negative (e.g., Bakouros et al., 2002; Tamásy, 2007). In China, NSPs are expected to play a positive role in helping REs' new ventures, but is that the case?

1.2.2 The gaps in research on REs

Most of the literature on REs gets used to basing their study in the later stage of RE firms and naturally discusses the role of REs on firms' performance, local industry development and knowledge spillover (e.g., Wang et al. 2015; Luo et al. 2013; Giannetti et al. 2015; Filatotchev et al. 2009). Very few studies, however, pay attention to the stage of resource acquisition. Actually, this stage not only is the precondition of entrepreneurs' exploitation of entrepreneurial opportunities (Wright et al., 2012), but also is critical to firms' future growth (Agarwal & Audretsch, 2001). The limited understanding of the resource acquisition stage constrains the explanatory power of the performance comparison between RE firms and their local counterparts' companies (e.g., Obukhova 2012; Lin et al. 2014; Li et al. 2012).

Further, the lack of research on RE new ventures' resource acquisition stage limits scholars' understanding of what obstacles and costs facing REs. Also, there are even fewer studies on the probable approaches to helping REs overcome those obstacles. In addition, although many scholars discuss science parks' role in supporting general entrepreneurs, very little literature discusses NSPs' influence on REs' resource acquisition, especially under Chinese context.

1.3 Research objective and questions

The objective of this study is to empirically explore the mechanisms through which Chinese NSP services reduce the resource acquisition costs for REs' new ventures. In particular, it answers four research questions.

- First, what are the costs facing REs when they are acquiring resources from RHs for the new ventures?
- Second, what types of NSP services do REs require to reduce the resource acquisition costs?
- Third, how do NSPs' services help REs reduce those costs?
- Fourth, why can some NSPs offer a strong support to REs while others cannot?

To answer the above questions, it is important to bear in mind that the individual or joint effect of multiple services might bring distinct effects to different types of costs. Meanwhile, NSP services might either directly help REs reduce costs or leverage the establishment of governance structures between REs and RHs to indirectly help decrease REs' costs.

1.4 Analytic approach

Transaction costs perspective (TCP) will be adopted as the main analysis perspective in this study, and it has been proved effective in discussing science parks' incubation (Theodorakopoulos, Kakabadse, & Mcgowan, 2014). TCP is part of 'New Institutional Economics' and is based on three behavioural assumptions characterizing transactors (Williamson, 1979, 1985): bounded rationality, opportunism, and risk neutrality. The three behavioural assumptions are applicable to the collaboration between REs and RHs.

In the resource exchange with RHs, REs face four typical transaction costs: search, contracting, monitoring and negotiation costs, respectively. These costs are influenced by transactional dimensions, such as asset specificity, uncertainty (environmental and behavioural uncertainty), and transaction frequency, which are proposed and widely agreed by the TCP literature. To decrease costs facing REs, NSPs play a key role in affecting the above transactional dimensions. The influence from NSPs can either directly help REs reduce a given type of cost, or indirectly facilitate REs to reduce costs by helping them establish appropriate governance structures in the collaboration with RHs.

This study mainly discusses a long-term collaboration between REs and RHs, and will not analyze either one-time transactions or acquisition and merger between the two parties. Therefore, based on the wisdom of TCP, the mediate governance structures between REs and RHs will be the focus of the current research. This type of governance structure is neither pure market nor pure hierarchy. The mediate governance structure can be further classified as formal (e.g., legal contracts) and informal (e.g., guanxi) ones.

Existing research holds two contrasting opinions on the relationship between the formal and informal governance structures. One stream of the literature argues these two types of governance structures are complementary (e.g., Klein 1996; Baker et al. 1993), while another stream contends they are substitutive (e.g., (Dyer & Singh, 1998; Ghoshal & Moran, 1996; Uzzi, 1997). However, the understanding of the above relationships is relatively limited in a condition where REs collaborate with RHs in Chinese context. This leads REs to be confused with which type of governance is more suitable for them to introduce when collaborating with RHs. Also, it brings difficulties to NSPs when deciding how to develop services to help REs build sustainable governance structures.

1.5 Expected contributions

This study will make significant contributions to both academic research and practice. In terms of the academic aspect, this study will contribute to clarifying what types of costs facing REs in their resource acquisition from RHs, which is ambiguous in the existing literature on REs. Also, this research is expected to make contributions to the clarification of science park services that really matter to REs' resource acquisition for their new ventures. Further, this study will add insights into the RE and science park literature by exploring the specific approaches and mechanisms by which science park services help reduce REs' costs. In addition, this study will make contributions to the dispute on science parks' role to entrepreneur firms by explaining why some NSPs can bring a strong support to REs while others cannot. Lastly, the findings on the governance structures REs use to manage the collaboration with RHs will add insights into the debate on governance structure research.

In terms of the practical contributions, the findings of this study will help the government and NSPs develop the appropriate combination of multiple services that really help REs acquire resources for their new ventures. In addition, this study will provide insights to enable REs and RHs to build appropriate governance mechanisms to manage the resource exchange. Lastly, REs can refer to this study to

figure out which NSP is more appropriate to create ventures by checking the deployment of NSP services.

1.6 The structure of thesis

Chapter two will review the literature on three main areas on which this study rests on: entrepreneurship, science park and transaction cost perspective. Through the literature review, this study will first summarize the main development and opinions in existing research and then figure out the limitations to which the current study will add insights. This chapter will end up with a research framework to guide the rest of the study.

Chapter three will present the methodology adopted by this study. The structure of this chapter will begin with research philosophy, approach, strategy, and then go through the case selection, data collection and analysis procedure, and finally end up with test methods used to increase this study quality.

Chapter four will conduct within-case analyses based on the research framework and methodology introduced in chapter two and three. The unit of analyses is the science park and six Chinese NSPs will be profiled respectively. Within each of the case, the services that are closely related to REs' resource acquisition from RHs will first be

characterized, and then NSPs' support to REs' governance structures establishment and related costs reduction will be analyzed.

Chapter five will conduct cross-case analyses on the basis of the findings of chapter four and the research framework presented in chapter two. Through the comparisons among the six cases, rival explanations will be examined. Several propositions will be concluded to clarify the specific ways through which NSP services, indirectly or directly, individually or collectively, support REs to reduce costs in their resource acquisition from RHs.

Chapter six will discuss the meanings to findings concluded in chapter four and five. The discussion will be presented through the repeatedly comparisons between the findings and the literature.

Chapter seven will present a conclusion. A summary of this study will first be made and then its theoretical and practical implications will be listed. Finally, the limitations of this study will be considered, followed by suggested future research directions.

Chapter 2 Literature and Theories

2.0 Introduction

As presented in chapter 1, returnee entrepreneurs and science parks have received wide attention but the understanding is limited concerning NSPs' role on REs' resource acquisition for their new ventures. This study rests on three main streams of the literature: entrepreneurship, science park, transaction cost perspective (Figure 1).

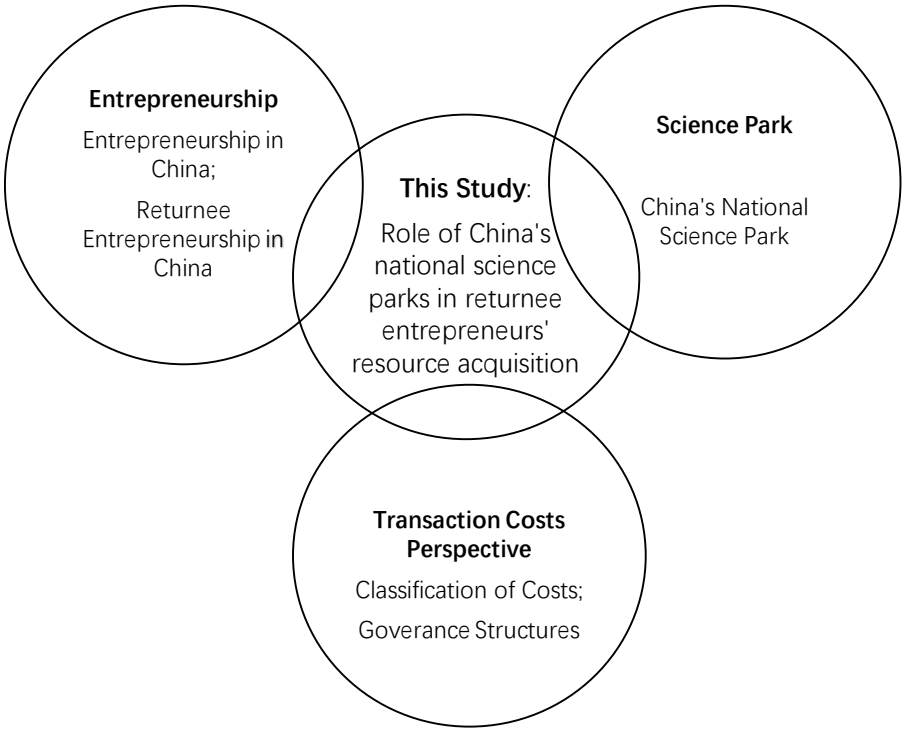


Figure 1 Theoretical Position of this Study
(Source: Generated by the Author)

The key role of entrepreneurship in employment, innovation and economic development has been widely recognized and it gradually becomes a legitimate scholarly subject attracting large numbers of researchers (Audretsch & Thurik, 2001; Gartner, 1985, 1990;

Radosevic & Yoruk, 2013; Van Stel & Storey, 2004; Zahra, Gedajlovic, Neubaum, & Shulman, 2009; Zahra & Wright, 2011). Further, entrepreneurship is considered as a significant driver to China's economic upgrade and growth and receives unprecedentedly much attention (Huang, 2008; Li, 2015; Phelps, 2013; Xi, 2016). However, entrepreneurship research in China is still at a very early stage and related understanding on China's entrepreneurship is extremely limited (Schweinberger, 2014).

As a representative international knowledge flow vehicle, REs are key in boosting China's innovation (Liu, Lu, et al., 2010; Tung, 2008). However, REs usually face significant costs when acquiring resources for their new ventures, since they have limited access to RHs and are unfamiliar with local business cultures after staying in foreign countries for a long time (Li et al., 2012; Lin et al., 2014). Further, the institutional environment, such as the regulatory system, is not conducive enough to REs' new ventures in China as well (World Bank, 2016). The present literature on returnee entrepreneurship ignores the resource acquisition stage of REs' new ventures and the understanding is limited concerning how to help REs overcome obstacles and decrease costs in their resource acquisition for their new businesses.

Science parks play a key role in supporting entrepreneurs' resource acquisition and a wide range of services are offered (Bakouros

et al., 2002; Chan and Lau, 2005). Nevertheless, the effects of those services on firms are mixed, with some academics contending that the effect is positive (e.g., Colombo and Delmastro, 2002; Löfsten and Lindelöf, 2002), while others arguing that the effect is not significant or even negative (e.g., Bakouros et al., 2002; Tamásy, 2007). Further, those studies, based on the context of developed countries, neither take account of the combination effect of several services, nor the specific request of REs who have many different characteristics with local entrepreneurs. This study will seek to add insights into the literature by exploring the specific mechanisms through which NSPs services help REs' resource acquisition for their new ventures in China's context.

To achieve this goal, transaction costs perspective (TCP), belonged to 'New Institutional Economics' (Williamson, 1979, 1985), is adopted as the main analysis tool, which is useful in discussing science parks' incubation (Theodorakopoulos et al., 2014). First, the behavioural assumption of TCP is applicable to REs and RHs. Second, TCP is helpful in classifying the types of costs facing REs. Further, to decrease the various costs, REs need to adopt appropriate governance structures, both formal (e.g., legal contracts) and informal (e.g., guanxi). The governance structure has, for a long time, been a key subject in the TCP literature. Therefore, TCP enables this study to better explore how NSPs help REs establish governance structures and, as a consequence,

reduce REs' costs. In a nutshell, chapter 2 justifies the theoretical and practical background of this study through reviewing three main streams of the literature.

- Section 2.1 examines the definition of entrepreneurship and several perspectives of doing research in this area, which clarifies the research perspective of this study. After that, this section will review studies of entrepreneurship in China and returnee entrepreneurship, and then presents relevant research gaps.
- Section 2.2 examines the characteristics of China's NSPs and their services related to REs' resource acquisition. Research gaps in the science park literature are listed.
- Section 2.3 introduces the definition of transaction cost perspective, and its behavioural assumptions, classification of costs, transactional dimensions and governance structures under the context of returnee entrepreneurs' resource exchange with RHs. As one of the governance structures, guanxi is less studied in the existing literature, compared with the other governance structure, legal contracts. Hence, the definition, importance and key elements of guanxi are presented.
- Section 2.4 presents the framework of this study by combining the wisdom of the literature on entrepreneurship, science park and

transaction cost perspective. The research framework will guide the analyses in the rest of this study.

- Section 2.5 presents a chapter summary

2.1 Entrepreneurship

2.1.1 Definition of entrepreneurship

Entrepreneurship has received significant attention in the last several decades (Audretsch & Thurik, 2001; Gartner, 1985, 1990; Radosevic & Yoruk, 2013; Short et al., 2009; Zahra et al., 2009), and this attention stretches across different disciplines, such as economics, sociology, finance, history, psychology and so on (Kirby, 2013). Considering the vital importance of entrepreneurship to world economy and human welfare (Hannafey, 2003), recent years witnessed that specialized curricula and training on entrepreneurship were widely established in universities across the world (Zahra, Newey, & Shaver, 2011). Research related to entrepreneurship frequently appears in top academic journals.

Initially proposed by Schumpeter (1934), entrepreneurship was once ignored by mainstream studies in a period of time. One of the key reasons was the difficulty of measuring it in a widely accepted approach (Van Stel, Carree, & Thurik, 2005). The factor of entrepreneurship was not easy to be captured into mathematical

equations, and as such it was not incorporated into neoclassical economics (Baumol, 1968). Naturally, the neoclassical economics constrained the characteristics of entrepreneurs in their decision making for economic activities (Kirzner, 2015). However, this is alien to the real world in which each entrepreneur is different with distinct backgrounds, knowledge, preferences and so on. Fortunately, the appearance of Global Entrepreneurship Monitor (GEM)[1] made a big change to the measurement of entrepreneurship, and it has been gradually adopted by much literature.

Also, the importance of entrepreneurship in economy and society has been once again recognized (Drucker, 2014; Kelley, Donna; Singer, Slavica; Herrington, 2016; Krueger & Deborah Brazeal, 1994; Shane & Venkataraman, 2000). The 1980s and 1990s saw an explosion of new interest in entrepreneurship and entrepreneurs (Hannafey, 2003; Wennekers & Thurik, 1999), and the attention to it constantly increases nowadays.

Entrepreneurship is what entrepreneurs do when they are being entrepreneurial. (Dacin, Dacin, & Matear, 2010; Peredo & McLean, 2006). Hence, this study shares Peredo and McLean (2006)'s opinion

[1] GEM is the world's foremost study of entrepreneurship and it is able to provide high quality information, comprehensive reports and interesting stories, which greatly enhance the understanding of the entrepreneurial phenomenon (GEM, 2016)

and considers that the definition of either entrepreneurship or entrepreneurs actually defines the other by implication.

Entrepreneurs are individuals who create new businesses or help existing organizations grow and become more profitable, through providing creative, innovative ideas (Kuratko, 2016). The definition of entrepreneurship should consider two phenomena simultaneously: the presence of opportunity and the presence of entrepreneurs (Venkataraman, 1997), since the quality of opportunity is perceived differently by enterprising individuals (Shane & Venkataraman, 2000). This study agrees with Baron and Shane (2007) and Shane and Venkataraman (2000), and considers that the field of entrepreneurship mainly explores three types of questions: who are entrepreneurs? How do they discover and exploit opportunities to create new things? What are the outcomes? This study belongs to the second research question and focuses on the period when entrepreneurs just begin to exploit opportunities through acquiring resources for their new enterprises.

In terms of the causal relationship between enterprise and entrepreneurship, there is no academic consensus. Some view enterprise as the outcome of entrepreneurship (Hindle & Rushworth, 2000), while for some others, enterprises are a tool used in entrepreneurship to create new products and services (King, 2006), and as such enterprise is the the precondition of entrepreneurship (Chitty,

2009; Kobia & Sikalieh, 2010). Meanwhile, some literature finds that enterprise and entrepreneurship are intertwined (Hébert & Link, 1989; Kobia & Sikalieh, 2010). In this study's research context, the enterprise establishment is one outcome of entrepreneurship and there is a constant interaction between the new ventures and entrepreneurs' future activities.

In the process of pursuing opportunities and creating value, entrepreneurs must provide innovative resolutions to meet market needs to create value (Coulter, 2001). The general classification of innovation dates back to 1934 when Schumpeter originally depicted two types of innovation, called Schumpeter Mark I and II regime, respectively. Schumpeter Mark I regime refers to the creative destruction where the innovative entrepreneurs and small firms introduce new products, services and processes to make incumbent ones obsolete (Schumpeter, 1934). Schumpeter Mark II regime refers to the creative accumulation in which large firms utilize a strong feedback loop, consisting of innovation and R&D, to outperform small firms in creating and appropriating innovation (Schumpeter, 1934). The adoption of the two regimes is based on many factors, such as the degree of knowledge stock, scale economies, opportunity appropriability, institutional environment and so forth. The innovation

carried out by entrepreneurs in this study is more close to Schumpeter Mark I regime.

2.1.2 Three main fields in entrepreneurship research

Although, there is no scholarly consensus on what exactly entrepreneurs will do after they become entrepreneurial (Peredo & McLean, 2006; Venkataraman, 1997), many scholars, referring to Gartner's (1985) seminal conceptual framework, argue that entrepreneurship includes several processes (e.g, Khefacha et al., 2014; Kobia and Sikalieh, 2013; Krueger and Deborah Brazeal, 1994). First, entrepreneurs identify existed opportunities or create new ones, and then develop a business idea. Second, entrepreneurs acquire resources to build up and run organizations. Third, entrepreneurs grow the organizations and create and protect profits. This study mainly focuses on the second stage where entrepreneurs have identified opportunities and just run new businesses to exploit them, and this process is accompanied by constant resource exchange with outsiders.

Coinciding with the entrepreneurship procedures, there exists three main areas in the entrepreneurship literature, followed by three typical questions: what shapes entrepreneurs? What activities conducted by entrepreneurs? What are the impacts of entrepreneurship? (Table 1). In the following, this study will review relevant literature

concerning the three research questions, and will explain why the current research belongs to the area of exploring what activities entrepreneur conduct in section 2.1.2.2.

Table 1 Main Research Questions in Entrepreneurship Research

(Source: Generated by the Author)

Key research questions on entrepreneurship/entrepreneurs	**References**
What shapes entrepreneurs?	Stewart et al., 2003; Collins, 2002; Stewart et al., 1999; Kobia and Sikalieh, 2010; Chen et al., 1998; Stewart and Roth, 2001; Van Praag and Cramer, 2001; Gibb, 2001; Kolvered, 1996; Baumol, 1990; Krueger and Brazeal, 1994; Amit and Muller, 1995; Schumpeter,1976; Shane, 2007; Pruthi, 2014; Brockhaus & Nord, 1979; Susbauer, 1972; Welpe et al., 2012
What activities do entrepreneurs conduct?	Eckhardt and Shane, 2003; Venkataraman, 1997; Pruthi, 2014; Shane, 2007; Bjerke, 2007
What are the impacts of entrepreneurship?	Acs and Armington, 2004; Carree, 2002; Audretsch and Thurik, 2001; Birch, 1979; Mueller, 2004; Van Stel and Storey, 2004; Acs and Varga, 2005; Wong, Ho, and Autio, 2005; Van Stel, Carree, and Thurik, 2005; Valliere and Peterson, 2009; Hessels and Van Stel, 2011.

2.1.2.1 Factors shaping entrepreneurs

To explore the question upon what shapes entrepreneurs, much literature further specifies on several sub-questions. For instance, what personalities push potential entrepreneurs to become entrepreneurial? What is the impact of family background and social factors? What is the role of individuals' capabilities? All of these questions together are

helpful in seeking why only some individuals become entrepreneurs but others do not.

In terms of entrepreneurs' personality, many academics adopt three main aspects: the need for achievement, self-efficacy and risk-bearing orientation. First, the need for achievement, or self-realization, is a widely researched construct and it drives individuals to seek entrepreneurial positions (Stewart Jr., Carland, Carland, Watson, & Sweo, 2003), which differentiates entrepreneurs from other people (Collins, 2002; Stewart, Watson, Carland, & Carland, 1999). Second, individuals with a higher self-efficacy tend to see more opportunities rather than risks, and they are more inclined to believe in their ability of overcoming difficulties and accomplishing expected outcomes (Chen, Greene, & Crick, 1998; Kobia & Sikalieh, 2010). Hence, high self-efficacy people tend to be more involved in entrepreneurial activities than others. Third, creating and running a new business usually means individuals must leave their current relatively secure occupations and invest their own money and efforts into an uncertain environment. In this case, those people must bear a higher risk than other people (Stewart, Wayne H. & Roth, 2001; Van Praag & Cramer, 2001). As a result, a higher risk-bearing orientation is a key personality for entrepreneurs. It is necessary to point out that studies have proved that entrepreneurs are actually moderate risk-takers

(Sexton & Bowman, 1985), although they prefer to bear more perceived risks than other individuals. Hence, the assumption on risk neutrality, widely adopted by the TCP literature, is still applicable to entrepreneurs, which will be discussed in more detail in section 2.3.

Family background is a key factor influencing individuals' personality and entrepreneurial behaviours. For instance, individuals from a relatively difficult circumstances, such as migrants, minorities or refugees, might tend to do entrepreneurial activities (Gibb, 2001; Kolvereid, 1996). Also, if one individual's parents are entrepreneurs or he or she got access to business at an early age, then this individual has a high probability of creating or running businesses (Baumol, 1996). Outside of family, the external social factors might impact individuals' entrepreneurial decisions as well. For instance, Krueger and Deborah Brazeal (1994) contend both the perceived desirability (social norms and attitudes) and feasibility (self-efficacy) affect people's decision of creating ventures.

In addition to personality, family background and social factors, individuals' ability in identifying opportunities also differentiate them from other people. Amit and Muller (1995) find the venture creation is the result of a desire to take advantage of an opportunity. Market inefficiencies lead to opportunities (Schumpeter, 2013), but not every individual has access to the information or can process it in an

appropriate way. Hence, to exploit these inefficiencies, the ability of recognizing and evaluating business opportunities (Baron & Shane, 2007), and the capability of refining business ideas according to the selected opportunity (Pruthi, 2014) are required. Education (Brockhaus & Nord, 1979) and previous work experience (Susbauer, 1972) have long been regarded as important antecedents for capability building of entrepreneurs. Also, the interplay of opportunity characteristics and personality influence the evaluation of potential entrepreneurs for their entrepreneurial activities (Welpe, Spörrle, Grichnik, Michl, & Audretsch, 2012).

To sum up, individuals tend to be entrepreneurs when they find their utility, such as wealth and reputation, will be maximized (Baumol, 1996), and the utility calculation is influenced by many factors. More and more literature finds that there is no single factor that can independently shape entrepreneurs. Rather, it is the joint effect of various factors, such as achievement motivation, self-efficacy, risk preferences, family background, personal skills etc., that influences individuals' ability of opportunity identification and their decisions on whether doing entrepreneurship (e.g., Khefacha et al., 2014; Wagner and Ziltener, 2008).

2.1.2.2 Activities of entrepreneurs and the surrounding context

The exploration on what shapes entrepreneurs is not the entire picture of entrepreneurship research, and some scholars study the activities conducted by entrepreneurs in the process of the exploiting opportunities (Eckhardt & Shane, 2003). In other words, it answers the question of how some individuals exploit opportunities by creating and running ventures (Venkataraman, 1997).

After recognizing opportunities and refining business ideas (Pruthi, 2014), entrepreneurs will begin to recruit employees, purchase or rent equipment, establish and optimize production or service procedures, and all of which requires entrepreneurs to be creatively combining various resources (Shane, 2003).

This study focuses the period when individuals have identified opportunities and begin to exploit them through entrepreneurial activities. Rather than paying attention to each specific activity conducted by entrepreneurs, this study abstracts the process of creating and running new ventures into the constant resource exchanges between entrepreneurs and resource holders. This is reasonable not only because resources are the source of firms' sustainable competitive advantage (Barney, 1991), but also new ventures usually seriously lack resources (Baum, Calabrese, & Silverman, 2000; Schwartz & Hornych, 2008).

Nevertheless, it should be noticed that the set-up and operation of enterprises are context-events, and as such they are influenced by social, cultural and legal systems (Bjerke, 2007). Williamson (1985, 1979) systematically explains why firms exist and argues that the enterprise acts as a mechanism to substitute markets when the transaction costs exceed a given threshold. Ventures are usually influenced by five context powers, including bargaining power of suppliers, bargaining power of buyers, threat of substitutive products and services, threat of new entrants and rivalry amongst incumbent competitors (Porter, 2008). More specifically, Bruno and Tyebjee (1982) summarized many environmental forces influencing entrepreneurship, including venture capital availability, technically skilled labor market, accessibility of suppliers, accessibility of buyers, proximity to universities, availability of land and facilities, accessibility of transportation, government impact and so forth.

2.1.2.3 Impact of entrepreneurship

Although entrepreneurship is widely seen as a key driver promoting economic growth, there exist wide disagreements concerning its precise relationship with such growth. As early as in 1934, Schumpeter argued entrepreneurship was an important driver to economic growth, which was manifested in the form of increasing employment and productivity. Afterwards, Birch (2000) confirms that

as much as two thirds of new job creation in the United States was attributed to new and small ventures during the period of 1969 and 1976. With the entrepreneurship coming into mainstream research, many more empirical studies join the exploration of entrepreneurship's impact on the economy. Some scholars find that entrepreneurship plays a positive role in the economic development and job creation in both United States (e.g., Acs and Armington, 2004; Carree, 2002) and Organization for Economic Cooperation and Development (OECD) countries (e.g., Audretsch and Thurik, 2001).

Nevertheless, some academics contend that entrepreneurship's role varies in contingent contexts. For instance, Fritsch and Mueller (2004) find that in the early stage new ventures in Germany can bring a positive influence to the economy while this influence becomes negative in a latter phase. Similarly, Van Stel and Storey (2004) got data in the UK and conclude the impact of entrepreneurship on economy is changeable considering different regions and time points.

Gradually, the impact of different types of entrepreneurship draws scholars' attention. For example, Acs and Varga (2005) and Wong et al. (2005) agree that only high potential entrepreneurship, out of necessity entrepreneurship, opportunity entrepreneurship, and total entrepreneurial activity, is significantly associated with economic growth. Furthermore, the development stage of different countries is

taken into consideration. Van Stel et al. (2005) take total entrepreneurship activity (TEA) [2] as the main index and find entrepreneurship has a negative impact on poor countries but a positive impact on developed countries. Valliere and Peterson (2009) find that the high expectation entrepreneurship is significant to economic development in developed countries rather than emerging ones. Export-oriented early stage entrepreneurship can significantly and positively affect economy in developed countries (Hessels & Van Stel, 2011).

2.1.3 Four perspectives in entrepreneurship research

Table 2 Four Perspectives on Entrepreneurship/Entrepreneurs
(Source: summarize by the author)

Perspective 1	Perspective 2	Perspective 3	Perspective 4
Conventional Entrepreneurship **Institutional** Entrepreneurship	**Initiative** Entrepreneurship	**Opportunity** Entrepreneurship	**Technology** Entrepreneurship
Cultural Entrepreneurship **Social** Entrepreneurship	**Imitating** Entrepreneurship	**Necessity** Entrepreneurship	**Non-Technology** Entrepreneurship

[2] Total Entrepreneurial Activity (TEA) is an index of measuring the percentage of adult population (between the age of 18 and 64), who are either nascent entrepreneurs or owners of young firms (less than 42 months) in a country or region (Reynolds, Bygrave, Autio, Cox, & Hay, 2002; Van Stel et al., 2005).

This study will first distinguish four main perspectives adopted by the extant literature on entrepreneurship (Table 2), and then use them to characterize the types of entrepreneurship this study focuses on.

2.1.3.1 Social, institutional, cultural and conventional entrepreneurship

When it comes to the first perspective, this study refers to the work of Dacin et al (2010) and classifies four types of entrepreneurship/entrepreneurs, such as conventional, institutional, cultural and social.

First, Schumpeter (1934) defines the individuals who introduce new products, processes or services to markets as entrepreneurs. This study considers this type of persons as conventional entrepreneurs, which is similar to the definition of Dacin et al (2010). The majority of the conventional entrepreneurship literature shares the assumption that the firms' ultimate goal is to add economic value and entrepreneurs are market-driven. The achievement of the above goal depends on its capability of accessing, mobilizing and utilizing a variety of resources, such as human, financial capitals (Greene & Brown, 1997; Mosakowski, 1998). The success of above activities usually depends on the development of social network, which is a type of resource as well (Greve & Salaff, 2003).

Second, there are no unified definitions concerning social entrepreneurship (Short et al., 2009) and as a result, most literature in this area is still in the stage of establishing and unifying concepts rather than doing empirical research (Short et al., 2009). The mostly used definition of social entrepreneurship emphasizes its goal is to deal with social issues and add social values through mobilizing resources (Peredo & McLean, 2006; Zahra et al., 2009). In terms of the way of using resources, conventional and social entrepreneurs share many similarities (Meyskens, Robb-Post, Stamp, Carsrud, & Reynolds, 2010). To realize the goal, social entrepreneurs are not limited to nonprofit activities. Some for-profit actions are acceptable for social entrepreneurs, as well (Dacin et al., 2010), which is similar to their conventional counterparts.

Third, the goal of institutional entrepreneur is to change or destroy an incumbent institution and promote economic, social or political reforms (Hargadon & Douglas, 2001; Maguire, Hardy, & Lawrence, 2004). Institutional entrepreneurs might be based in for-profit or nonprofit industries (Dacin et al., 2010), and their success depends on creative leveraging resources through social skills (Fligstein, 1997), such as negotiation, networking and so on (Battilana, Leca, & Boxenbaum, 2009; Levy & Scully, 2007).

Fourth, there are two typical definitions on cultural entrepreneurship. According to Lounsbury and Glynn (2001), cultural entrepreneurship refers to a storytelling process by which entrepreneurs take advantage of the stock cultural resources to create wealth. Differently, DiMaggio (1982) contends cultural entrepreneurship is the process by which entrepreneurs first identify cultural-related opportunities and then create something with cultural value. This study adopts DiMaggio (1982)'s definition on cultural entrepreneurship and agrees the term of 'culture' is not limited to cultural industries, but includes the norms that influence people's behaviour in society. Similar to other types of entrepreneurs, successful cultural entrepreneurs should have skills to alter opportunities by combining resources creatively (Peterson & Berger, 1971) and leveraging social networks (Johnson, 2007; Lounsbury & Glynn, 2001). In addition, both for-profit and nonprofit activities are options for cultural entrepreneurs to realize goals (Dacin et al., 2010).

2.1.3.2 Technology and non-technology entrepreneurship

The mission of technology entrepreneurship is transforming promising technologies into value (Petti & Zhang, 2011). To realize this goal, entrepreneurs should first identify technology-intensive and high commercial potential opportunities, and then mobilize and manage resources to exploit them (Antoncic & Prodan, 2008).

Compared with non-technology entrepreneurship, technology entrepreneurship places a major emphasis on exploiting new technologies and knowledge, supported by specialized individuals and assets (Bailetti, 2012; Doganova & Eyquem-Renault, 2009). Its knowledge-intensive character usually makes technology entrepreneurship harder to understand for investors and partners (Doganova & Eyquem-Renault, 2009). Also, entrepreneurs conducting technology entrepreneurship usually have a higher pay off, but face higher risks.

2.1.3.3 Necessity- and opportunity-driven entrepreneurship

Opportunity-driven entrepreneurship focuses on individuals who create new ventures or do innovative developments in existing organizations to pursue an opportunity (Kobia & Sikalieh, 2010). To identify and exploit opportunities, which exist in the form of business ideas, potential entrepreneurs should not only have enough experience and the ability to understand the business environment (Bygrave, 1997), but also own enough networks to leverage resources (Kobia & Sikalieh, 2010).

Necessity-driven entrepreneurship refers to individuals who lack employment opportunities or stay in a well displacement circumstance, and as such have to engage in entrepreneurial activities to make a

living (Kobia & Sikalieh, 2010; Low, 2001). Compared with opportunity-driven entrepreneurship, the necessity-driven one means individuals have to do entrepreneurship-related activities and have no other better choices.

2.1.3.4 Initiating and imitative entrepreneurship

The role of initiating entrepreneurship is to respond to the unprecedented economic and social environment, and it is usually manifested as the creation of new products, processes and services which were not known or available before (Baumol, 1986). Differently, the mission of imitative entrepreneurship is to promote the innovation transfer and diffusion after it was firstly created in advanced countries or regions, and as such this type of entrepreneurship is important to emerging and developing countries (Baumol, 1986). Between initiating and imitative entrepreneurship, the former is relatively rare while the latter is more common. To some extent, imitative and initiating entrepreneurship is corresponding to Powell (1990)'s low and high order entrepreneurship, respectively.

2.1.3.5 The entrepreneurship perspective adopted by this study

This study situates in a cross area amongst conventional, technology, imitative and opportunity-driven entrepreneurship. First, REs in this study belong to conventional entrepreneurs as their main

goal is to create and capture value through exploiting technology-intensive commercial opportunities. Second, REs are classified as technology and imitative entrepreneurs as they bring back advanced technology from developed countries (Liu, Lu, et al., 2010) for commercialization in China, which is important for international technology transfer (Song et al., 2003). The interviewed REs fed back they usually made some adjustments to the original technologies from OECD countries to cater to the Chinese market, but did not change the core part. Last, the creation and running of ventures are tools used by REs to exploit recognized opportunities and achieve self-realization, and as such they belong to opportunity-driven entrepreneurs (Figure 2).

Figure 2 The Entrepreneurship Perspective of This Study
(Source: Generated by the Author)

The extant literature on conventional entrepreneurship explores the relationship between the success and entrepreneurs' capability in utilizing resources. Nevertheless, most of the research focuses on the internal resources of firms (Dacin et al., 2010), which, to some extent, is accordant with the view of Barney (1991) who contends the valuable

resources are usually firm specific. Considering the fact that new ventures usually lack internal resources, and the discussion on external resources is, in many cases, ignored by the conventional entrepreneurship literature (Dacin et al., 2010), this study will focus on the external resource acquisition of REs, and hopes to add insights into this regard.

2.1.4 Entrepreneurship in China

Traditionally, North American and European are two main contexts in which the entrepreneurship literature bases (Aldrich, 2012; Davidsson, 2013; Down, 2013). Gradually, China becomes a valuable research site and attracts more and more attention (Ahlstrom & Ding, 2014), because of its increased importance in the world and the increased importance of entrepreneurship to China (Schweinberger, 2014). The research in Chinese context will greatly increase the completeness of the entrepreneurship studies with a global view (Schweinberger, 2014), as China has a different cultural, institutional and historical environment from European and North American regions.

The role of entrepreneurship in China was relatively depreciated between the year of 1949, when Peoples' Republic of China was initially set up, and 1978, when the reform and opening-up was just

introduced. During that period of time, China was a centrally planned economy and private enterprises and entrepreneurship was strongly suppressed (Schweinberger, 2014). In the ideology campaign, entrepreneurship was considered as 'the tail of capitalism' and as such should be cut out. Unsurprisingly, entrepreneurship research was not appreciated in that time (Zapalska & Edwards, 2001). However, since the year of 1978, which is regarded as a starting point of China's modern entrepreneurship (Zapalska & Edwards, 2001), China's government has moved to actively encourage and support entrepreneurship, which gradually became an important driving force of national economic growth (Gibb & Li, 2003).

Especially after the new generation of China's leaders came into power in late 2012, entrepreneurship receives unprecedentedly attention and is regarded as an extremely important tool to upgrade China's economy and sustain a medium-high economic growth. Since the concept of "Mass innovation and entrepreneurship (Da Zhong Chuang Xin, Wan Zhong Chuang Ye)" was firstly issued by China's premier Keqiang Li in September, 2014 at Summer Davos Opening Ceremony, entrepreneurship had been officially recognized as one of two engines to drive China's economy (Li, 2014). Further, Chinese president Jinping Xi has repeatedly emphasized the extreme importance of entrepreneurship and innovation for China (Xi, 2016).

Many government departments, including Ministry of Science and Technology, Ministry of Education, Committee of Development and Reform and Ministry of Industrial and Information Technology, have jointly and independently issued a wide range of policies to advocate and support entrepreneurship. The "fanaticism" of entrepreneurship has swept across China. According to the statistics of State Administration of Commerce and Industry China (2015), the number of newly registered firms in 2014 saw a year-on-year upsurge of 45.88 %.

With the deepening of reform and opening-up, the state control over Chinese economy has gradually weakened, which creates an environment favorable for the emergence of entrepreneurs (Bruton, Ahlstrom, & Li, 2010). Non-public sectors of the economy contribute over 60 percent of gross domestic product (GDP), 50 percent of tax and 80 percent of employment in 2015 (Xinhua News Agency, 2016). Entrepreneurship has become extremely significant to Chinese economic growth, social development and job creation (Huang, 2008; Phelps, 2013). Accordingly, many initiatives were taken to study Chinese entrepreneurship from around 1990s (Li & Matlay, 2006). However, entrepreneurship research in China is still at a very early stage and most of the studies are exploratory (Schweinberger, 2014).

2.1.5 Returnee entrepreneurship in China

2.1.5.1 Background of Chinese returnee entrepreneurship

Returnees are a representative of international mobility of people. As early as 1854, the first Chinese oversea student, Ronghong, returned to China after graduating from Yale University and led the "Westernization Movement". Since the 'reform and opening-up' from 1978, China has seen a rapid increase of overseas students and returnees. According to 'Blue Book on Chinese Returnees 2015', issued in 2016 by Ministry of Education, China is the largest origin of international students in the world, and there were more than 523,000 Chinese students overseas in 2015, with an increase of 13.9% from 2014. Between 1978 and 2015, over 4.04 million Chinese students studied in overseas countries and over 2.21 million returned to China. The annual number of returnees increased from 248 in 1978 to around 409,100 in 2015 (Figure 3). The annual rate of returnees to staying abroad increased from 1/3.15 in 2006 to 1/1.28 in 2015.

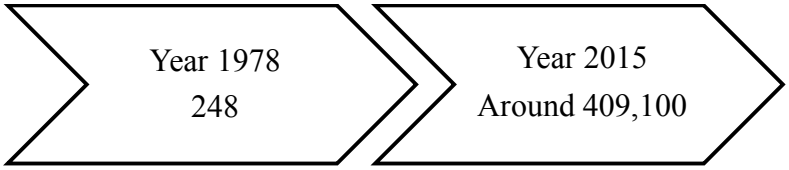


Figure 3 The Number of Returnees
(Source: Adapted from Ministry of Education, 2016)

Additionally, the ministry of Education's blue book reveals that, among the returnees who returned to China in 2015, 80.70% of them

got Master degrees and 9.49% owned Doctorates. The US topped the ranking of the most popular destination countries for Chinese returnees who got PhD. degrees with 28.95% of PhD returnees coming back from there (Figure 4). Japan, the UK, France, Germany and Australia ranked from second to sixth, respectively, with the percentages of returnees ranging from 12.90% to 3.60%. The main majors of PhD returnees included Chemistry, Materials, Economics, Electronic and Electrical Engineering, Mechanical Engineering and Computer Science.

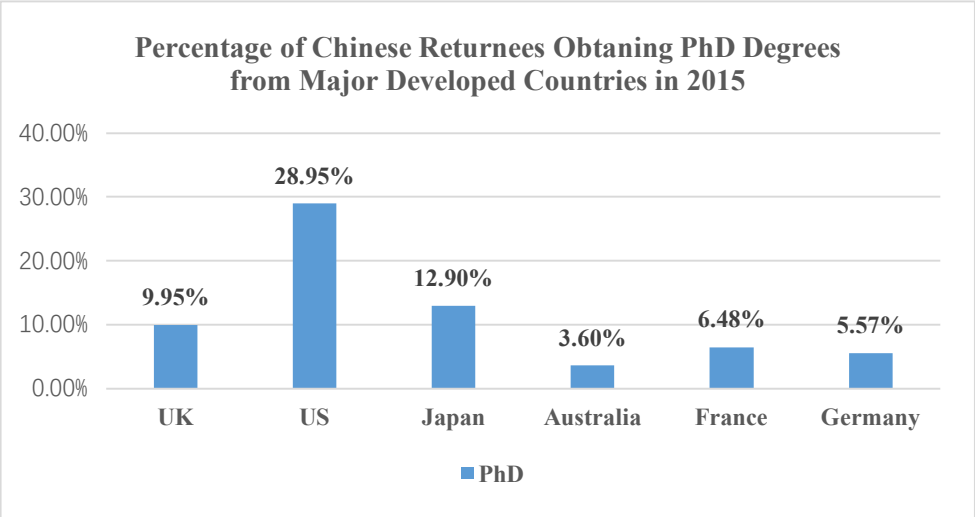


Figure 4 Percentage of Chinese Returnees Obtaining PhD degrees from Different Countries in 2015
(Source: Adapted from Ministry of Education, 2016)

The UK was the most popular destination country for Chinese overseas students to get master degrees in 2015 (Figure 5). In this year, as high as 42.52% of returnees who got Master degrees came back from the UK. The next most popular countries for Chinese returnees to

obtain Master degrees were the US, Australia, France, Japan and Germany, respectively, with the percentage of returnees ranging from 18.83% to 2.40%. The main majors pursued by master returnees included Finance, Accounting, Business Management and International Trade and so forth.

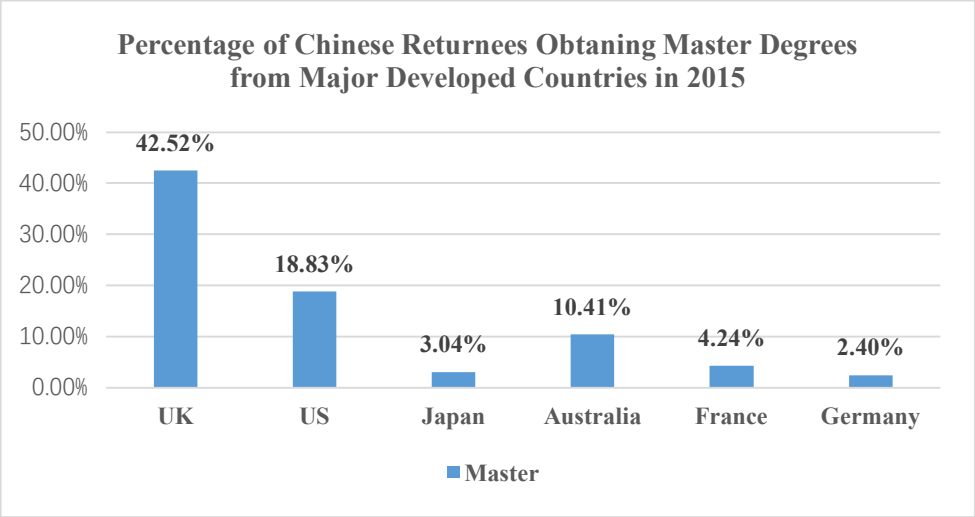


Figure 5 Percentage of Chinese Returnees Obtaining Master Degrees from Different Countries in 2015
(Source: Adapted from Ministry of Education, 2016)

Based on 'Report on Chinese Returnees Entrepreneurship and Employment 2015', issued by Centre for China and Globalization, more and more returnees tended to run their own businesses to make a full advantage of the favorable policy environment and industry opportunities in China. Actually, returnee entrepreneurship is regarded as a new pattern of cross-border knowledge transfer and international innovation cooperation (Lin et al., 2016; Liu, Lu, et al., 2010).

2.1.5.2 Importance of returnee entrepreneurship

Improving the cooperation between foreign and domestic innovation is a key national strategy and has long been emphasized by China's government. Newest moves can easily be found in many official documents and statements, such as, "China Made 2025", which was issued by State Council China in 2015 and is similar to "German's Industry 4.0", "Renewal of the agreement for scientific and technological cooperation between EU and China", and "China-US Innovation Annual Dialogue" and so forth.

However, two main impediments stand in the way of cross-boarder innovation collaboration between China and advanced countries. The first obstacle comes from the fact that knowledge has become more complex, and as such it is not only more difficult to separate knowledge from those who produces or holds it (Marvel & Lumpkin, 2007), but also harder to acquire by the technology recipient (Kogut & Zander, 1992). This difficulty is even more apparent when it comes to the tacit knowledge transfer, for which learning-by-doing and experience is a key pattern (Song et al., 2003). In this case, traditional channels of international knowledge transfer, such as FDI and trade which do not emphasize the mobility of labor (Liu, Lu, et al., 2010; Liu, Wright, et al., 2010), become less effective.

The second obstacle is generated by the concerns of developed countries about both the potential competition and intellectual property

right (IPR) issues from China. In particular, it is increasingly believed that Chinese firms are now rapidly catching up with their counterparts in western countries (Kroll & Schiller, 2010; Liu, Lu, & Choi, 2014), and that China's comprehensive national innovation strength is increasing steadily (Butler, 2008; Van Noorden, 2016). Accordingly, some OECD countries, which delivered a wide variety of advanced technology to China in the past, are increasingly concerned that China might undermine their technology competitiveness and economic position (Nepelski & De Prato, 2015). As a result, some OECD countries restrict the flow of high-tech technology to China, or even carry out technology blockades (Guo, 2006; Yu & Chen, 2012). Besides, multinationals become unwilling to share information with or even prevent knowledge from leaking to Chinese counterparts to maintain their competitive advantages (Smarzynska Javorcik, 2004) and avoid problems with IPRs (Kroll & Schiller, 2010).

Nevertheless, the cross-border mobility of people, such as returnees, serves as an effective approach to overcome the above two types of obstacles and benefit both a one-time technology transfer and long-term competence-building (Kim, 1997). More and more scholars have identified the importance of the returnees for international knowledge transfer and innovation cooperation (Almeida & Phene, 2004; Lin et al., 2016). Returnees first acquire advanced knowledge by

themselves in overseas and then apply and commercialize it in China. This approach can successfully avoid the first type obstacle. In addition, it is hard for those OECD countries to inhibit the mobility of people and the knowledge transfer brought about by them, which overcomes the second type obstacle.

Therefore, to realize an efficient and effective international transfer of tacit and complex technology, human mobility is a preferred channel (Liu, Wright, et al., 2010). The back-flow of returnees to China is in accordance with the concept of brain circulation, argued by Tung (2008).

2.1.5.3 Literature summary on returnee entrepreneurship

Recently, returnee entrepreneurs (REs) have gained increasingly much attention from scholars in multiple disciplines (Harvey, 2009; McCormick & Wahba, 2001; Saxenian, 2006). REs are usually well-educated individuals and bring back advanced technologies, know-how and business ideas from developed countries to China through creating new ventures (Filatotchev et al., 2009; Li et al., 2012; Liu et al., 2014; Wright, Liu, Buck, & Filatotchev, 2008). The importance of REs has been repeatedly stressed by Chinese President Xi Jinping in several occasions (Xi, 2016). The spillover and dissemination of foreign knowledge and its incorporation with Chinese

domestic technologies collectively bring significant benefits to China's innovation development (Liu, Wright, et al., 2010).

To identify the research gaps in the existing literature on REs, this study first reviews related papers by four aspects: REs' entrepreneurship stages, research methods, research topics and relevant findings. Before moving ahead, it is necessary to explain the REs' entrepreneurship stages, since this concept is not as clear as the other three ones in the RE literature. This study divides REs' entrepreneurship into three stages: opportunity discovery, resource acquisition, and development and growth (Figure 6).

Figure 6 Three Stages of REs' Entrepreneurship
(Source: Created by the Author)

This classification is inspired by the previous research. In particular, Quinn and Cameron (1983) propose four stages, such as entrepreneurial, collectivity, formalization and control, and elaboration of structure. Gartner (1985) summarizes five procedures: locating opportunity, accumulating resources, building organization, producing and marketing products, and responding to government and society. Bhave (1994) suggests three stages: opportunity, technology set-up and organization-creation, and exchange. Alvarez and Busenitz (2001)

propose two procedures: entrepreneurial recognition (opportunity discovery) and resources combination and organization. Elfring and Hulsink (2003) categorize three phases: opportunity discovery, resources securing and legitimacy gaining. Lichtenstein et al. (2006) conclude three phases, including organizing the vision (opportunity discovery), strategic organizing (resource acquisition), and tactical organizing (business running). Joglekar and Lévesque (2013) summarize four stages, consisting of discovery, commitment, organizing and growth. Sullivan and Ford (2014) divide into two steps: venture launch and development.

Through the perspective of the three stages summarized by this study, it is clear that most of the existing literature on REs focuses on the stage of venture development and growth (Table 3). At this stage, most attention is paid to the role of REs on firms, industries and regions in less developed countries. On the one hand, REs can bring benefits to their own firms. For example, Giannetti et al. (2015) find that REs can improve firms' profitability and internationalization. REs exert positive effect on their enterprises' employment growth (Wright et al., 2008), export performance (Filatotchev et al., 2009), learning capability building (Liu et al., 2014; Liu, Wright, & Filatotchev, 2015), and patenting activities (Luo et al., 2013). On the other hand, REs are beneficial to other firms and regions' progress. For instance, REs

improve the innovation spillover among local firms (Liu, Lu, et al., 2010; Liu, Wright, et al., 2010; Luo et al., 2013), strengthen local firms' innovation ability (Filatotchev et al., 2011), help boost the emergence of technology clusters (Obukhova, 2012b) and the growth of hi-tech industries and clusters (Chen, 2008; He, 2009; Kenney, Breznitz, & Murphree, 2013; Liu et al., 2014; Wadhwa et al., 2011; Zhou & Hsu, 2011), regional economic diversification (Murphy, 1999), and push China's innovation capacity building (Lin, 2010), business development and globalization (Wang et al., 2015, 2011).

Table 3 Summary of the Returnee Entrepreneurship Literature
(Source: summarized by the author)

Papers	**The Stage of REs' Entrepreneurship**	**Research Methods**	**Research Topics**	**Findings**
Lin et al., 2016	**The First Stage:** Opportunity Discovery	Survey on REs in China	Factors Influencing REs' Entrepreneurial Decisions and Activities	Returnees' international knowledge transfer affects their entrepreneurial decisions, and this relationship is positively influence by the supportive policies and negatively influenced by the cross-cultural adjustment
Obukhova, 2012a		Survey on REs in China		Institutional factors significantly affect REs' ability to act as cross-border broker to transfer knowledge
Wadhwa et al., 2011		Survey on REs in China and India		Home country's economic opportunities, local markets and family ties are beneficial to REs' decision on running businesses in the home country
McCormick and Wahba, 2001		Survey on REs in Egypt		Overseas savings and duration of stay overseas increase the probability of returnees to become entrepreneurs
Pruthi, 2014	**The Second Stage:** Resource Acquisition and Venture Creation	Case Study in India	Factors Influencing REs' Venture Creation	Social ties positively influence REs' venture creation
Bercovitz, Martens and Savage, 2013		Survey on REs in Mexico		Work experience is important for REs to overcome obstacles in venture creation, such as the lack of institutional and social support, funding, and skilled labour.
Wright et al., 2008		Survey on REs in China		REs with academic knowledge tend to locate their firm in non-university science parks, while REs with previous firm ownership abroad prefer to locate their business in university science parks.
Wright, Liu and Filatotchev, 2012		Literature Review		REs' resource selection and coordination activities are affected by the temporal, institutional, social, and spatial contexts

Table 3 *(Continued)*

Papers	The Stage of REs' Entrepreneurship	Research Methods	Research Topics	Findings
Giannetti, et al., 2014	**The Third Stage:** Development and Growth	Survey on REs in China	The Role of REs on Their Own Firms	REs' overseas experience will increase firms' valuation, productivity, profitability, exportation and international acquisition intention.
Filatotchev et al., 2009		Survey on REs in China		REs' international networks and background positively influence firms export propensity and performance
Luo, Lovely and Popp, 2013		Survey on REs in China		REs' oversea experiences positively affect firms patenting
Liu, Wright and Filatotchev, 2015		Survey on REs in China		REs' learning abilities and global networks boost firms' performance, but the firm's age weakens the relationship.
Lin et al.,2014		Survey in China		REs bring positive impacts to their firms' innovation performance when they have ties with government or stay relatively long in their current posts.
Kenney, Breznitz and Murphree, 2013	**The Third Stage:** Development and Growth	Survey in China and India	The Role of REs on Other Firms, Industries, Regions and Countries	REs do not play a critical role in the initial stage of the information communication technology industry but play an active role in the latter phase of this industry.
Obukhova, 2012b		Case Study, 50 REs in China		REs play a key role in stimulating cluster emergence by transferring knowledge to local engineers
Liu et al., 2010a		Survey in China		REs positively influence the innovation performance of local hi-tech firms, and this influence will be enhanced in the presence of multinational enterprise employees mobility
Liu et al., 2010b		Survey in China		REs firms have a spillover effect on non-returnee firms' innovation performance, and the presence of technology gap positively moderates this relationship
Filatotchev et al., 2011		Survey in China		REs bring positive impact to local hi-tech firms' innovation, and this relationship is positively moderated by the non-returnee firms' absorptive capacity
Luo, Lovely and Popp, 2013		Survey on REs in China		REs have a positively effect on neighboring firms' innovation

Table 3 *(Continued)*

Papers	**The Stage of REs' Entrepreneurship**	**Research Methods**	**Research Topics**	**Findings**
Saxenian, 2002	**The Third Stage:** Development and Growth	Case Study in China and India	The Role of REs on Other Firms, Industries, Regions and Countries	REs are significant to the creation and upgrading of local industries
Wang, Zweig and Lin, 2011		Case Study in China		REs are important to China's internationalization and the 'going out' strategy.
Murphy, 1999		Case Study in China		REs made significant contribution to the rural economic diversification, but not limited contribution to the livelihood diversificatoin
Chen, 2008		Case Study in China		REs have a positive impact on the local technological development
Lin, 2010		Case Study in China		REs make contribution to national capacity development
Wang, Duan and Hou, 2014		Case Study in China		REs boost the application of new technologies, training of employees and the implementation of modern management systems in China
Zhou and Hsu, 2011		Case Study in China		REs play a key role in the technological catch-up process of China's information communication technology industry

Table 3 *(Continued)*

Papers	**The Stage of REs' Entrepreneurship**	**Research Methods**	**Research Topics**	**Findings**
Liu and Almor, 2016	**The Third Stage:** Development and Growth	**Case Study in China**	Comparison between REs and Their Local Counterparts	Influenced by the western cultures, REs perceive the uncertainty in a different way, compared with local entrepreneurs
Dai and Liu, 2009		Survey in China		REs' Firms Outperforms that of Local Entrepreneurs due to their technological and commercial knowledge and international entrepreneurial intention.
Cumming et al., 2015		Survey in China		REs' Firms Outperforms that of Local Entrepreneurs in terms of IPO evaluation and post-IPO performance
Li et al., 2012		Survey in China		The net effect of REs' advantages and disadvantages determines their firms' performance. Contextual factors help REs to overcome disadvantages to over perform their local counterparts
Liu et al., 2010b		Survey in China		REs' firms outperform their local counterparts in innovation performance
Obukhova, Wang and Li, 2012		Survey in China		REs' Firms perform no better than local entrepreneurs' companies as REs' lack of local networks, such as school ties.
Lin et al.,2014		Survey in China		REs' firms are no more innovative than local entrepreneurs' companies.

Additionally, in the stage of ventures' development and growth, some researchers are interested in the performance comparison amongst firms owned by REs and their local counterparts, and there exist two contradictory conclusions (Table 3). One stream of the literature argues that REs' latest technologies, business models and

international network help their firms outperform that of local entrepreneurs (Dai & Liu, 2009; Liu, Wright, et al., 2010), especially in the period of IPO and post-IPO (Cumming, Duan, Hou, & Rees, 2015). On the contrary, the other stream literature argues that, compared with local entrepreneurs, the REs face many competitive disadvantages, such as the lack of local network, unfamiliarity with local culture after staying out of China for a long time (Li et al., 2012; Lin et al., 2014; Obukhova, 2012a), the heterogeneity in the rules of running business between developed and developing countries (Hoskisson, Wright, Filatotchev, & Peng, 2013). All these disadvantages might lead the performance of REs' firms to be no better than that of local entrepreneurs' companies.

Further, some academics are interested in the stage of opportunity discovery and focus on the factors that influence REs' entrepreneurship decisions and activities. The identified factors include international knowledge brokerage (Lin et al., 2016), category membership and brokerage among returnee-firms (Obukhova, 2012a), overseas working experience, savings and home countries' entrepreneurship climate (McCormick & Wahba, 2001; Wadhwa et al., 2011) and policy support (Lin et al., 2016). Wright et al. (2012) list several contexts that may influence REs' entrepreneurial decision, such as institution, society, and spatiality.

The stage of resource acquisition mainly discusses the factors that influence REs' firm creation. Bercovitz et al., (2013) identify many obstacles for REs in this stage, such as the limited access to financing, social and institutional support and skilled labour and so on. To overcome these difficulties, Pruthi (2014) finds social networks are helpful, while Bercovitz et al. (2013) argue that enough work experience is necessary. Wright et al. (2008) discuss how the academic background of REs affect their location choice for the new firms.

2.1.5.4 Research gaps in returnee entrepreneurship literature

Although many academics have contributed to the understanding of RE research, surprisingly, a big research gap still exists. Most of the literature, explicitly or implicitly, tends to base their study on the development and growth stage of RE firms (Table 4). However, little research examines how REs acquire the resources they need to create ventures and exploit entrepreneurial opportunities (Wright et al., 2012). In reality, the stage of resource acquisition and venture creation is actually significant for the firms' life cycle (Agarwal & Audretsch, 2001). Unfortunately, it is still unclear what the obstacles and costs facing REs in the resource acquisition for their new ventures, let alone the probable approaches to helping REs overcome those difficulties. The limited understanding on this regard seriously constrains academics' capability of explaining the performance difference

between RE firms and the local entrepreneurs' companies. Also, it is difficult to explain powerfully what determinants lead to RE firms' success or failures.

Table 4 Research Gaps in the Returnee Entrepreneurship Literature
(Source: Summarized by the Author)

Focusing on Chinese REs Only	**Based in the Second Stage of REs' Entrepreneurship**		**Taking Account of Science Parks' Support to Returnees**	**Reference**
Yes	Yes		Yes	**This Study**
			No	Wright, Liu and Filatotchev, 2012; Wright et al., 2008
	No	**The First Stage: Opportunity Discovery**	Yes	
			No	Lin et al., 2016; Obukhova, 2012a
		The Third Stage: Development and Growth	Yes	
			No	Filatotchev et al., 2009; Luo, Lovely and Popp, 2013; Liu, Wright and Filatotchev, 2015; Lin et al.,2014; Obukhova, 2012b; Liu et al., 2010a; Liu et al., 2010b; Filatotchev et al., 2011; Wang, Zweig and Lin, 2011; Murphy, 1999; Chen, 2008; Wang, Duan and Hou, 2014; Zhou and Hsu, 2011; Dai and Liu, 2009; Cumming et al., 2015; Li et al., 2012; Obukhova, Wang and Li, 2012
No	Yes		Yes	
			No	Pruthi, 2014; Bercovitz, Martens and Savage, 2013
	No	**The First Stage: Opportunity Discovery**	Yes	
			No	Wadhwa et al., 2011; McCormick and Wahba, 2001
		The Third Stage: Development and Growth	Yes	
			No	Kenney, Breznitz and Murphree, 2013; Saxenian, 2002

Additionally, in the literature on returnee entrepreneurship, almost no one clearly and systematically explains the influence of science parks on REs' resource acquisition for their new ventures. However, considering the fact that China's institutional environment is not generally conducive for new venture and that REs lack access to resources holders (Section 2.1.6), the support of science parks could be significant to REs. This study will first review the literature on science park (Section 2.2) and then explore how Chinese NSPs support REs' resource acquisition (Chapter 4 and 5).

In general, to add insights into the RE literature, this study will focus on the stage of REs' resource acquisition and venture creation, and explore the costs facing REs and probable ways for science parks to help REs decrease those costs. The following section 2.1.6 will present the difficulties faced by REs in the stage of resource acquisition, which acts as a basis for further analyses on science parks' function in the following sections.

2.1.6 Difficulties facing REs in the stage of resource acquisition

In the early stage, new ventures face a great number of difficulties (Van Geenhuizen & Soetanto, 2009), and the survival and growth of new firms require various resources (Aldrich and Martinez, 2001). In other words, the resource profile directly determines the survival and

development of startups (Aldrich & Martinez, 2001), as both the identification and exploitation of business opportunities require entrepreneurs to acquire necessary resources, such as finance, human capital and social networks (Greene & Brown, 1997; Hannafey, 2003; Van Stel & Storey, 2004). Hence, new ventures with limited endowments are usually at high risk of early failure (Baumol, 1996), while adequate resources can facilitate entrepreneurs to get through the difficulties in the early ages of startups (Levinthal, 1991).

Owning to the fact that new ventures usually lack internal resources, and as such, the collaboration with resource holders (RHs) becomes a key subject for entrepreneurs running start ups. Further, the importance of networking with RHs is not constrained to the start-up stage, but might continually provide REs with other resources in the growth stage of the firms (Hoang & Antoncic, 2003). RHs in this study refer to the decision makers or other key persons in firms and institutes which are potential collaborators in exchanging resources with REs' new ventures. More specifically, these organizations include customers, suppliers, investors and service contractors, such as consultants on R&D, law, tax, accounting, marketing, public relations and so on (Hansen, Chesbrough, Nohria, & Sull, 2000; Peters, Rice, & Sundararajan, 2004; Rice, 2002). Sometimes, one RH may provide multiple resources to one RE. For instance, angel investors and private

equity funds have gradually evolved to offer both funding and consultancy simultaneously. Unfortunately, the institutional and network problems make it hard and costly for REs to get access to and collaborate with RHs.

In the following two sections, the difficulties facing REs' resource acquisition from RHs are presented by two aspects. One the one hand, difficulty comes from the lack of enough support from formal institutional. On the other hand, the establishment of the informal institution, such as guanxi, between REs and RHs incurs significant costs.

2.1.6.1 The lack of institutional support

According to North (1990, p4), institutions refer to "*any form of constraints that human beings devise to shape human interaction*", and it includes two general forms: informal and formal. Laws and regulations are belonged to formal institutions, while conventions and norms are part of informal institutions. Entrepreneurship is a scientific and societal phenomenon (Welter & Lasch, 2008), embedded in formal and informal institutions, and it is influenced by socio-cultural and regulatory contexts in China (Schweinberger, 2014).

When it comes to the formal institutional, the regulatory environment in China is still not conducive enough for businesses,

especially for new ventures, even though China has made significant progress (World Bank, 2016). A variety of laws and policies have been introduced by central and regional governments to support and protect entrepreneurship in the last two decades (Zhou, 2011). Nevertheless, the institutions are still relatively weak (Puffer, McCarthy, & Boisot, 2010). In some cases, the formal institutions even bring about industry entry obstacles and limit the resource-access of startups (Zhou, 2011). According to the 'Ease of Doing Business Ranking', China was ranked 84 among 189 countries and regions in terms of the general business-friendly regulation environment (where a higher ranking means a better institutional environment) (World Bank, 2016). When it comes to the 'Starting A Business Ranking', which measures the regulation environment for venture creation, China was only ranked 136th. According to the report, the process of establishing a new venture in China usually takes entrepreneurs on average 31.4 days and 11 procedures, compared with 0.5 days and 1 procedure in New Zealand which was ranked 1st.

2.1.6.2 The difficulty of establishing guanxi

Since the less developed formal institutional environment in China has not provided enough support to REs (Li et al., 2012; Wang, Duan, & Hou, 2014), firms in China usually have to resort to informal institutions, such as guanxi (Newman, Gunessee, & Hilton, 2012) to

seek help. This study regards guanxi as a main element of informal institutions, and this is similar to some literature which treats guanxi as a significant socio-cultural factor embedded in China's context (Gao & Kotey, 2008; Luo & Chen, 1997). Guanxi consists of widespread interpersonal relationship and social networks in Confucian society (Schweinberger, 2014; Welter, 2011). China is a perfect place to explore the interaction between the socio-cultural context, such as guanxi, and entrepreneurs (Lee & Anderson, 2007), which will be further analyzed in section 2.3.5.

However, REs face two typical difficulties when they are seeking to establish guanxi with RHs to acquire resources. First, REs usually only own limited access to proper RHs as their past domestic networks decay after they work and live in foreign countries for a long time (Prashantham and Dhanaraj, 2010; Li et al., 2012; Lin et al., 2014). Second, the establish of guanxi consumes much time and incurs significant costs (Fan, 2002; Yi & Ellis, 2000), which might lead REs to be placed in a disadvantage post in the competition with other new ventures. What is more, the lack of legitimacy and reputation increases the difficulty of new ventures being trusted by business partners (Schwartz and Hornych, 2008), which inevitably increases the costs of establishing guanxi between REs and RHs.

2.1.6.3 A brief summary

In general, both guanxi (informal institution) and regulatory environment (formal institution) significantly influence entrepreneurs' behaviours in China. However, the formal institutions in China are currently not favorable enough to REs' new ventures (Puffer et al., 2010; World Bank, 2016). Further, the lack of domestic networks makes it hard for REs to establish guanxi with RHs (Li et al., 2012). As a result, REs face significant costs and risks in acquiring resources for their new ventures. Nevertheless, the existing literature on returnee entrepreneurship still has a limited understanding of how to effectively help REs reduce those costs and support their new ventures. Therefore, more research is needed to explore how to help entrepreneurs in China overcome both institutional and social obstacles (Lerner, 2009). This study will explore which approaches are more effective for Chinese NSPs to reduce REs' costs in their resource acquisition, and as such support their new ventures. The introduction of science parks and their practice in China will be presented below in section 2.2.

2.2 China's NSPs

2.2.1 Characteristics of China's NSPs

Science parks, also called technology parks in some countries, are organizations run by specialists with the goal of increasing the wealth of local communities and regions by creating a favourable environment

to support their tenant firms' innovation and development (Bakouros et al., 2002; Chan and Lau, 2005). Chinese national science parks (NSPs), also known as National High-Tech Development Zones, are the most important part of the China's innovation system (MoST, 2014). According the most recent '2013 Innovation Development Report of National High-Tech Development Zones', which was issued by Ministry of Science and Technology China in 2014, there were 114 NSPs by 2013 (Figure 7), and they were key areas to not only generate and commercialize new technologies, but also deploy pilot reforms on science and technology institutions.

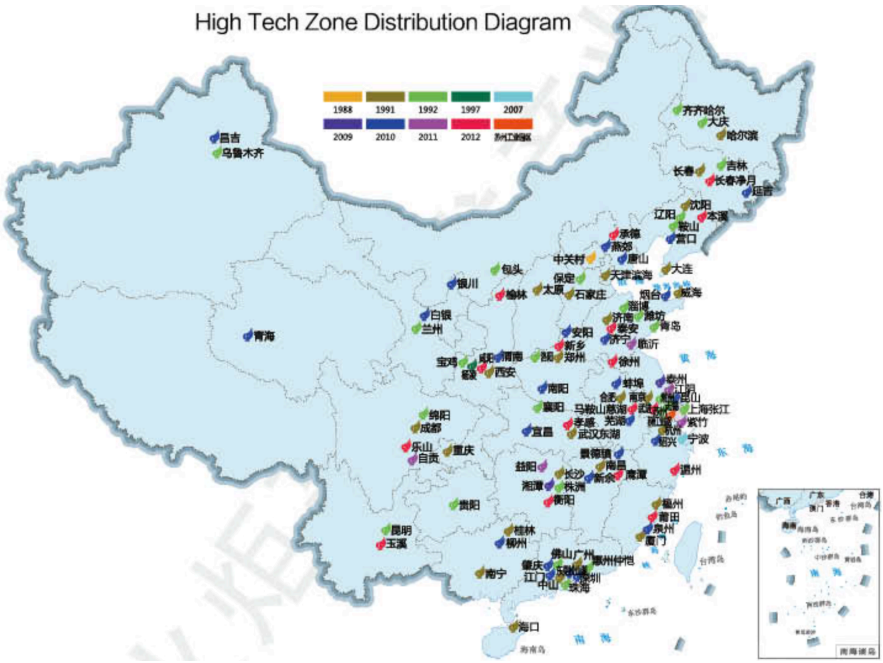


Figure 7 Geographic Distribution of Chinese NSPs in 2013
(Source: adapted from Ministry of Science and Technology China, 2014)

According to the above report, NSPs were home to over 50% of China's high tech enterprises and created business revenue RMB 20.3 trillion yuan (appr. £ 2.03 trillion based on the currency exchange

between RMB and GBP in 2013) in 2013. NSPs absorbed more than 30% R&D investment and 55% R&D job takers in industries in 2013. Further, NSPs contributed over 11% to China's GDP in general (Figure 8) and over 15% to the city where they are situated in on average. Also, they accounted for more than 50% of China's invention patents in industries, one third of new products sales and technological contract trading and 18.7% of exports in 2013.

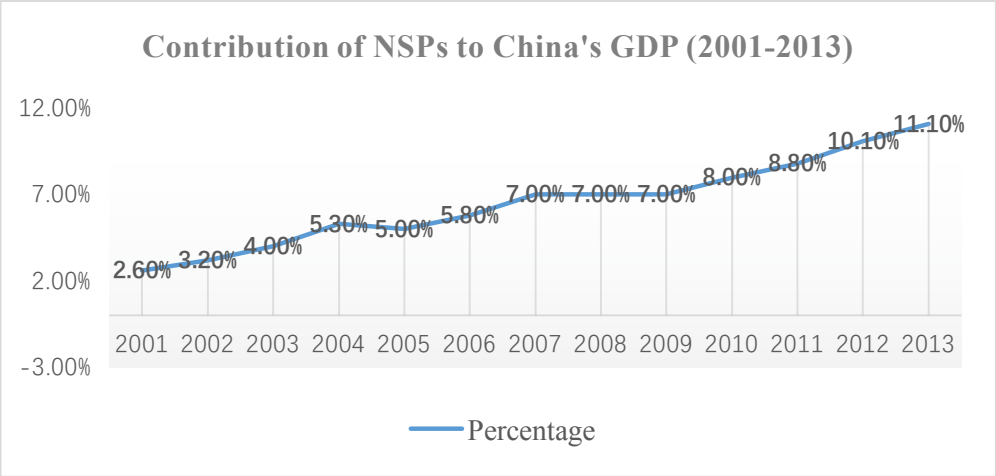


Figure 8 Percentage of NSPs' GDP to China
(Source: Adopted from Ministry of Science and Technology China, 2014)

Planned by the strong government, Chinese NSPs are established to lead local economic and innovation development. Although NSPs are high autonomous bodies and are authorized with much public power, such as designing policies and collecting taxes, (Jolly & Zhu, 2012), they are significantly influenced by the government. For example, NSPs are led and directed by Ministry of Science and Technology China (MoST), acting on behalf of central government. The evaluation system of NSPs is designed and executed by MoST,

which also has the right to approve the promotion of provincial science parks to NSPs (MoST, 2014). Further, the domain name of NSPs' official websites usually ends up with 'gov.cn', which is the same to governments' websites. From the news posted on NSPs' official websites, senior leaders of NSPs often hold political posts and are usually directly appointed by the government. Furthermore, the management structure of NSPs' administration committee is, to some extent, similar to those of government departments. For instance, NSPs are usually deployed with bureau of tax, finance, social security and so forth. In 2012, 9.8% of NSPs fiscal expenditure were funded by governments (MoST, 2014), which further indicates governments' significant influence on NSPs.

In recent years, NSPs witnessed a fast growing number of returnees pursuing their careers on the parks. For instance, the number of returnees working in NSPs increased by 18.8%, from around 82,000 in 2012 to about 97,000 in 2013 (MoST, 2014). Also, the globalization of NSPs increased in the same period of time. In 2012, there were over 42,000 foreign permanent personnel working in NSPs (MoST, 2014). In the same year, 396 foreign R&D institutes, 156 foreign manufacturing firms and 2011 foreign marketing organizations established in NSPs, which spent RMB 12.8 billion yuan on introducing foreign advanced technologies.

Accordingly, as the importance of REs for the local innovation and industry development is widely recognized, and the competition for outstanding REs is obvious amongst NSPs. Various types of policies on REs are issued by NSPs, along with a wide range of high-profile events. To better attract and support talented entrepreneurs, NSPs pay much attention to offering better services.

2.2.2 Services of China's NSPs

The literature on science park and incubator summarizes a wide range of services and resources provided to entrepreneurs, such as funding, infrastructure, mentoring and expertise required to safeguard new ventures and push them into a rapid growth phase (Bruneel, Ratinho, Clarysse, & Groen, 2012; Chan & Lau, 2005; Theodorakopoulos et al., 2014). Initially, the services available to entrepreneurs were relatively basic such as shared facilities and affordable spaces (Bruneel et al., 2012; Chan & Lau, 2005; Dee, Gill, Livesey, & Minshall, 2011). Gradually, more comprehensive and tailored services emerged to meet different requests of ventures in different sectors and development stage (Theodorakopoulos et al., 2014).

These higher grade services are expressed in different ways, including advice on regulation (Ebbers, 2014; Patton, Warren, &

Bream, 2009), internal and external networking building (Chan & Lau, 2005; Hackett & Dilts, 2008; Lewis, Harper-Anderson, & E., Molnar, 2011; McAdam & McAdam, 2008; Patton et al., 2009; Radosevic & Yoruk, 2013), information contacts (Soetanto & Jack, 2013), business advice (Chan & Lau, 2005; Dee et al., 2011; Harwit, 2002; Ratinho & Henriques, 2010), subsidies in taxes and loans (Pruthi, 2014; Soetanto and Jack, 2013; Chan and Lau, 2005), business partnership (Hackett & Dilts, 2008; Karatas-Ozkan, Murphy, & Rae, 2005; Soetanto & Jack, 2013), listing potential financial investors (Soetanto & Jack, 2013), funding access (Chan & Lau, 2005; Connell & Probert, 2010; Harwit, 2002), project collaboration (Soetanto & Jack, 2013), coaching (Ratinho & Henriques, 2010), knowledge on development (Soetanto & Jack, 2013), consultation (Chan & Lau, 2005; Soetanto & Jack, 2013), marketing events (Chan & Lau, 2005), press conference (Chan & Lau, 2005), exhibition (Chan & Lau, 2005), public image of science parks or incubators (Chan & Lau, 2005; Soetanto & Jack, 2013), media relation (Chan & Lau, 2005), and performance monitoring (Dee et al., 2011; Hackett & Dilts, 2008; Khalid, Gilbert, & Huq, 2012; Lalkaka, 2006) and so on.

Based on the various services often termed differently in the extant literature and considering the request of REs, this study summarizes four typical services that are closely related to the resource exchanges

between REs and RHs, including 'social event', 'mentoring & training', 'promotion of REs' and 'accreditation of RHs' (Table 5 and 6).

Table 5 Summarized Four Types of Services
(Source: Summarized by the Author)

Summarized Services	Related Services	Reference
Mentoring & Training	Coaching; Consulting *(providing consultancy on legal, accounting, business, technical etc.)*; Business advice;	Ratinho and Henriques, 2010; Soetanto and Jack, 2013; Chan and Lau, 2005; Patton et al., 2009
Social Event	Networking building *(links with suppliers, clients, subcontractors etc.)*;	Cooper et al. 2010; Hackett and Dilts 2008; McAdam and McAdam 2006; Chan and Lau, 2005; Patton et al., 2009; Lewis et al., 2011; Adlesic and Slavec, 2012
Promotion of REs	Public image of science parks or incubators; Marketing events; Exhibitions; Press conference;	Chan and Lau, 2005; Soetanto and Jack, 2013;
Accreditation of RHs	Information Contacts; Listing Potential financial investors; Funding access *(recommending VC, banking etc. to entrepreneurs)*; Media relation *(recommending media access to entrepreneurs)*; Business partnership *(combining market related information and knowledge for entrepreneurs to establish partnership)*; Project collaboration *(combining technical knowledge for entrepreneurs to establish project partnership)*	Khalid et al., 2012; Dee et al., 2011; Hackett and Dilts, 2008; Lalkaka, 2006; Chan and Lau, 2005; Connell and Probert, 2010; Harwit, 2002; Soetanto and Jack, 2013; Karatas-Ozkan et al., 2005;

'Mentoring & training' refers to the services, such as seminars and courses focusing on developing REs basic skills in business planning,

marketing, negotiation and so on (Hughes, Ireland, & Morgan, 2007; Lin, Wood, & Lu, 2012; Peters et al., 2004), which are carried out by a NSP itself (Table 6). These services are usually provided free of charge or at a low charge. However, if REs require more professional, complex and tailored mentoring & training services, mentors or consultancy organizations outside of NSPs would be a better choice, which usually charges REs much more. These external specialist providers are regarded as a type of RHs for REs in this study.

Table 6 Definition of Four Types of Services
(Source: Summarized by the Author)

Services Offered by NSPs	Definitions	Examples
Mentoring & Training	Various programmes directly organized by NSPs to facilitate REs to gain basic knowledge and skills on venture creation and development	Seminar, Instruction
Social Event	Various activities hosted by NSPs to facilitate REs to access prospective RHs	Conference, Forum, Exhibition, Party
Promotion of REs	Various ways undertaken by NSPs to help REs to be more trustworthy for RHs	Political Honour, Branding of NSPs
Accreditation of RHs	Formal or informal database created by NSPs to help REs evaluate RHs' basic background, such as reputation	Recommended list, Blacklist

'Social event' refers to activities, such as conferences, exhibitions, fora and parties etc., organized by NSPs with the aim of giving REs access to prospective RHs (Table 6). This category is similar to the term of 'networking opportunity' used in other studies (e.g., Bøllingtoft and Ulhøi, 2005; Carayannis and Von Zedtwitz, 2005; Chan and Lau, 2005; Sá and Lee, 2012). Social events are platforms in which REs and

RHs can make contacts, interact with each other and share information, study, work and life experiences.

'Promotion of REs' refers to actions conducted by NSPs to increase the trustworthiness of REs (Table 6). In China, this can be achieved by helping REs to gain political posts, such as becoming a member of the Youth Committee (YC) or the Chinese People's Political Consultative Conference (CPPCC), a deputy to the People's Congress (PC), or government-backed honours, such as the Star of Returnee Entrepreneurs (SRE), Model Workers (MW), May 1st Labour Medal, May 4th Youth Medal, High-Level Talents Introduction Programme (HTIP) and so forth. In addition, improved credibility of REs can also come from the fact of their association with a prestigious science park (Chan and Lau, 2005; Sá and Lee, 2012).

The final category of services, 'accreditation of RHs', is established by NSPs to help REs evaluate RHs' basic background, especially the reputation (Table 6). Meanwhile, this service can act as a tool to influence RHs' behaviours when they are collaborating with firms on science parks. This service is significant for Chinese NSPs, but is largely neglected by the present literature which is based on a context of developed countries (e.g., Bøllingtoft, 2012; Bruneel et al., 2012; Ratinho and Henriques, 2010; Theodorakopoulos et al., 2014). The 'accreditation of RHs' service manifests in several ways,

depending on the data submitted by firms within NSPs. Some NSPs build up a complete and regularly-updated database of accredited RHs who have been, or are currently, key strategic business partners for REs or the NSP itself. However, other NSPs have not yet established a formal record but only hold a small and informal database on RHs.

2.2.3 Influences of NSPs on entrepreneurs and firms

To better reflect the core topic, this study will not review the literature on the role of science parks in promoting regional economies, but takes a relatively focused view to summarize those parks' influence on individuals and enterprises. There has been a lack of systematic evaluations on the effects of science parks on entrepreneurs and ventures until the new century (Siegel, Westhead, & Wright, 2003). Nevertheless, there exist mixed findings on the influences of science parks' services. Some researchers argue that those services positively influence venture's performance, while others contend that they have little or even no effects. Table 7 classifies the relevant literature by two criteria, research conclusion and research views, respectively. Between them, the former reflects the mixed findings in the present literature and the latter consists of three research views: research context, the factor of REs, and the specific mechanisms of science parks' services. Some research adopts one of the three perspectives while the rest use multiple ones.

Table 7 Research Gaps in the Literature on Science Park
(Source: Summarized by the Author)

Research Conclusion	**Three Research Views**			**References**
	View One: Whether Being Based in Chinese Context?	**View Two:** Whether Taking Account of REs' Specific Personal Characteristics?	**View Three:** Whether Taking Account of the Joint Effect of Services?	
Science parks Bring Positive Influences to Entrepreneurs and Their Firms	Yes	Yes	Yes	**This study**
			No	Huang, 2015; Liu, Wright and Filatotchev, 2015; Wright et al., 2008;
		No	Yes	
			No	Tan, 2006; Jolly and Zhu, 2012; Bruton, Ahlstrom and Obloj, 2008; Chan and Lau, 2005
	No	Yes	*REs' Ventures Are Usually Not Based at OECD Countries' Science Parks*	
		No	Yes	Scillitoe and Chakrabarti, 2010
			No	Colombo and Delmastro, 2002; Löfsten and Lindelöf, 2002; Lindelöf and Löfsten, 2003; McAdam and McAdam, 2008; Bruneel et al., 2012; Clausen and Korneliussen,2012; Bøllingtoft, 2012; Soetanto and Jack, 2013; Mian, 2014; Minguillo, Tijssen and Thelwall; 2015
Science parks Bring Little or No Influences to Entrepreneurs and Their Firms	Yes	Yes	Yes	**This study**
			No	
		No	Yes	
			No	Chan and Lau, 2005;
	No	Yes	*REs' Ventures Are Usually Not Based at OECD Countries' Science Parks*	
		No	Yes	
			No	Bakouros et al., 2002; Siegel, Phillips and Yeung, 2003; Westhead and Wright, 2003; Tamásy, 2007; Chan, Oerlemans and Pretorius, 2011; Minguillo, Tijssen and Thelwall, 2015

2.2.3.1 Positive influences brought by science parks

This study first starts with the group of the literature which argues science parks have a positive influence on entrepreneurs and ventures (The Upper Half of Table 7). Among the scholars whose studies are based in Chinese context (View One in Table 7), Tan (2006) argues Chinese science parks play a key role in creating industry clusters for ventures' development. Jolly and Zhu (2012) recognize the importance of Chinese science parks on REs but do not conduct further analyses based on REs' characteristics, which are different from the local entrepreneurs. Bruton et al. (2008) recognize the key role of emerging countries' science parks in entrepreneurship. Further, some academics take account of the specific requirements of REs in the analyses (View Two in Table 7). For instance, Wright et al. (2008) find the benefits REs gained from science parks depend on the match of science parks and REs' characteristics. Liu et al. (2015) and Wright et al. (2008) recognize that Chinese science parks' services bring benefits to REs. Nevertheless, these studies do not further dig into the specific mechanism through which the benefits of science parks are delivered to REs (View Three in Table 7), such as the individual- or joint-effect of science park services.

Amongst the academics whose work are not based in Chinese context (View One in Table 7), Colombo and Delmastro (2002) find

companies based on Italy science parks performed better in innovativeness, growth, access to subsidies and networking, compared with their counterparts off the science parks. Similarly, Löfsten and Lindelöf (2002) conclude science parks are helpful in increasing firms' employment growth, sales growth, profitability and collaborative opportunities with universities, based on the data collected in Sweden. After that, Lindelöf and Löfsten (2003) further prove firms based on science parks are more innovative, measured by patents, product and technology development, than those off-parks. Later on, Dettwiler et al. (2006) contend that Swedish science parks can leverage facilities management to contribute to creating beneficial scenarios for the interaction and networks for ventures. In a comparison between two science parks from Ireland and the U.K., McAdam and McAdam (2008) find that, as the lifecycle stage of the firm increases, science parks' resources are more important for companies. Bruneel et al. (2012) identify a wide variety of benefits brought by several European countries' science parks to ventures, while there exist some differences between new and old generation science parks. Further, science parks are found to be effective not only in accelerating the technological commercialization of firms in Norway (Clausen & Korneliussen, 2012), but also in building up entrepreneurs' cooperation and networking (Bøllingtoft, 2012). In addition, some British science parks are proved

to be significant for firms to access tangible and intangible resources (Soetanto & Jack, 2013), and several U.S. counterparts are found to be capable in meeting firms' dynamic demands (Mian, 2014).

However, most of present studies do not stretch their attention to the specific way by which science parks' services deliver benefits to entrepreneurship. One excpetion is that Scillitoe and Chakrabarti (2010), which examines the joint effects of Finnish and U.S. science parks' services on firms and finds the business assistance is best enabled through the combination of consultancy and incubator management, while technical assistance is best enabled by the interaction between networking and incubator management.

2.2.3.2 Little or no influences brought by science parks

Compared with the literature concluding that science parks can bring positive influences, there are fewer studies finding that those influences are little or none (The Lower Half of Table 7). Specifically, Phillips and Yeung (2003) contend Singapore science park's institutional thickness and local embeddedness can only be applicable to a small number of firms. Bakouros et al. (2002) find the role of Greek science parks in helping companies establish links with universities varies and the synergies amongst companies on science parks are limited. Further, Siegel et al. (2003) find there are no

significant differences in the employment growth and technological spillovers between firms located on and off the UK science parks. In addition, several typical European science parks are found to be failed to support innovation and entrepreneurship (Tamásy, 2007).

2.2.3.3 Attempts on reconciling the above mixed findings

Some academics try to reconcile the above mixed findings by exploring which conditions will lead science parks to bring positive, negative or no influences to firms on the park. For instance, Chan and Lau (2005) collected data in Hong Kong and find both positive and no influences might be brought by science parks to entrepreneurs, and it depends on the development stage of the firms. Similarly, Chan et al. (2011) conclude that South Africa science parks are not always effective in boosting firms' innovation outputs, because it is influenced by the lifecycle phase of the companies. Additionally, Minguillo et al. (2015) find that several regional science parks in the U.K. seem to be generally effective in boosting firms' collaboration with research insititutes, but the effectiveness is sometimes undermined as many on-park ventures tend to seek collaborators beyond the local regions, for which those science parks have not provided direct support.

2.2.3.4 Research gaps in science park literature

From the above summary on the present literature upon the influences of science parks on entrepreneurs and their ventures, it is clear that although more and more researchers place the study under Chinese context, the literature based in OECD countries is still in a dominant position. Four research gaps are identified.

First, even though there are several studies taking account of the factor of REs, their focuses are limited to science parks' positive impacts to entrepreneurs. Nevertheless, it is still unclear why some science parks bring little or even no negative influences to REs. To make contributions to this regard, it is advisable to dig deeper reasons by exploring REs' characteristics and requests.

However, very little research on science park considers REs' characteristics, and this is the second research gap. REs usually own relatively advanced technologies gained from overseas but lack local networks, compared with local entrepreneurs. Hence, the lack of understanding of REs' characteristics limits academics' ability of effectively explaining how science parks influence REs and their ventures. This leads to the third research gap in the literature.

Third, the current studies have not yet clearly identified the types of services that really matter to REs' resource acquisition for their new ventures. Considering the fact that REs have many different

characteristics when compared with local entrepreneurs, as mentioned above, some popular services for local entrepreneurs might be proved to be less effective for REs. Hence, some tailored services are required for REs' resource acquisition.

Finally, there are even fewer studies clarifying the specific mechanisms through which science park services support entrepreneurs in either Chinese or other countries' contexts. This leads to the difficulty of understanding the mixed findings in the extant literature. Even though some scholars attempt to reconcile the mixed findings by exploring reasons from the firms' side, there is still little research exploring the reasons from the side of science parks.

In a nutshell, the extant understanding of the role of Chinese NSPs' services on REs' new ventures is still limited, and this study will add insights into this area through not only exploring the particular approaches by which Chinese NSPs' services support REs, but also explaining why only a few, but not all, Chinese NSPs can deliver strong support to REs' new ventures.

2.3 Transaction cost perspective (TCP)

2.3.1 Definition of TCP

Transaction cost perspective (TCP) is useful to analyse science parks' incubation (Theodorakopoulos et al., 2014), and this study

adopts TCP as a key analysis tool to analyse the way NSPs serve REs. TCP belongs to 'New Institutional Economics' originating with Coase (1937)'s proposition that markets and firms could be regarded as two polarized governance structures. Based on Coase's seminal work, Williamson made considerable contributions to TCP by establishing an analysis framework to discuss when economic exchange is more appropriate to be conducted through market, hierarchy or several intermediate types of governance structures (Williamson, 1979, 1985). TCP spans several disciplines, such as economics, law, economic sociology and organization theory (Chiles & McMackin, 1996).

2.3.2 Behavioural assumptions of TCP

TCP rests on three behavioural assumptions concerning transactors: bounded rationality, opportunism, and risk neutrality (Williamson, 1985) (Table 8), which are also applicable to REs and RHs in this study. In the following, we will define the three behavioural assumptions in the context of REs' cooperation with RHs.

Table 8 Key Assumptions of REs and RHs
(Source: Summarized by the Author)

Behavioural Assumptions of REs and RHs	Definition
Bounded Rationality	Both REs and RHs have limited cognitive and information processing capability, and as such they cannot design comprehensive contracts suitable for every contingency in advance.
Opportunism	Both REs and RHs might conduct opportunistic behaviors, such as cheating and lying.
Risk Neutrality	REs and RHs are risk neutral, rather than risk averse or risk-seeking

Bounded rationality refers to the fact that people intend to be rational but only be partly so, which means transactors have limited cognitive capability, and as such it is impossible to write comprehensive legal contracts that clarify all contingencies and related responses (Chiles & McMackin, 1996; Simon, 1978). Also, it is necessary to point out that bounded rationality and uncertainty should appear in pairs. Otherwise, people can easily design clauses to meet every condition, which means the complete contracting exists and there would be no need to make decisions among governance mechanisms (Williamson, 1979). The existence of uncertainty leads transactors, who have limited information gathering and processing abilities (Simon, 1978), to neither specify the environment surrounding the economic exchange nor verify specific behaviours of business partners after signing contracts (Rindfleisch & Heide, 1997). The specific explanation and influence of uncertainty will be discussed in the

following section. In general, the resource exchange between REs and RHs faces much uncertainty, from both the cooperation itself and the external environment, and both of the two direct participants comply with the description of bounded rationality. Therefore, the contracts signed by REs and RHs are incomplete and cannot specify all contingencies.

The opportunism refers to a condition where individuals have guile and are self-interest seekers (Williamson, 1985). Nevertheless, it is necessary to point out that not all transactors are regarded as opportunist, but rather there exists some probability that they might conduct an opportunism behaviour in a given time(Chiles & McMackin, 1996). This leads to a difficulty in evaluating who is trustworthy and who is not. According to Williamson (1985), the opportunistic behaviours include lying, cheating or even fraud and so on. The whole process of resource exchanges between REs and RHs is surrounded by opportunistic behaviours.

According to Williamson (1991), it is usually assumed that transactors are risk neutral, rather than risk aversion or risk seeking. The main reason is that TCP mainly focuses on the attributes of transactions rather than the transactors' risk attitudes (Williamson, 1985). Further, Sexton and Bowman (1985) prove that entrepreneurs are moderate in risk preference. Thus, similar to the bulk of the

literature in TCP, this study applies risk neutrality behaviour assumption to REs in their cooperation with RHs,

In total, the three key behavioural assumptions of TCP are applicable to the resource exchange between REs and RHs. The usefulness of TCP in doing research on science park has been proved (Theodorakopoulos et al., 2014). Therefore, it is appropriate to utilize TCP as the analysis tool to do this study. Next, this study will state transaction costs facing REs in their cooperation with RHs via TCP.

2.3.3 Types of transaction costs facing REs

Transaction costs significantly influence economic activities (North, 1990; Williamson, 1985). For instance, North (1990) estimates that transaction costs account for around 35% of the costs related to economic activities. Similarly, McKinsey finds that a third of GDP in the United States is made up of the activities relevant to economic exchanges, such as searching, coordinating, and monitoring (Butler et al., 1997).

Transaction costs refer to all the costs incurred by exchanges between organizations and individuals, and include both ex ante and ex post costs (Hennart, 1993; North, 1990; Williamson, 1985). The ex ante costs consist of search and contracting costs and the ex post costs are made up of monitoring and enforcing costs, (Dyer, 1997; Dyer &

Chu, 2003). When collaborating with RHs, REs face the above four types of costs (Table 9).

Table 9 Definitions of REs' Transaction Costs
(Source: adapted from Williamson, 1985; Dyer, 1997; Dyer and Chu, 2003)

RE's resource acquisition costs		
Construct		**Definition**
Ex Ante	Search Costs	Costs faced by REs in gathering information to identify and evaluate potential RHs
	Contracting Costs	Costs faced by REs in negotiating and writing a mutually acceptable agreement with RHs
Ex Post	Monitoring Costs	Costs faced by REs in monitoring the agreement to ensure that RHs fulfill the pre-determined set of obligations
	Enforcement Costs	Costs faced by REs in ex post bargaining and sanctioning RHs who do not perform according to the agreement

Search costs come from the process of identifying, screening and selecting proper partners (Dyer, 1997). Considering the fact that REs' domestic network relationships decay (Prashantham & Dhanaraj, 2010) after their long periods of staying in foreign countries, REs usually lack domestic social networks to get access to prospect partners (Li et al., 2012). This makes it pretty difficult for REs to gather information on proper RHs, let alone screening and selecting them. Also, the cultural conflict, to some extent, decreases REs' ability to gain a timely and accurate understanding of the meaning behind potential partners' words, which further takes REs' more costs in identifying partners.

Contracting costs are associated with negotiating and writing mutually acceptable agreements (Dyer & Chu, 2003; Williamson, 1985). Before the cooperation, REs need to work with RHs to clarify

the principles and regulations to direct partners' behaviour. The specific clauses of contracts vary in different contracts with different partners as they are influenced by a wide range of factors, such as the preference and characteristics of partners, the investment input by each party, and the external technology, policy, market environment. Further, to safeguard each party's own interests, some special clauses might be set up. As a result, the bargaining process usually incurs significant contracting costs for REs.

Monitoring Costs are related to the activities of monitoring agreements to ensure each side realizes responsibilities as agreed beforehand (Dyer, 1997). After reaching an agreement with RHs, REs need to gather and process information to evaluate whether RHs' conduct is in accordant with the contracts in the resource exchange. Based on the the evaluation, REs will respond by either rewarding or sanctioning RHs, which belonged to the enforcement costs below.

Enforcement Costs refer to the costs associated with ex post renegotiation and bargaining with partners (Dyer & Chu, 2003) when the contract clauses should be changed according to the changing industry, market and policy environment. Owning to the different interest demand and the changed bargaining power of each party caused by the changing environment, the renegotiation process is not easy and will lead to significant costs for REs. Also, sanctioning

participants who do not observe the agreements incurs costs. For instance, REs have to bear costs when resorting to arbitration or lawsuit to punish the defaulting party.

In most cases, the search, contracting, monitoring and enforcement costs are in sequence, with the first two types of costs incurring ex ante while the second two types emerging ex post (Dyer, 1997; Williamson, 1985). Other thing being equal, if REs bear more costs ex ante, it is possible this might reduce more costs ex post. In other words, the up-front costs will influence the ongoing costs (Dyer, 1997). For instance, when partners spend more time in designing and negotiating a mutually acceptable contract which clarifies expectations and responsibilities, they may reduce time and energy in monitoring the other party and enforcing the contract (Dyer, 1997; Dyer & Chu, 2003). Further, if one party spends more time in searching for a more capable and trustworthy partner, it might reduce monitoring and enforcement costs because this partner will be more likely acting according to the agreement and be less likely conducting opportunistic behaviours. However, the influence of ex ante costs on ex post costs is not the focus of the mainstream literature in TCP. Also, the measurement of indirect costs is pretty difficult (Rindfleisch & Heide, 1997). Hence, this study only analyzes the role of NSPs on reducing

each type of costs, and will not discuss the interaction among different types of costs.

In the data analyses chapter below, this study will integrate monitoring and enforcement costs. The main reason is these two types of costs are ex post costs and are usually tangled together and NSP services usually affect monitoring and enforcement costs simultaneously. Further, this study is a cross-sectional research, and as such is not good at untangling monitoring and enforcement costs. Usually, the differentiation between the two types of costs requires a longitudinal perspective. Lastly , many highly influential studies under TCP tend to either put monitoring and enforcement costs as a unity to discuss (e.g., Dyer and Chu, 2003) or avoid the discussion or measurement on enforcement costs (e.g., Barthélemy and Quélin, 2006; Chiles and McMackin, 1996).

Next, this study will first state three transactional dimensions that direct influence the transaction costs facing REs separately, and then integrate the relationships amongst transactional dimensions and costs.

2.3.4 Transactional dimensions facing REs

Williamson's analysis framework lists three dimensions to characterize transactions: asset specificity, uncertainty and transaction frequency (Table 10). All of the three dimensions directly influence

transaction costs, but transaction frequency received limited attention in the TCP literature.

Table 10 Definitions of Transactional Dimensions
(Source: adapted from Williamson, 1985; Chiles and McMackin, 1996; Rindfleisch and Heide, 1997)

Transactional Dimensions		**Definition**
Asset Specificity		The extent to which REs or RHs' input assets, such as land, equipment, human capital, are specialized to a specific transaction and their value will unavoidably decrease if they are used in any other occasions
Uncertainty	Environmental Uncertainty Behavioural Uncertainty	The circumstances around the resource exchange between REs and RHs cannot be specified ex ante The performance of RHs cannot be specified both ex-ante and –post by REs and vice versa
Transaction Frequency		The extent of frequency to which REs and RHs conduct resource exchanges

2.3.4.1 Asset specificity and costs

Asset specificity refers to the extent to which one asset, such as land, equipment, human capital, is specialized to a specific transaction and its value will unavoidably decrease if it is used in any other occasions (Chiles & McMackin, 1996). Asset specificity leads to increased costs of safeguarding (Rubin, 1993). The logic is, based on TCP paradigm, the increased specific assets will increase the probability of opportunism (Hill, 1990). For example, based on the opportunism assumption, RHs may tend to take more advantage of the REs' interest since RHs know the more specific assets invested by REs, the less probability for REs to replace those specific assets to other places or production condition without losing values. In this case, if no

appropriate safeguards are configured ahead of the cooperation between REs and RHs, REs face the risks of being expropriated by RHs and vice versa. Hence, to protect interests and discourage possible opportunism behaviours, the two sides have to invest more costs in reinforcing the safeguard level. Further, the specific asset makes its investors to lose control, to some extent, over their partners, which unavoidably leads to more bargaining and haggling before reaching mutual acceptable contracts(Artz & Brush, 2000).

In summary, those safeguarding costs, resulting from the specific assets, are mainly associated with the activities in negotiating and designing contracts (Chiles & McMackin, 1996). Therefore, specific assets lead to safeguarding issues and related costs (Rindfleisch & Heide, 1997). In this study, REs face contracting costs as a result of the safeguarding issues originated from the specific investments they put into the collaboration with RHs (Table 10,11).

Table 11 Relationships between Transaction Dimensions and Costs
(Source: adapted from Rindfleisch and Heide, 1997; Dyer,1997; Artz and Brush, 2000)

	Asset Specificity	**Environmental Uncertainty**	**Behavioural Uncertainty**
Main sources of costs facing REs	Safeguarding	Adaptation	Performance Evaluation
Main costs facing REs	Contracting Costs *(Crafting Safeguards Costs)*	1.Contracting Costs *(Costs of coordination and communication);* 2.Enforcement Costs *(Costs of renegotiation)*	1.Search Costs *(Screening and Selection Costs);* 2.Monitoring Costs *(Measurement Costs);* 3.Enforcement Costs *(Costs of Sanctioning opportunistic behaviours)*

2.3.4.2 Uncertainty and costs

The uncertainty includes both environmental uncertainty, which refers to the circumstances around a transaction cannot be specified ex ante, and behavioural uncertainty, which emphasizes that the performance of transactors cannot be specified both ex-ante and -post (Rindfleisch & Heide, 1997).

First, the environment uncertainty mainly leads to adaption problems as it creates instability which is difficult for transactors to fully and correctly understand and respond to (Carson, Madhok, & Wu, 2006; Rindfleisch & Heide, 1997). Hence, it increases both ex ante and ex post costs, such as in contracting and enforcement. On the one hand, REs' contracting cost increase with the rise of environment uncertainty. Specifically, the environment uncertainty makes it difficult to accurately predict a wide range of possibilities and their effect. This

leads to exchange partners to spend more time on designing complex agreements to protect them from the unfavorable changes in environment (Artz & Brush, 2000). On the other hand, the changing circumstance leads REs and RHs to adjust contract clauses to adapt to it. Especially when the environment is too unpredictable or the change is too big, even a comprehensive contract designed in advance might become obsolete or unsuitable. As a result, REs and RHs have to change current clauses or design new ones to adapt to the new environment. However, the bargaining power and interest demand of REs and RHs might be changed by the changed environment. As a result, the adjustment to the new environment requires much time for both parties, and the ongoing renegotiation might cause significant costs (Rindfleisch & Heide, 1997) (Table 10,11).

Second, the behavioural uncertainty leads to one party's difficulty in evaluating or observing the performance and activities of the other party (Poppo, Zhou, & Li, 2016; Rindfleisch & Heide, 1997). This type of uncertainty is the result of the information asymmetry both ex-ante and -post. On the one hand, the ex ante information asymmetry between REs and RHs leads to a difficulty for REs to correctly know the actual background of RHs, and vice versa. In this case, one side or both sides might hide some key information to influence the other side's decision making in the partner selection process. This is well

known as reverse selection (Ackerloff, 1970). Hence, to avoid possible reverse selections, REs need to bare more costs in identifying and selecting proper RHs. On the other hand, the ex post information asymmetry leads to a situation where a party's true performance is not readily apparent and costs on behavioural measurement have to be paid (Rindfleisch & Heide, 1997). For example, it is hard for REs to correctly and promptly verify whether RHs perform in accordance with contracts, and vice versa. Hence this behavioural uncertainty forces both of the transactors to pay substantial costs in gathering and processing information concerning the other party's behaviour (Table 10,11).

In addition, it is necessary to point out that, without the assumption of uncertainty, all degrees of specific assets, no matter how specialized they are, can be protected through contracts (Mahoney, 1992). Hence, some extent of uncertainty is assumed throughout this study, which is similar to the mainstream of the TCP literature.

2.3.4.3 Transaction frequency and costs

Transaction frequency is used to characterize how frequently transactors conduct economic exchanges with each other (Williamson, 1985), and it receives relatively limited attention in the TCP literature. According to Williamson (1985, p. 60), the higher the transaction

frequency, the higher probability for firms to employ hierarchy rather than market as the governance mechanism. Compared with one-off or occasional economic exchanges, the recurrent market-based transaction leads firms to invest more specific assets in supporting it. After a threshold, when the costs of utilizing the market exceed that of operating hierarchy, it is advisable for companies to abandon market and use hierarchy. This study mainly focuses on a strategic cooperation between REs and RHs, where the transaction frequency is neither too high nor too low. It means the medium governance structures, rather than the pure market or pure hierarchy, are more appropriate for REs and RHs, which will be discussed more specifically in section 2.3.5. Further, given the transaction frequency remains at a relatively intermediate level in the strategic cooperation, this study shares opinions with Williamson (1985) and the mainstream TCP literature (e.g., Poppo et al., 2016; Schepker et al., 2014), and will not discuss its effect on transaction costs. However, asset specificity, environment uncertainty and behavioural uncertainty are the most adopted three dimensions when using TCP as an analysis tool (e.g., Poppo et al., 2016; Rindfleisch and Heide, 1997).

2.3.4.4 Transactional dimensions and governance structures

Williamson (1985, 1979) concludes that if the above three transactional dimensions, including asset specificity, uncertainty and

transaction frequency, could be ascertained, then the governance structures adopted by transactors would be predicted. This logic is based on the assumption that proper governance structures can minimize transaction costs influenced by the three transactional dimensions. Hence, it is necessary for REs to select and establish appropriate governance structures in their cooperation with RHs. However, the process of building up governance structures incurs costs as well. These costs are usually called governance set-up costs, and different governance structures have different costs (Dyer, 1997). For instance, as mentioned in section 2.3.3, the negotiating and designing contracts leads to significant costs. Also, the building of trust and relationships is usually time consuming (Dyer and Singh, 1998; Dyer, 1997). As part of transaction costs, governance set-up costs are up-front investments and will influence the ongoing transaction costs in monitoring and enforcement (Dyer, 1997). In the following, this study will discuss the definition and inter-relations between two governance structures used by REs and RHs.

2.3.5 Two governance structures between REs and resource holders (RHs)

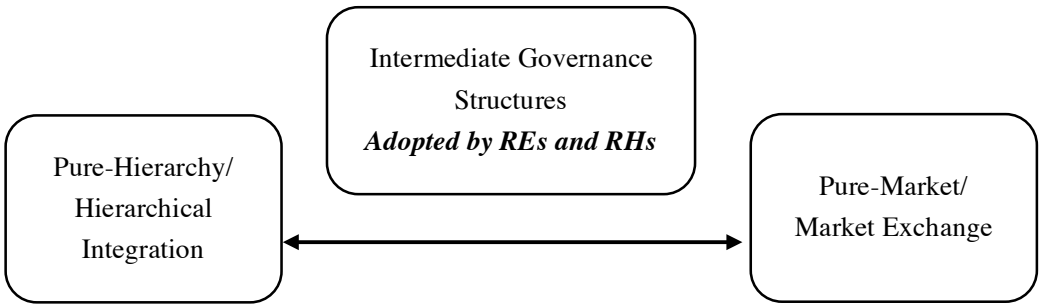
It is widely agreed that an exchange and collaboration can gain a higher economic efficiency if the related transaction costs are reduced (Butler et al., 1997; North, 1990; Williamson, 1991). Based on TCP,

the main goal of economic institutions is to economize transaction costs (Williamson, 1985). Therefore, reducing the costs of startups' resource acquisition, which is a pattern of transaction costs, is a pursuit for REs in their collaboration with RHs. To realize this goal, REs need to not only efficiently find proper RHs, but also build up appropriate governance structures and use them to reduce monitoring and enforcement costs in the collaboration with RHs.

Governance structures play a key role in reducing transaction costs, as well as increasing the willingness of transactors to engage in the exchange (Dyer and Singh, 1998; Williamson, 1985). The purpose of governance structures is to bring transactors the perception of fairness (Dyer, 1997), and, at minimum costs, to let transactors believe their participation in this exchange will make them better off (Williamson, 1985).

Initially, the TCP literature tended to classify the governance structures into two polarized types: market and hierarchy. Gradually, scholars found there existed intermediate structures between the pure market exchange and hierarchical integration (e.g., Williamson, 1991). For transactions involving long-term relations, intermediate structures are more proper (Mark Granovetter, 1985). This view is applicable to the strategic cooperation between REs and RHs as well. It is because the transaction frequency of the strategic cooperation between REs and

RHs is neither one-time nor too high, and as such intermediate structures, rather than pure market or hierarchical integration, is more appropriate (Figure 9).



(Source: Created by The Author)

Figure 9 Position of Intermediate Governance Structures Adopted by REs and RHs

Intermediate governance structures include both formal (i.e. legal contracts) and informal ones (i.e. guanxi) (Dyer & Singh, 1998; Poppo & Zenger, 2002; Telser, 1980) (Table 12). The formal governance structure mainly refers to the legal contract, which clarifies the obligations and rights of each party and is usually in written, and it is widely used in western countries (Dyer, 1997). With the increase of asset specificity and uncertainty, the complex of legal contracts will increase correspondingly. The disputes resolution of legal contracts depends on the third party enforcer, such as state or other legitimate authorities (Dyer, 1997).

Table 12 Definitions of Governance Mechanisms
(Source: Adopted from Dyer, 1997; Dyer and Singh, 1998)

Governance Structures	
Construct	**Definition**
Guanxi	The relationship between two parties, which stands for a reciprocal responsibility of each party to offer favor as a response to requests. The enforcement of guanxi mainly depends on the two parties, and as such it is a self-enforcement mechanism
Legal Contracts	Formal, written and legal agreements between two parties. The enforcement of legal contracts resorts to a third party, such as a court, and as such it is a non-self-enforcement mechanism

The informal governance mechanism in this study refers to guanxi, because the research context is in Chinese society. Guanxi is similar to relation and networking in the west (Wellman, Chen, & Weizhen, 2002), which does not require written materials and takes an informal way. Different from western societies mainly governed by written contracts supported by the highly developed legal system, Chinese culture tends to be more depended on the role of relationships (Yen, Yu, & Barnes, 2007). Regarded as an alternative option different from formal mechanisms (Peng & Heath, 1996), guanxi is a salient governance structure in Chinese business environment (Xin & Pearce, 1996), which can help decrease transaction costs through curbing opportunism (Yang & Wang, 2011). Under the governance of guanxi, the disputes resolution usually resorts to the transactors themselves (Gulati, 1995a; Larson, 1992; Uzzi, 1997). Hence, this type of governance structure is called self-enforcement agreements (Dyer,

1997). The definition and characteristics of legal contracts have long been discussed while the understanding of guanxi in Chinese context is relatively limited. In the following, section 2.3.5.1-2.3.5.3 will offer a specific literature review on guanxi.

2.3.5.1 Definition of guanxi

Chinese guanxi has received extensive attention in the past several decades, with various conceptual and empirical papers dedicating to examining the antecedents of guanxi and its influence on Chinese business and entrepreneurship (e.g., Chen and Chen, 2004; Dunfee and Warren, 2001; Gu et al., 2008; Lee et al., 2001; Park and Luo, 2001; Xin and Pearce, 1996; Yang and Wang, 2011; Yen et al., 2011).

According to the Modern Chinese Dictionary (Lv & Ding, 2012), guanxi is defined as a status of mutual influences between objectives and a given links between two persons or two things. In addition to inter-relationships, guanxi stands for a reciprocal responsibility of each party to offer favor as a response to requests (Pye, 1982; Xin & Pearce, 1996; Yang, 1994). In other words, when one party provides a favor to the other, it is expected that the former will receive favor in the future from the other side. Otherwise, the guanxi will be damaged. Many scholars argue guanxi is unique to Chinese culture (e.g., Davies et al., 1995; Hung, 2004; Vanhonacker, 2004), while the others think it is

equivalent to the networking and ties in the western culture (e.g., Wellman et al., 2002). This study draws on the wisdom of both sides and the specific difference between these two concepts is not the focus of this thesis.

Guanxi is usually built on two main bases, blood and social bases (Tsang, 1998), and between which, the former includes one' family members and relatives, while the latter refers to the relationship including supplier-purchaser, producer-customer and various alliances. Social-based guanxi is the extension of blood-based guanxi (Bell, 2004). Considering the fact that the limited access to critical resource holders is a critical obstacle for entrepreneurs in China (Guo & Miller, 2010; Peng & Chi, 2001; Xin & Pearce, 1996), and that many REs seriously lack networks in their early stage of entrepreneurship in China (Li et al., 2012; Lin et al., 2014), this paper focuses on the social base of guanxi between REs and RHs, which means the relationship among them is not born but made.

One significant character of social guanxi is transferability (Park & Luo, 2001; Tsang, 1998). In other words, the establishment of social guanxi between two persons (i.e., A and C) can depends on a common connection through a third party (i.e., B). The transferability of guanxi is especially useful for people who lack natural relationships with a diversity of collaborators (Gu et al., 2008). Considering the fact that

many REs usually lack domestic networks (Li et al., 2012; Lin et al., 2014), NSPs play a key role in facilitating the building up and even the maintenance of social guanxi between REs and RHs.

Although both personal- and organizational-guanxi are paid attention in the literature, this study focuses on the personal-level guanxi between REs and RHs. The main reason is the dependable links amongst key persons in two organizations are usually a promise for a reliable organizational guanxi (Wank, 1996), and guanxi can be transferred from an individual level to a corporate level (Peng & Heath, 1996). Also, guanxi is driven by personal rather than organizational commitment (Chen & Chen, 2004), especially where the institutionalization in organizations is lacking (Xin & Pearce, 1996), such as the new ventures of REs. Furthermore, the micro perspective can bring more depth and specificity to research, which is suitable for exploratory studies.

2.3.5.2 Importance of guanxi in China

As a crucial tool to obtain resources and status in China, which is a relationship-based society (Wang, 2007), guanxi is not only an important social-business resource of individuals, but also a source of competitive advantage for firms doing business (Park & Luo, 2001; Tsang, 1998). For example, guanxi with governments is regarded as a

tool to bypass industry policy barriers or protect business interests from risks (Dunfee & Warren, 2001; Lovett, Simmons, & Kali, 1999).

Actually, the way of doing business in China is strikingly different from the West (Pearce & Robinson, 2000), and guanxi dominates business events across China as it can facilitate stakeholders to open dialogues, exchange favors, and overcome institutional barriers (Hoskisson, Eden, Lau, & Wright, 2000; Lovett et al., 1999; Luo, 2003). Many researchers (e.g., Guo and Miller, 2010; Peng and Chi, 2001; Xin and Pearce, 1996) agree that the limited access to critical resources is an unavoidable barrier for entrepreneurs' new ventures in China, and one of the most important tool to overcome this obstacle is guanxi. Naturally, the activity of building and taking advantage of guanxi is pretty common in Chinese business world (Hu & Stanton, 2011). By contrast, ignoring guanxi's key role might lead business relationship to be jeopardized (Pearce & Robinson, 2000). In general, guanxi is valuable for entrepreneurship because of its function in bridging gaps in resource flows between firms (Park & Luo, 2001), and its importance is especially paramount in China where the economy is still in transition (Guo & Miller, 2010).

2.3.5.3 Two elements of guanxi

Since guanxi is crucial to businesses and entrepreneurship in China, it is necessary to identify how to build up strong guanxi, since bad guanxi is never considered beneficial (Lee & Xu, 2001). To establish strong guanxi, the precondition is to understand the key element of guanxi in Chinese culture.

Guanxi is made up of two main constructs, xin and qing (Chen & Chen, 2004), with some literature further splitting qing into two sub-elements: ganqing and renqing (Hwang, 1987; Jacobs, 1982; Wang, 2007; Yen et al., 2011). Xin is similar to the trustworthiness in western society, and qing represents the mutual affective and instrumental needs between parties (Chen & Chen, 2004). Xin (trust) and qing (feeling) are considered to collectively contribute to the quality of guanxi while they are two discernible concepts (Chen & Chen, 2004; Kipnis, 1997) (See figure 10).

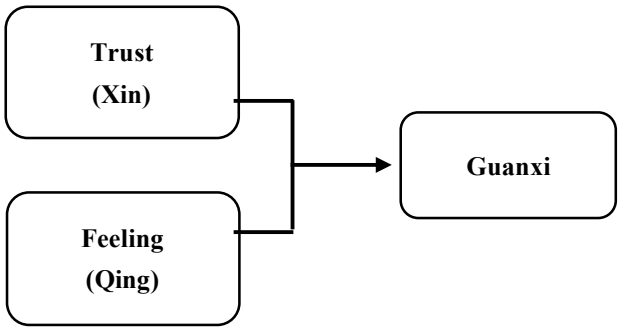


Figure 10 Two Key Elements of Guanxi

(Source: Adapted from Chen and Chen, 2004)

1）Xin (trust)

Xin is a Chinese word, and similar to the definition of trust, it can be used as a verb or noun (Yen et al., 2011). The trust discussed in this paper is a two-way trust, which is a key determinant for cooperation (Rothstein, 2005). With mutual trust, members are confident about trusting others and being trusted (Wicks, Berman, & Jones, 1999), which is not a one-way trust relationship (Chen, Zhang, & Xu, 2009). That is to say, any one unidirectional trust, no matter from REs to RHs or vice versa, does not mean a mutual trust between REs and RHs.

Although trust is a key mechanism in the Chinese business environment (Yen et al., 2011), few entrepreneurship studies have explicitly explained the way mutual-trust is built up amongst entrepreneurs and their partners in the resource acquisition stage of new ventures (e.g. Bergh et al., 2011; Neergaard and Ulhoi, 2006; Nguyen and Rose, 2009; Smith and Lohrke, 2008). Even fewer studies discuss the role of third parties, such as science parks, in the above process. Since trust can be established without previous experience with the trustee (McKnight, Cummings, & Chervany, 1998), this study will explore the tool NSPs use to accelerate the mutual trust building between REs and RHs who did not know each other before hands.

2）Qing (feeling)

Qing literally means feelings (Chen & Chen, 2004), and is an emotional element linked to social bonding in business relationships (Mavondo & Rodrigo, 2001), representing personal affection between two exchange parties (Yen et al., 2011). The better the qing, the better and stronger the guanxi (Kipnis, 1997). The most important way to improve qing is through social interactions, which includes parties, dining, visiting and participating in events and so on (Lee & Xu, 2001; Seligman, 1999). The improved qing between two parties can then strengthen guanxi, as long as they all have enjoyed the social activities (Yen et al., 2011). This study will explore the way NSPs adopt to improve the qing between REs and RHs, with the aim of accelerating their guanxi building.

2.3.6 Relationship between two types of governance structures

With regards to the relationship between formal and informal governance structures, there are two contradictory views proposed by the literature in the context of western society. One literature stream argues these two mechanisms are substitutive. On the one hand, scholars find the informal structure replaces the formal one. For instance, Dyer and Singh (1998) contend that informal governance structures can replace the need of control through legal contracts. Similarly, Uzzi (1997) argues that the social relationship saves transactors much time in conducting contract negotiations. On the other

hand, some academics argue that the formal governance mechanism substitutes the informal one. For example, Ghoshal and Moran (1996) conclude that the formal control is harmful to establishing trust and, hence, the informal governance structure. Bernheim and Whinston (1998) contend the specified legal contracts sometimes indicate the low trust, which is bad for the operation of informal governance structures.

Another literature stream, however, argues that the formal and informal governance mechanisms are complementary. For instance, Klein (1996) and Baker et al. (1993) conclude that a detailed legal contract will make the participants hold a relatively positive expectation of the other side and think they will behave. In a dynamic perspective, much strategic cooperation begins with formal governance structures and then, over time, configures more informal ones (Gulati, 1995b). In the long run, trust and other informal governance structures among transactors will gradually grow. These self-enforcement agreements might push the development of legal contracts (Poppo & Zenger, 2002).

After a long period of time in discussing the relationship between formal and informal governance structures in the environment of western countries, the exploration of that relationship under Chinese context would be interesting. Furthermore, very limited attention has been paid to the REs' choices of governance structures. Different from

ordinary entrepreneurs, REs not only inherit Chinese culture, such as guanxi, but also have been long exposed in western society with a thick institutional system and valuing legal contracts. Therefore, when it comes to REs' cooperation with RHs, the relationship between formal and informal governance structures is still unclear. This ambiguity brings difficulty to REs in adopting appropriate governance mechanisms to reduce transaction costs. This study will add insights into this aspect.

2.4 Research framework

Based on the above literature review on entrepreneurship, science park and TCP, this study develops a research framework (Figure 11) to explore how NSPs facilitate the resource exchange between REs and RHs through reducing the relevant costs for REs. In general, the services provided by NSPs might help REs decrease costs through either direct or indirect approaches. On the one hand, NSPs' services directly reduce REs' costs in searching for and negotiating agreements with RHs. On the other hand, the reduction of REs' monitoring and enforcement costs is significantly influenced by the governance structures between REs and RHs, such as guanxi and legal contracts. Hence, NSPs may help reduce the set-up costs of governance structures, and then through these governance structures, NSPs can indirectly facilitate REs' costs reduction in monitoring and enforcement. The

following case studies are guided by this conceptual framework, and will explore the specific mechanisms through which NSPs' individual or combination of multiple services reduce REs' costs. Further, based on the mechanism analyses, this study will explain why some NSPs are effective in reducing REs' costs while others are not and then summarize probable paradigms of offering strong services for the reference of NSPs, REs and policy makers.

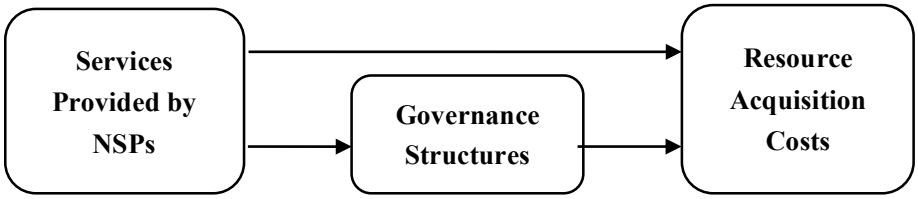


Figure 11 Conceptual Framework

(Source: Generated by the Author)

2.5 Chapter summary

This chapter first examines the existing literature in entrepreneurship, returnee entrepreneurship (in China), science park (in China), transaction costs perspective, and then figures out several significant research gaps. First, the literature on conventional entrepreneurship tends to explore the role of internal resources on new ventures' success while, to some extent, ignore external resources (Dacin et al., 2010). This study shares Aldrich and Martinez (2001) and Van Geenhuizen and Soetanto (2009)'s view and contends the new ventures require external resources and, therefore, will focus on the

external resource acquisition of entrepreneurs. Second, the present returnee entrepreneurship research usually ignores the resource acquisition stage of REs' ventures, although the obstacles facing REs' startups have been widely recognized. As a result, there exists limited understanding of how to help REs overcome difficulties in resource acquisition. Further, very few studies on REs take account of science parks' role in supporting REs, especially in Chinese context. Third, science parks offer a wide range of services for entrepreneurs but the extant literature has not yet identified which types of services really matter to REs in their resource acquisition for the new ventures. One crucial reason lies in the fact that very little literature takes into account REs' characteristics and their specific requests. Finally, the understanding of the specific mechanisms through which science park services support REs is still limited. Relevant studies under Chinese context are even more scare. This fact limits academics' ability to seek resolutions to the disputes on science parks' role in supporting entrepreneurs and firms.

In general, this chapter justifies the theoretical and practical background and related research gaps. To add insights into the existing literature, the following Chapter 3 justifies the rationale of research design developed for this study.

Chapter 3 Methodology

3.0 Introduction

The previous chapter reviews the significant literature related to the current study and establishes a research framework as a guidance for conducting this study. This chapter will illustrate the methodology adopted by this study. Methodology is a procedure through which researchers approach and investigate the reality, and then create knowledge (Guba & Lincoln, 1994; Healy & Perry, 2013). To answer the research question, research must select appropriate research methodology, which includes the selected research philosophy, research approach, research strategy, case selection, data collection, analysis procedures and methods. In the following, a methodology flow chart is created to illustrate this chapter's structure (Figure 12).

Section 3.1 briefly introduces several competing philosophical paradigms in social science research and explains why this study adopts interpretivism.

- Section 3.2 first states three representative research approaches and then justifies the selection of the abductive approach.
- Section 3.3 introduces several main research strategies and then explains why qualitative case study is appropriate for this study
- Section 3.4 states the criteria of selecting cases of this multiple-case study before conducting data collection.

- Section 3.5 states the way of doing pilot- and main-stage data collection.
- Section 3.6 first briefly introduces the data analyses principles to be adopted in Chapter 4, 5 and 6 and then presents four tests that will be applied to increase the case study quality.
- Section 3.7 gives a chapter summary.

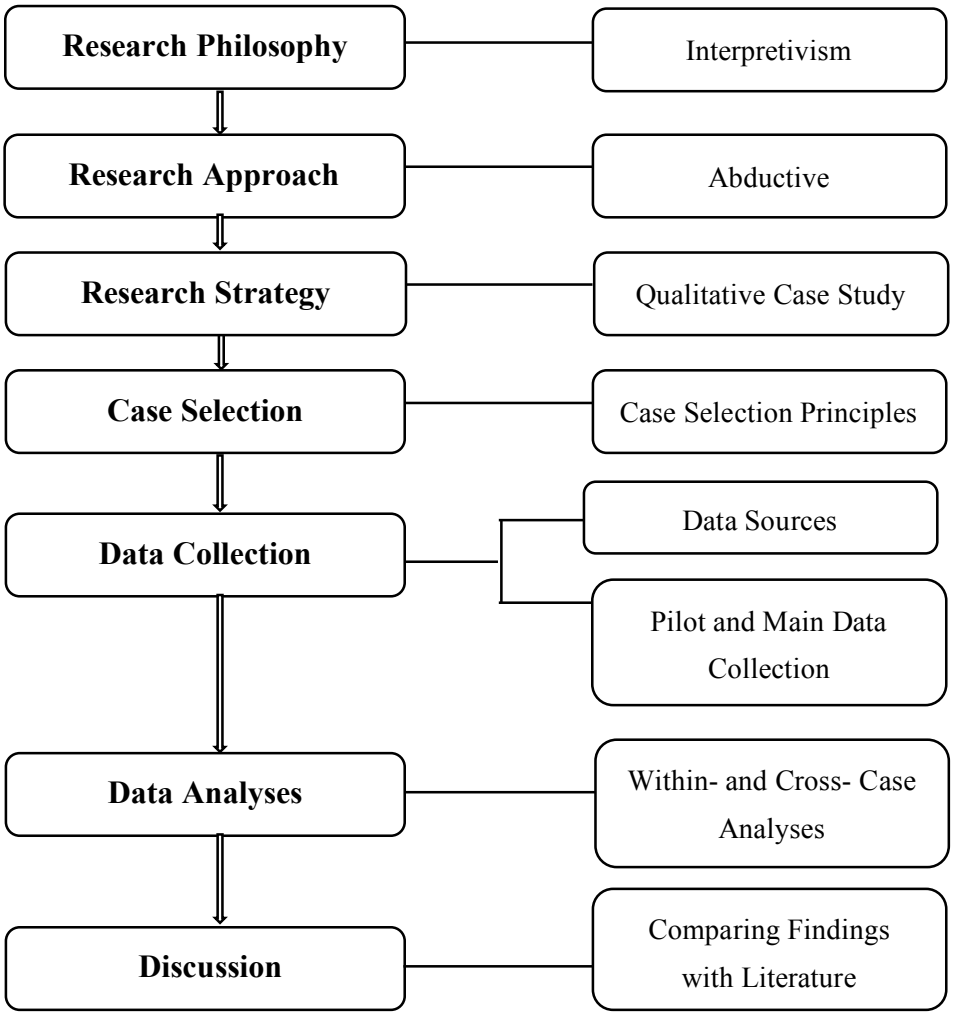


Figure 12 Methodological Flow Chart

(Source: Adapted from Saunders et al., 2012)

3.1 Research philosophy: interpretivism

The research philosophy can be regarded as the way one researcher views the world. According to Saunders et al. (2012), there are several philosophical paradigms used in social sciences, including pragmatism, positivism, interpretivism and realism (Table 13). To differentiate the above paradigms, scholars usually utilize three dimensions, including ontology, epistemology and methodologies, respectively (Guba & Lincoln, 1994; Saunders et al., 2012).

Ontology is the study of being and it concerns what is the nature of reality (Guba & Lincoln, 1994; Saunders et al., 2012). Epistemology is to explore the nature of relationship between the inquirer and the external world (Guba & Lincoln, 1994) and it is concerned with what constitutes acceptable knowledge (Saunders et al., 2012). Finally, methodology includes the design and data collection techniques, which are procedures used by the researcher to approach whatever can be known about reality so as to generate knowledge (Guba & Lincoln, 1994; Healy & Perry, 2013). Next, this study will use the above three dimensions to differentiate the research philosophies (Table 13), and then assess their suitability for this study.

Table 13 Research Philosophies
(Sources: Adopted from Saunders et al., 2012; Guba & Lincoln, 1994)

	Positivism	**Interpretivism**	**Pragmatism**	**Realism**
Ontology: Researcher's view of the nature or reality or being	Objective and independent of social actors, belief in a single identifiable reality, external,	Subjective, might change, multiple, socially constructed	Multiple, external, view chosen to best answer research question	Objective, exists independently of human thoughts and beliefs or knowledge, but is interpreted through social conditioning
Empistemology: Researcher's view on what constitutes acceptable knowledge	Objectivism; Only observable phenomenon can provide credible data and facts; Focus on causality and law-like generalization	Subjectivism; Subjective meanings motivating actions, Focus upon details of situation, a reality behind details	Either or both observable phenomenon and subjective meanings can provide acceptable knowledge based on the research question	Focus on explaining within a context or contexts, observable phenomena provide credible data and facts
Methodology: Design and data collection techniques	Survey, experiments: Highly structured, large sample; mainly quantitative methods	Case study, grounded theory, narrative research: Small samples, in depth investigation, qualitative methods	Mixed or multiple methods design, qualitative and quantitative	Methods must fit the subject matter, quantitative or qualitative

Positivism regards the nature of reality as external and objective, and it utilizes scientific methods of natural science to study and explain human behaviour (Amaratunga & Baldry, 2001; Delanty, 2005). Positivists usually consider acceptable knowledge as observable and tend to create law-like generalization through searching for causal relationship among collected data concerning an observable reality (Amaratunga & Baldry, 2001; Delanty, 2005; Gill & Johnson, 2010). In positivism, researchers are independent of the data and maintain an

objective stance (Saunders et al., 2012). As a result, the data and analyses are claimed to be value-free (Healy & Perry, 2013). Positivism usually adopts surveys and experiments as its main methods, along with quantitative data out from highly structured sample, to measure facts embedded in reality (Guba & Lincoln, 1994), which is similar to physical and natural scientists (Saunders et al., 2012).

However, interpretivists argue that positivism's way of theorizing complex social world into definite 'laws' loses rich insights into this world of business and management, and as a result, interpretivisim contends the importance of valuing the differences amongst social actors (Saunders et al., 2012). Interpretivism regards the nature of reality as subjective and socially constructed (Guba & Lincoln, 1994). Further, interpretivists consider the acceptable knowledge as subjective meanings, which contain details of specifics (Saunders et al., 2012; Amaratunga and Baldry, 2001). In interpretivism, research is value bound as the researchers are part of what is being researched, and as such cannot be separated from it (Saunders et al., 2012). Case study and grounded theory are commonly used in interpretivism to do in-depth investigation in a social context, equipped with qualitative data (Guba & Lincoln, 1994).

Pragmatism argues that the support of action is the precondition of considering concepts as relevant (Kelemen and Rumens, 2008). The research question is the most significant factor determining pragmatists' view on the nature of the reality and acceptable knowledge (Saunders et al., 2012). Pragmatism regards the positivism and interpretivism as

two ends of a continuum and tends to choose either or mixture of these two philosophies (Tashakkori & Teddlie, 2010), according to the research question, context and likely consequences (Nastasi, Hitchcock, & Brown, 2010). Also, pragmatists adopt both subjective and objective views and are not limited to quantitative or qualitative methods. They prefer to choose the most appropriate way or ways to collect reliable, relevant and credible data (Kelemen & Rumens, 2008; Saunders et al., 2012).

There are two types of realism presenting two different ways of considering the nature of reality and acceptable knowledge. Direct realism takes an objective view with regard to the nature of reality and argues that objects exist independently of human mind, while critical realism adopts a subjective way and argues the world is interpreted through social conditioning (Crotty, 1998; Saunders et al., 2012). Direct realism thinks what people experience is the things directly, and therefore, observable phenomena provide credible data (Crotty, 1998). Critical realism contends what human experience is sensation and as such is not the thing directly, which might lead to misinterpretation (Saunders et al., 2012). Critical realists agree that research is value laden and researchers are usually biased by world views, cultures and experiences (Furlong & Marsh, 2010). Both quantitative and qualitative methods can be adopted by realists (Saunders et al., 2012).

This study adopts interpretivism as the research philosophy and emphasizes the differences among human beings who are social actors, which is different from positivism pursuing generalizing law-like

relationships through observable reality, or pragmatism owning no commitment to any reality systems (Saunders et al., 2012). In this study, the views of both REs and staff members of NSPs all reflect the distinctiveness of humans and their experience of the social world (Saunders et al., 2012), which is not the nature order or law and as such can be better captured by interpretivism.

Further, interpretivism enables researchers to understand and explain the personal experience and motivation of people in a social perspective (Bryman, 2015), which consists of returnee phenomenon, science parks' boom and China's society. The current study aims not only to make sense of REs' perception on their costs reduction and reasons behind it, but also to interpret the characteristics of NSPs' services from perspectives of NSP staff members serving REs, which can be better observed by interpretivism. In addition, this study aims to explore why only some, but not all, NSPs can provide strong support to REs to decrease their costs in resource acquisition. Interpretivism is more suitable for answering the 'why' question (Easton, 2010).

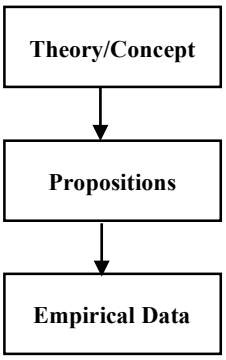
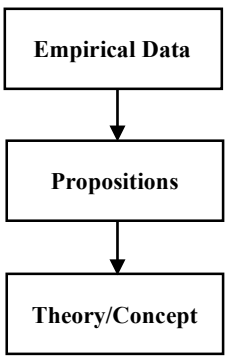
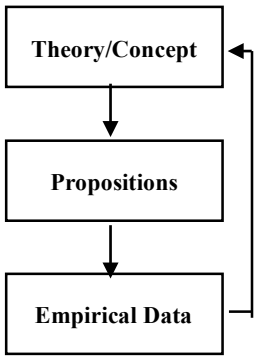
3.2 Research approach: abduction

There are three typical research approaches in social science research, including deduction, induction and abduction (Saunders et al., 2012) (Table 14). Deduction is the dominant research approach in natural sciences (Saunders et al., 2012) and is associated with research philosophy of positivism (Crotty, 1998). Deduction verifies or refutes a theory by using empirical data to rigorously test a set of propositions derived from extant theories (Bryman, 2015; Miller & Brewer, 2003).

Deductive researchers move from the general to the specific. In contrast, induction is mainly driven by data, which acts as the basis for new propositions and theoretical concepts. The inductive research approach is usually used in exploratory and qualitative research (Easterby-Smith, Thorpe, & Jackson, 2012), and researchers move from the specific to the general. The abduction is the combination of deduction and induction, and researchers first move from empirical data to theoretical propositions and concepts, and then conduct further data collection to evaluate the propositions.

Table 14 Three Typical Research Approaches

(Source: Adapted from Bryman, 2012 and Saunders et al., 2012)

	Deduction	**Induction**	**Abduction**
Generalisability	From the general to the specific	From the specific to the general	The interactions between the specific and the general
Logic			
Use of Data	Data collection is used to evaluate propositions or hypotheses based in extant theories	Data collection is used to explore a phenomenon, identify themes and patterns	Data collection is used to explore a phenomenon, identify themes and patterns, locate these in a theoretical framework and evaluate this through further data collection and so on
Development of Theory	Theory verification or falsification	Theory building and generation	Theory generation or modification

For a specific research, the research approach choice amongst deductive, inductive and abductive depends on the research topic, logic,

generalizability, the use of data and the pattern of theory development (Saunders et al., 2012) (Table 14).

When the research topic is significant but new, there exists limited understanding of it, and the interaction between theories and empirical data is crucial to create propositions. In this case, abductive approach is appropriate to do study (Eisenhardt & Graebner, 2007; Saunders et al., 2012). The resource acquisition stage of REs' new ventures is significant for firms' future development (Agarwal & Audretsch, 2001), but is largely ignored by the returnee entrepreneurship literature. Also, extant studies on science park usually neglect the specific requests of REs, and as such fail to understand the actual effect of science park services on REs' resource acquisition. As a result, the role of China's NSPs on REs' resource acquisition is still far from clear in academia, but there exists abundant of experience in practices requiring summary and refinement. Therefore, an abductive research approach was selected to conduct this research, where the new concepts and propositions came from the comparison between empirical data and existing theories. Accordingly, the current study's generalization pattern goes between specific and general.

3.3 Research strategy: qualitative case study

In empirical studies, different research strategies are adopted, including, experiment, survey, archival analysis, history and case study. To distinguish which research strategy is more appropriate for one study, Yin (2013)'s three criteria, as shown in table 15, are widely recognized: 1) the form of research question; 2) the requirement on

behavioural control in events; and 3) the contemporaneity of events focused by the study.

Table 15 Different Conditions for the Use of Various Strategies
(Source: Adopted from Yin, 2013)

Method	Form of Research Question	Requires Control of Behavioural Events?	Focuses on Contemporary Events?
Experiment	How, why ?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival Analysis	Who, what, where, how many, how much?	No	Yes/No
History	How, why?	No	No
Case study	How, why?	No	Yes

Note:

1. **'What' questions** are either an 'exploratory' study in which any of the six research strategies can be used or a form of 'how many/ how much' line of inquiry, which is explained below;
2. **'How Many & How Much' questions** are more likely to favour survey and archival research strategies;
3. '**Who' & 'Where' question**s are more proper for survey methods or the analysis of archival data;
4. '**How' & 'why' questions:** are more explanatory and likely to lead to the use of case studies, history, action research and experiments as the preferred research strategies.

First, according to the above three criteria drawn by Yin (2013), two research strategies, including 'survey' and 'archival analysis', are first ruled out as the current study's research question is mainly concerned with 'how' and 'why'. For instance, this study will explore how NSPs' services help REs reduce costs in their resource exchange with RHs? (**how question**); Why some NSPs are effective in offering strong support to REs while others are not? (**why question**). Second, based on the criteria of requirements on behavioural control in events, 'experiment' and 'action research' are ruled out. This study cannot

control any behavioural events of REs, RHs or staff members of NSPs. Third, when it comes to the character of contemporary of this study, the research strategy of 'history' is ruled out.

In general, this study adopts case study as the research strategy as it is more appropriate for answering why and how questions in a contemporary context in which the behavioural events are not controlled by researchers. Actually, case study has been proved to be an effective research strategy in the present literature on both science park (e.g., Bøllingtoft, 2012; Chan and Lau, 2005; Hansson et al., 2005) and returnee entrepreneurship (e.g., Liu and Almor, 2016; Pruthi, 2014).

Further, the case study strategy includes both quantitative or qualitative forms (Yin, 2013), and this study adopts the qualitative rather than the quantitative one because of the nature of this research. First, in a field where prior insights are modest and the problems are unstructured, a qualitative method, with enough flexibility and exploration, would be preferred (Ghauri & Grønhaug, 2005), and this study fits with this condition. As mentioned in chapter 2, the research on returnee entrepreneurship, especially in Chinese context, is still at an early stage. Meanwhile, the existing limited research on returnees usually, implicitly or explicitly, ignores the phase of resource acquisition, which further limits our understanding of REs' new ventures. Also, most of the extant research does not distinguish the different requests between returnee and local entrepreneurs, and as such the role of science parks on REs' resource acquisition is still

ambiguous. Second, qualitative approach is appropriate for abductive (Bryman, 2015) and interpretive research (Marshall & Rossman, 2011), which is in line with this study's research philosophy and approach as stated in section 3.2 and 3.3, respectively. Lastly, in the last three decades, over half of the literature on science parks published in top academic journals adopt qualitative methods (Mian, Lamine, & Fayolle, 2016), which proves its usefulness and effectiveness in this study.

3.4 Case selection: multiple cases

3.4.1 Multiple-case and replication logic

Compared with single case sampling, multiple cases typically yield more robust and compelling results (Herriott & Firestone, 1983; Yin, 2013). Central to multiple-case studies is replication logic (Eisenhardt and Graebner, 2007), which is very common in qualitative studies (Eisenhardt, 1991; Strauss & Corbin, 1990). Unlike quantitative research that utilizes a large sample of cases and pursues statistical significance, qualitative studies usually adopt a small number of cases situated in a context and do in-depth analyses. Accordingly, sampling logic is not appropriate for a qualitative case study (Yin, 2013) while replication logic is preferred.

Replication logic is similar to that adopted in multiple experiments (Hersen & Barlow, 1976), and every case is purposely, not random, selected (Yin, 2013) because they are particularly suitable in illuminating and extending relationships amongst constructs (Eisenhardt and Graebner, 2007). Following replication logic, each

case serves as a distinct experiment and stands on its own as an analytic unit. In literal replication logic, each case predicts similar results and makes an extension to emerging theories (Miles & Huberman, 1994; Yin, 2013). Nevertheless, depended on theoretical replication logic, each case predicts contracting results with anticipatable reasons, which will help eliminate alternative explanations among constructs (Miles & Huberman, 1994; Yin, 2013).

3.4.2 Criteria and results of case selection

Two criteria were applied in the selection of six cases. First, to reflect the internal characteristics of NSPs, four out of the six NSPs came from the group of Prospective World Top Class National Science Parks (PWTC-NSPs), while the other two NSPs did not. The criteria of evaluating whether one NSP was a member of PWTC-NSP was based on an official strategic plan, named as 'the action plan for constructing innovative parks', issued by MoST (2006). This plan identified six PWTC-NSPs based in six cities: Shanghai, Shenzhen, Beijing, Wuhan, Chengdu and Xi'an. MoST works with local governments to support the six PWTC-NSPs to become world top class science parks in the near future. Based on '2013 Innovation Development Report of National High-Tech Development Zones' issued by MoST (2014, the six PWTC-NSPs had much better performance than ordinary NSPs. For example, in terms of the GDP scale, the six PWTC-NSPs accounted for 31.6% of all the more than 100 NSPs in China in 2012. Also, the R&D investment of these six NSPs was 58.4 times as high as other ordinary NSPs in 2012 (MoST, 2014).

Second, to reflect the external environment in which the NSPs were located, three NSPs come from the top urban agglomerations in China: Yangtze river delta and Pearl river delta. These two areas are the most developed regions in China according to many criteria, such as gross domestic product, investment, per capita income, transport infrastructure, higher education and so forth (China Business Network, 2013, 2016; Haas & Ban, 2014; Jones Lang LaSalle, 2015; Ye, 2013). The other three NSPs come from ordinary urban agglomerations.

For simplicity, the six NSPs are labelled as A, B, C, D, E and F, respectively. The profile of the six NSPs is provided in Table 19 in chapter 4. The unit of analysis in this study is the NSP. The case selection strategy reflects both literal and theoretical replication logic (Yin, 2013) (Table 16). Specifically, when the six NSPs are divided into four groups, labelled as 1, 2, 3, and 4, the group 1 and 2 follow literal replication logic on the one hand as they all belong to PWTC-NSPs. On the other hand, these two groups are in accordance with theoretical replication logic as only group 1 comes from the top urban agglomerations. A similar replication logic applies to the comparison between group 3 and 4. Further, group 2 and 4 are regarded as literal replication logic as they all come from the ordinary urban agglomerations. In the mean time, these two groups follow theoretical replication logic as only the NSPs from group 2 are PWTC-NSPs. Similar replication logic applies to the comparison between group 1 and 3. Finally, within group 1, NSP-A and B are accordant with literal replication logic. A similar logic is applied to the group 2, consisting of NSP-C and D.

Table 16 Result of Case Selection in China
(Source: Generated by the Author)

	PWTC-NSPs	Ordinary-NSPs
Located in Top Urban Agglomerations	1) NSP-A, NSP-B	3) NSP-E
Located in Ordinary Urban Agglomerations	2) NSP-C, NSP-D	4) NSP-F

3.5 Data collection

Following the study protocol suggested by Yin (2013), this study was planned to first identify likely data sources, get in touch with key persons within each organization, encourage their participation by presenting them with credentials and further explanations, and finally begin the data collection. To brief the prospective contacts of this research project, this study prepared a statement, which includes the following aspects: (1) an introduction of the research's purpose and themes; (2) the substantive issues being investigated; (3) the data collection approach involved; (4) the interview duration and procedure involved; (5) ethical issues regarding the use of data from the interview (Appendix 7 and 8).

3.5.1 Multiple data sources

Research findings can be more convincing and accurate if multiple sources of data are embraced as empirical evidence (Eisenhardt, 1989; Yin, 2013). To develop converging lines of inquiry and triangulate data collection, this study adopts multiple data sources and data collection techniques (Figure 13). The data sources included three parties: REs, NSPs and government, and the data collection techniques were interview, documentation and archives (Appendix 6). Interviews were

conducted with both REs of new ventures and staff members of the NSPs. Documentation and archival records were planned to be collected from both the six NSPs, REs and the government.

This study maintains a chain of evidence. Referring to Yin (2013), this study's evidence chain consists of five steps, from the case study's research questions, protocol, all the way through citations to specific evidentiary sources and case study database, to final report. Next, the rational of choosing semi-structured interview as a main data collection method was explained.

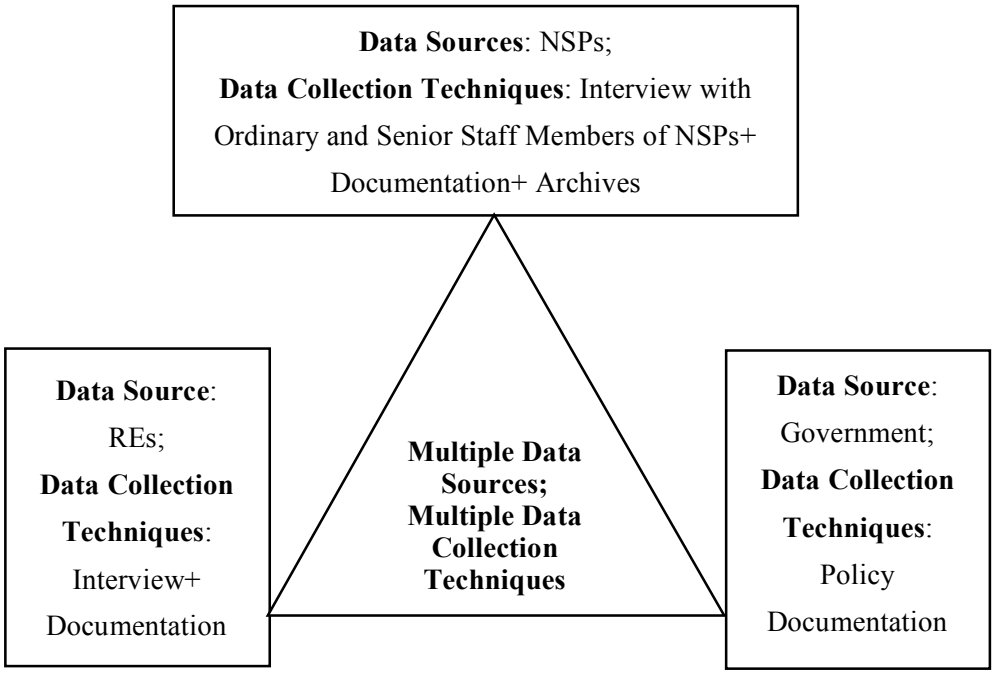


Figure 13 Triangulation of Data Sources and Data Collection Techniques

(Source: Created by the author)

3.5.2 Semi-structured interview method

The interview is frequently used for collecting qualitative data from primary sources (Ghauri & Grønhaug, 2005), mainly because it enables researchers to not only collect the real description of

interviewees, but also explain the meaning according to the described phenomena (Kvale, 1994). Based on the formality and structure, the interview can be classified as structured, semi-structured and unstructured (Saunders et al., 2012). The choice of interview form is mainly linked to the research purpose, degree of control and depth the researcher would like to apply when collecting data (Fitzgerald & Dopson, 2009; King & Horrocks, 2010) (Table 17).

Table 17 Comparison of Three Types of Interview Techniques
(Source: adopted from Saunders et al., 2012)

	Structured	**Semi-Structured**	**Unstructured**
Research Purpose	Descriptive Research; Explanatory Research	Exploratory Research; Explanatory Research	Exploratory Research;
Interview Depth	Low	Middle	High
Interview Control	High	Middle	Low

In terms of the research purpose, both unstructured and semi-structured interview are applicable in collecting primary data (King & Horrocks, 2010; Saunders et al., 2012). When it comes to the interview depth and control, compared with structured interviews, the semi-structured interview can obtain the interviewees' understanding of a particular research topic, rather than standardized responses. Meanwhile, compared to unstructured interviews, a typical semi-structured interview encourages the interviewees to talk at a proper length about a subject while adjust the interview direction promptly so as to keep in line of the inquiry and control the total interview time. Hence, the semi-structured interview can not only collect the relatively deep thoughts of interviewees, but also control the whole interview direction and pace (Saunders et al., 2012; Eriksson and Kovalainen, 2008; Kvale, 1994). More importantly, the semi-structured

interview is useful in exploratory research, which is in accordant with the current study's research purpose. Therefore, this study adopted semi-structured interview as the main technique during both of the pilot and main data collection stage, with the aim of absorbing new ideas which might be ignored in previous research.

Referring to King and Horrocks (2010), this study utilized three aspects of information when designing the interview questions: (1) the relevant literature; (2) the interviewer's own personal knowledge on REs and China's NSPs; (3) discussion with people who collaborated with NSPs in attracting and serving REs. Two types of questions were finalized for two types of interviewees, who are REs and staff members of China's NSPs, respectively. The preliminary interview questions were first drafted, and then based on the feedback in the pilot research, many revisions were made to finalize questions for the main stage data collection (For more information on interview questions, please check the appendix 1, 2, 3 and 4).

3.5.3 Conducting data collection

Data collection should be careful about potential ethic issues. Ethics are norms or standards of behaviour that guide moral choices (Cooper, Schindler, & Sun, 2003). To avoid ethical issues during the data collection, the researcher of this study joined related training and got approved by Postgraduate Research Office of University of East Anglia. Ethical standards require that participants' privacy must not be compromised (Nardi, 2015) and, accordingly, this study took several steps below:

- Assisted by middle persons, such as officials in MoST and NSPs, telephone calls or emails were made to the targeted contacts to explain the research objectives and invite their participation in this research;
- Permission was obtained from the contacts before the interview to them;
- A statement (Appendix 7 and 8) was sent to the interviewees explaining matters needing attention;
- In the statement, interviewees were assured that any information collected from this study would be kept confidential and used for academic study only.

Pilot work is essential since it helps formulate relevant lines of questioning, refines the conceptual framework of the research, and minimizes the time and resource wastage in the main work (Sampson, 2004; Yin, 2013). The pilot data collection was carried out in November 2014 with two returnee entrepreneurs who separately owned one new venture at NSP-D. To further explore the services directly related to the resource exchange between REs and RHs, two staff members of NSP-D, the head of the innovation centre and one manager who directly served REs, were interviewed. The aims, objectives, schedule and matters needing attention of this research were fully explained to all the interviewees. According to information from the pilot data collection, this study revised the interview questions.

The main data collection was conducted between January and June 2015, and during that period of time, the researcher of this study interviewed two types of informants in each NSP, including REs and staff members of the NSPs, similar to the way adopted in the pilot data collection. Among the NSP staff, both senior officials and ordinary staff members whose routine job included keeping in touch with REs and offering help, were interviewed. In doing so, this study got multiple perspectives from a variety of knowledgable informants (Eisenhardt and Graebner, 2007) in NSPs.

A snowball technique was used to gain access to interviewees and establish a relationship with them (Yin, 2013). Thanks to the assistance of leaders of Ministry of Science and Technology, this study made contacts with the director of the innovation/entrepreneurship bureau/centre at the six NSPs. All of the six officials agreed to take part in this study. Additionally, with the assistance of the six directors, this study's researcher also interviewed managers/staff members who were at the front line of serving REs. Furthermore, the managers/staff members introduced us several qualified REs in each NSP to take part in the research. All the targeted REs were willing to participate in this research, as they would like to keep a good relationship with the the NSP for their ventures' further development.

The REs were selected based on the following criteria: (1) to reflect the actual obstacles facing REs when they just came back to China, only those who returned China within the previous three years were included (The base year was 2015 as the main data collection was

conducted in 2015). The reason is the longer REs stay in China, the more networks and business environment familiarity will they gain, which will gradually smooth the exclusive characteristics of REs, and as such lead them to be more similar to local entrepreneurs; (2) to reflect the focus on international knowledge and technology transfer, only high-level REs who usually target high-tech industries were qualified to participate in this research. The definition of high-level REs in this study refers to the talent-related documents of the six NSPs. The specific description of high-level REs varies in the six NSPs, but there exist some censuses. For instance, REs can be classified into the high-level group only if they have PhD degree(s) or invention patents from OECD countries, or served as a senior manager or researcher in global famous organizations. Once one RE accept and enjoy a given NSP's high-level REs support policy, this RE gains endorsement from the NSP. This can be regarded as a pattern of NSPs' promotion of REs service; (3) to reflect only the most recent situation of the NSP, only RE ventures started on the NSP in the previous two years were included (The base year was 2015 as the main data collection was conducted in 2015). The reason is NSPs are in the process of developing and making changes. As a result, one NSP may appear different characteristics at different growth stages; (4) to make the comparison among the six NSPs more effective, only RE ventures in the information technology sector were included, as this sector not only was a high-tech and pillar industry in all of the six NSPs, but also absorbed a great number of REs, according to the six science parks' year book. In doing so, this study acquired multiple perspectives from a

variety of knowledgeable informants in each NSP (Table 18) (Eisenhardt & Graebner, 2007).

In the interview, this study shares the opinions with the bulk of the TCP literature and bases the measurement of costs faced by REs on their subjective perceptions and interpretation. The mainstream TCP literature views costs as subjective (e.g., Walker and Weber, 1984; Williamson, 1985, 1979). The concept of subjective costs originates from the Austrian school of economics (e.g., Pasour, 1991), which mainly studies disequilibrium markets and individual choices (Chiles & McMackin, 1996). Economic costs are subjective, because different decision makers make their selections among a wide range of options based on their different perceptions and preferences surrounded by an uncertain world (Chiles & McMackin, 1996). Further, the opinion of REs is a bottom-up perspective, which is significant not only in identifying which services really matter to REs in their resource acquisition for the new ventures, but also in exploring how NSP services work together to support REs.

Mandarin was used in all of the interviews, as it is the mother tongue of interviewees and can help to create a relax environment and more information can be gained. To ensure the accurateness of the interview questions' translation, those questions were first created in English and then were translated into Chinese by the researcher and a professional translator, separately. The comparison of two Chinese versions of questions was jointly conducted by the professional translators and this study's researcher. As a result, a final Chinese

version was confirmed for the interviews.

All the interviews were guided by semi-structural interview protocol (Yin, 2013). The length of each interview varied between approximately one and three hours and each interview continued till no new conceptual categories seemed to be generated (Suddaby, 2006). Under the premise of guaranteeing anonymity, all the records of the interviews were transcribed into standard digital files on the same day of the interview.

Finally, forty-nine face-to-face interviews were completed, including four which were conducted in the pilot research (Table 18). Five REs in each NSP were interviewed, except the NSP-F where there were only four REs met our criteria for selecting REs. In addition, three staff members of each NSP were interviewed in the main data collection except the NSP-D where only one staff member participated since another two staff had already been interviewed in the pilot data collection. After each interview, we requested the interviewees to offer us relevant documents as a complementary source of information, and all of them agreed to do so. The documentation from NSPs and the government are policies and regulations on or relevant to REs and start-ups. Documentation from REs' ventures are the introduction materials on the firms. Archives in this study refer to annual books of NSPs. Further, several follow-up interviews were conducted to track down the emergent patterns and relationships in real-time.

Table 18 Profile of Interviewees
(Source: Generated by the Author)

NSP	Code	Interviewee's Job	Gender	Date conducted interview	Year created venture in NSP	Year returned China
NSP-A	A1	Head of Innovation Bureau	M	5/2015		
	A2	Manager of the Bureau	F	5/2015		
	A3	Manager of the Bureau	M	5/2015		
	A4	CEO	M	5/2015	2014	2013
	A5	CEO	M	5/2015	2013	2012
	A6	CEO	M	5/2015	2013	2013
	A7	Chairman of Board	M	5/2015	2013	2012
	A8	CEO	M	5/2015	2014	2014
NSP-B	B1	Head of Entrepreneurship Service Center	M	4/2015		
	B2	Manager of the Center	M	4/2015		
	B3	Manager of the Center	M	4/2015		
	B4	CEO	M	4/2015	2013	2012
	B5	CEO	M	4/2015	2014	2014
	B6	CEO	M	4/2015	2014	2014
	B7	CEO	F	4/2015	2014	2012
	B8	CEO	M	4/2015	2013	2013
NSP-C	C1	Head of Innovation Bureau	M	3/2015		
	C2	Manager of the Bureau	M	3/2015		
	C3	Manager of the Bureau	F	3/2015		
	C4	CEO	M	3/2015	2015	2013
	C5	CEO	M	3/2015	2014	2013
	C6	CEO	M	3/2015	2014	2013
	C7	CEO	M	6/2015	2015	2015
	C8	CEO	M	6/2015	2015	2014

Table 18 *(Continued)*

NSP	Code	Interviewee's Job	Gender	Date conducted interview	Year created venture in NSP	Year returned China
NSP-D	D1	Head of Innovation Centre	M	11/2014		
	D2	Manager of the Center	M	11/2014		
	D3	Manager of the Center	M	1/2015		
	D4	CEO	F	11/2014	2014	2013
	D5	CEO	M	11/2014	2015	2013
	D6	CEO	M	1/2015	2014	2012
	D7	Chairman of Board	M	1/2015	2014	2012
	D8	CEO	M	1/2015	2015	2013
	D9	CEO	M	1/2015	2014	2014
	D10	CEO	M	1/2015	2015	2014
NSP-E	E1	Head of Innovation Bureau	M	4/2015		
	E2	Manager of the Bureau	M	4/2015		
	E3	Manager of the Bureau	M	4/2015		
	E4	Chairman of Board	M	4/2015	2013	2013
	E5	CEO	M	4/2015	2014	2014
	E6	CEO	M	4/2015	2015	2014
	E7	CEO	M	4/2015	2015	2015
	E8	CEO	M	4/2015	2015	2014
NSP-F	F1	Head of Innovation Service Centre	M	1/2015		
	F2	Staff Member of the Centre	F	1/2015		
	F3	Staff Member of the Centre	F	1/2015		
	F4	CEO	M	1/2015	2014	2014
	F5	CEO	M	1/2015	2015	2013
	F6	CEO	M	2/2015	2013	2012
	F7	CEO	M	2/2015	2015	2014

3.6 Data analyses methods

This study conducted both within- and cross-case analyses and got relevant propositions in chapter 4 and 5, followed by chapter 6 which conducted discussion by comparing the findings of this study with the extant literature.

In the within-case analyses, this study adopted a coding scheme (Appendix 5) to evaluate REs' perceptions on NSPs' services and support. When one interviewed RE utilized some key words, such as effective, useful, helpful etc., then this study regarded the RE's opinion on the NSP's service or support as strong. Alternatively, this study considered the interviewee's view on the NSP's service or support as weak. Further, this study's researcher re-confirmed the REs' opinion by requiring them to explain why they thought NSPs' one given service or support was strong or weak. The evaluation results were were presented in table 21-27 in chapter 4.

Pattern matching logic was adopted in this study. Also, to improve the quality of empirical social research, four tests are widely used, including construct validity, internal validity, external validity and reliability (Fitzgerald & Dopson, 2009; Yin, 2013). This study draws on these four tests to increase the quality of the case study.

Construct validity refers to identifying correct operational measures for the concepts being studied (Yin, 2013). Triangulation is seen as an useful way to increase construct validity by reducing bias inherent in any individual data sources and data collection techniques

(Das, 1983; Jick, 1979). Hence, to increase construct validity, this study uses multiple sources of data, adopts multiple techniques to collect data and establish chain of evidence.

Internal validity refers to seeking to establish a causal relationship, distinguished from spurious relationships (Yin, 2013). For case study analysis, pattern matching is the most desirable technique, which compares an empirically based pattern with a predicted one made before data collection (Trochim, 1989). Excluding rival explanations is significant in pattern matching analysis. This study identifies and excludes several rival variables in analyzing what combinations of NSPs' services can really lead to REs' costs reduction. Further, the design of literal and theoretical replication in case selection is beneficial to internal validity (Yin, 2013).

External validity refers to defining the domain to which a study's findings can be generalized (Yin, 2013). This is to test the extent to which conclusions are generalizable. To increase the external validity, this study used both literal and theoretical replication logics in the research design for this multiple-case study, as suggested by Yin (2013).

Reliability refers to the operations involved in a study can be repeated by different researchers with the same results (Yin, 2013). Reliability can be improved by adopting standardized methods for recording notes and interviews (Angen, 2000). This study utilizes case study protocol to articulate the data collection and analysis steps so that

future researchers can replicate them and hopefully arrive at the same findings and conclusions.

3.7 Chapter summary

The methodology flow chart, at the outset of this chapter, provides a whole picture of the process this study was carried out, which is helpful in increasing the research project's effectiveness and efficiency. This chapter first explains why this study follows the interpretivism research philosophy, adopts an abductive research approach and selects qualitative multiple-case study as the research strategy. After that, this chapter introduces the specific research design of the case study, including the case selection criteria, the conduct of both pilot- and main-stage data collection, the methods used in within- and cross-case analyses, and discussion.

Chapter 4 Within-Case Analyses and Findings

4.0 Introduction

The previous chapter 2 and 3, respectively, introduces the research framework and methodology, and based on which, this chapter will conduct within-case analyses. In particular, the analyses will first profile the six NSPs backgrounds in general. Further, this study will specifically characterize NSPs' services closely related to REs' resource acquisition, their support to REs' governance structures establishment with RHs and the help for REs' costs reduction. The findings of the within-case analyses are the foundation of the cross-case analyses, which is presented in chapter 5.

- Section 4.1 presents the general background of the six NSPs' entrepreneurial environment for new ventures.
- Section 4.2-4.7 profiles NSP-A, B, C, D, E and F through three dimensions: services for REs, the support to REs' governance structures building, and the help for REs' costs reduction.
- Section 4.8 presents a chapter summary

4.1 Profile of six NSPs

The classification of NSPs' services referred to section 2.2.2 (Chapter 2), which identified four types of services closely related to the resource exchange between REs and RHs. This classification was confirmed by REs and NSP staff members. As explained in section 3.5.3, it is advisable to adopt a subjective perception to evaluate an

object when using TCP as a main analysis tool. Hence, this study will utilize REs' personal perceptions when characterizing NSPs' services and the support to REs' cost reduction.

To make it easy to profile the six NSPs and compare their characteristics, this study draws table 19. The data concerning the six NSPs came from official documents of MoST[3], year books and official websites of every NSPs. This study will take on several key indicators shared by these documentations to reflect NSPs' entrepreneurial environment for new ventures, such as the service agents, R&D input and economic and intellectual output. The adopted indicators include, 'national position', 'contribution to local city's GDP', the number of 'R&D Institutes', 'science and technology service agents', 'tech-start-ups in incubation', 'returnees', 'internal R&D spending', 'industry-academic collaborative R&D spending', 'key intellectual property rights', 'international, national, and industrial standards' and 'total income of hi-tech industries'.

The definitions of the above indicators come from 'Monitoring Report on Key National Science Parks' Innovation 2014' and 'National High-tech Zone Innovation Development Report 2013', issued by MoST (2015, 2014). Specifically, the 'national position' refers to the position of the science park in China. Six NSPs were appointed by MoST as Prospective World Top Class National Science Parks (PWTC-NSPs) in 2006, which stands for the first echelon of NSPs in China. The specific explanation of PWTC-NSPs is presented in section

[3] 'Report on Key National Science Parks' Innovation 2014' and 'Report on National Hi-Tech Zones' Innovative Development 2013' were issued by Ministry of Science and Technology China in 2015 and 2014, respectively.

3.4.2 (Chapter 3). The contribution to local city's GDP refers to the proportion of the NSP's annual GDP to the local city. The number of 'R&D institutes' refers to the total number of universities, colleges, national key laboratories, national engineering centres, and firms' R&D centres, and centres for post-doctoral studies to the end of the reporting period. The number of 'science and technology service agents' refers to, to the end of the reporting period, the total number of provincial or national technology transfer centres, productivity promotion centres, product testing centres, alliances for industry technology innovation. The number of 'tech-start-ups' in incubation refers to, to the end of the reporting period, the total number of micro and small firms which were still at an early stage and in the incubating system of the NSP. 'internal R&D spending' refers to, in the reporting period, the expenses of basic research, applied research, experiment and development conducted within firms. 'industry-academic collaborative R&D spending' refers to, in the reporting period, the expenses incurred during the collaborative R&D amongst firms and R&D Institutes. The number of 'international, national, and industrial standards' is, to the end of the reporting period, the total number of technological standards recognised by industrial associations, China's government departments and international standard associations, such as International Standard Organization (ISO), International Electrotechnical Commission (IEC) and International Telecommunication Union (ITU) and so forth. Further, the establishment of these technological standards should led by organizations on the NSP. The number of 'key intellectual property rights' refers to, to the end of the reporting period, the patents,

trademarks, software copyrights registered in China or other countries and owned by firms on the NSPs. The 'total income of hi-tech industries', refers to, in the reporting period, the income of all high-tech industries belonged to the NSP. The classification of hi-tech industries is based on industry code used by China's National Statistics Bureau. The specific description of each NSP is presented in the following section 4.2-4.7, respectively.

Table 19 Profile of Six NSPs

(Source: Reproduced with data from Official Websites and Yearbooks of NSPs and Ministry of Science and Technology, 2014 and 2013)

	NSP-A	**NSP-B**	**NSP-C**	**NSP-D**	**NSP-E**	**NSP-F**
National Position	PWTC	PWTC	PWTC	PWTC	Ordinary	Ordinary
City Located In	Top urban agglomeration	Top urban agglomeration	Ordinary urban agglomeration	Ordinary urban agglomeration	Top urban agglomeration	Ordinary urban agglomeration
Year of Entitled as National Science Park	1992	1996	1991	1991	1992	1991
Contribution to Local City's GDP	11%	8%	25%	25%	20%	5%
Number of R&D Institutes	209	137	314	777	150	41
Number of Science and Technology Service Agents	77	16	199	66	9	14
Number of Tech-Startups in Incubation	3148	1030	908	1157	221	137
Number of Returnees	9633	1905	8901	2516	152	1423
Internal R&D Spending (RMB Billion Yuan)	26.48	16.81	11.28	16.87	2.51	1.89

Table 19 *(Continued)*

	NSP-A	NSP-B	NSP-C	NSP-D	NSP-E	NSP-F
Industry-Academic Collaborative R&D Spending (RMB Billion Yuan)	6.42	1.51	0.58	0.54	0.02	0.24
Number of Key Intellectual Property Rights (IPRs)	40736	74516	31608	32398	2938	9863
Number of International, National, and Industrial Standards	279	605	462	608	15	55
Total Income of Hi-Tech Industries (RMB Billion Yuan)	223.16	314.82	217.61	196.81	246.84	10.93
Key Industries	Information Technology, Biology and Medicine, Cultural and Entertainment, Low-Carbon Industry	Information Technology, Biology Engineering, New Material, Optical-Mechano-Electrical Integration Industry	Information Technology, Biomedicine, Aviation Equipment, and Environmental Friendly Industry	Information Technology, High-end Manufacturing, Environmental Friendly Industry	Information Technology, Biology Industry	Information Technology, Biology and Medicine, Manufacturing Industry

4.2 NSP-A

NSP-A was entitled as national science park by State Council in 1992 and was appointed as one of six PWTC-NSPs by Ministry of Science and Technology (MoST) in 2006. NSP-A located in a top urban agglomeration and occupied around 80 square kilometres. In 2014, the gross domestic product (GDP) of NSP-A accounted for 11% of the city it located in. The entrepreneurial environment was relatively good, and there were over 209 R&D institutes, 77 science and technology service agents and 3148 tech-start-ups in incubation till 2014. This science park attracted a great number of talents, with over 5500 people having PhD degrees and around 40 thousand owning master degrees till 2014. Over 9630 returnees worked in NSP-A, and its R&D input spending was in a leading position in China, with RMB 26.48 billion yuan spent on internal R&D and RMB 6.42 billion yuan on industry-academic collaborative R&D in 2014. As a result, NSP-A owned 40736 key IPRs and 279 technological standards recognized by industrial association, China's government departments or international standard organizations. Also, the total income of hi-tech industries of this science park was RMB 223.16 billion yuan in 2014. The key industries of NSP-A were information technology, biology and medicine, cultural and entertainment, low-carbon and so forth. Next, this study will characterize NSP-A's four services and its support to

REs' governance structures building and costs reduction (Table 20).

Table 20 NSP-A's Services and Support to its REs
(Source: Generated by the author)

1 Four Services of NSP-A	
1.1 Mentoring & Training for REs	+
1.2 Accreditation of RHs	+
1.3 Promotion of REs	+
1.4 Social Event	+
2 NSP-A's Support to the Governance Structures Building of REs	
2.1 Building of Legal Contracts	+
2.2 Building of Guanxi	+
3 NSP-A's Support to the Costs Reduction of REs	
3.1 Reduction of Search Costs	+
3.2 Reduction of Contracting Costs	+
3.3 Reduction of Monitoring and Enforcement Costs	+
Note:	
1) All the results are based on the perception of REs in the NSP;	
2) In the NSPs' Service Section, '+' stands for the services of the NSP are strong, ' − ' stands for the services of the NSP are weak.	
3) In the 'Governance Structures' and 'Costs' sections, '+' stands for the support of NSPs is strong, ' − ' stands for the support of NSPs is weak.	

4.2.1 Services

All the four types of services of NSP-A were perceived by REs as strong (Table 20). Firstly, in terms of the 'mentoring & training' service, NSP-A held weekly sessions focusing on many topics, such as equity structure, investment, negotiation strategy, understanding government operation and so on. On each topic, at least one expert was invited to lead the session and answer questions raised by REs. Each session usually lasted from two hours to a whole day, which offered REs

relatively enough time to interact with those experts and solve their concerns and issues of their new ventures. The staff members of NSP-A reported they only invited top scholars and famous practitioners to ensure the high quality of the sessions. Meanwhile, those experts were willing to join the events held by NSP-A not only because of its brand but also the opportunities to get access to the top REs for prospective collaborations. As a result, REs reflected that the 'mentoring & training' service gave them precious opportunities to not only learn professional skills and knowledge on entrepreneurship, but also obtain instructions from experienced practitioners or experts.

Secondly, with regards to the social events service, various roadshows were held or sponsored by NSP-A. Staff members of this science park reported that in the past only the authority took the main responsibility of organizing roadshows, but now private organizations became willing to take over the role from the authority, and the NSP and local government transited to support those events from behind. In addition, the competition among the roadshows was fierce, which further promoted the quality of those events and led them to differentiate themselves to attract entrepreneurs from different backgrounds. One RE reported: *you cannot imagine how versatile the roadshows are and there should be one that suits you (A6, May, 2015, See Table 18)*. Weekly roadshows and exhibition sessions were

reported as convenient platforms for REs to engage with future core team members or potential RHs.

Thirdly, the 'accreditation of RHs' was realized through the large-scale database owned by NSP-A which accommodated much information on organizations that had long collaborated with this NSP or the firms within it. REs reported that this service had reduced them much time in looking for and validating RHs. Specifically, the recommended list enabled REs to identify which organization was more trustworthy, which helped narrow down to suggested collaborators, such as investors, consultancy companies and so on. One REs commented: *I was pretty worried about how to figure out proper R&D collaborators for my firm before coming to this science park. However, I must admit that NSP-A's database did help me a lot in reducing my concern (A5, May, 2015, See Table 18)*.

Fourthly, registration in a PWTC-NSP brought many reputation-related benefits to REs' new ventures. The association with a NSP with great reputation helped REs signal to RHs that they were outstanding. One staff member of NSP-A reported: *PWTC-NSPs usually not only are more attractive to high quality entrepreneurial projects, but also apply higher standards in evaluating those projects [compared with the non-PWTC-NSPs]. As a result, the new ventures registered in the PWTC-NSP, in most cases, own more talented core*

team, more advanced technology or better business model (A3, May, 2015, See Table 18). Actually, NSP-A did brought its REs convenience in increasing their credibility. One REs reflected that: *it seemed to me that the registration address of my firm made it more attractive to RHs in the roadshows than the companies from ordinary NSPs (A8, May, 2015, See Table 18)*.

4.2.2 Governance structures

In terms of the set-up of governance structures between REs and RHs, REs of NSP-A perceived strong help (Table 20) and argued that the services of this science park were beneficial to building up mutual trust with RHs, which determined the guanxi building. For example, one RE commented that: *'On the platform of the NSP, I feel relatively safe and comfortable in trusting and establishing guanxi with [RHs], even though they were strangers to me beforehand (A4, May, 2015, See Table 18).'* Further, NSP-A helped REs build legal contracts by enabling them to not only identify possible pitfalls, but also specify the agreement clauses by more clearly stating the rights and responsibilities, and probable contingencies in the duration of the contract.

4.2.3 Costs

In terms of the costs reduction, REs of NSP-A found that they

received strong help from the science park (Table 20). For instance, this science park helped reduce REs' search costs by saving them much time and many resources in looking for a wide range of possible RHs. Additionally, REs' contracting costs were decreased by NSP-A's support for smoothing the process of negotiating and finalizing clauses of legal contracts. Lastly, many resources devoting to the monitoring RHs and enforcing the contract implementation were reported as having been reduced thanks to the specified contracts and the built-up guanxi between REs and RHs.

4.3 NSP-B

NSP-B was entitled as national science park by State Council in 1996 and then became as a member of PWTC-NSP in 2006. This science park located in a top urban agglomeration and occupied 11.5 square kilo metres. In 2014, NSP-B's annual GDP accounted for 8% of the local city, and there were 137 R&D institutes and 16 science and technology service agents serving 1030 tech-start-ups in incubation. In the same year, this science park spent RMB 16.81 billion yuan on internal R&D and RMB 1.51 billion yuan on industry-academic collaborative R&D. Accordingly, the innovation-related output of NSP-B outperformed most of its counterparts in China, with 74516 key IPRs, 605 influential technological standards to the end of the reporting period, and a RMB 314.82 billion yuan income in hi-tech industries in

2014. During the reporting period, this science park had accumulated 1905 returnees, and its key industries included information technology, biology engineering, new material, optical-mechano-electrical integration industry. The below findings are concerned with NSP-B's four services and its support to REs' governance structures building and costs reduction (Table 21).

Table 21 NSP-B's Services and Support to its REs
(Source: Generated by the author)

1 Four Services of NSP-B	
1.1 Mentoring & Training for REs	+
1.2 Accreditation of RHs	+
1.3 Promotion of REs	+
1.4 Social Event	+
2 NSP-B's Support to the Governance Structures Building of REs	
2.1 Building of Legal Contracts	+
2.2 Building of Guanxi	+
3 NSP-B's Support to the Costs Reduction of REs	
3.1 Reduction of Search Costs	+
3.2 Reduction of Contracting Costs	+
3.3 Reduction of Monitoring and Enforcement Costs	+

Note:

1) All the results are based on the perception of REs in the NSP;

2) In the NSPs' Service Section, '+' stands for the services of the NSP are strong, ' − ' stands for the services of the NSP are weak.

3) In the 'Governance Structures' and 'Costs' sections, '+' stands for the support of NSPs is strong, ' − ' stands for the support of NSPs is weak.

4.3.1 Services

Similar to NSP-A, NSP-B's four services were perceived as strong by REs (Table 21). First, NSP-B had a scheme in which REs could

match with entrepreneurship tutors (ETs), such as local famous entrepreneurs. To ensure the quality of the mentoring, each ET should offer mentoring to only a maximum of five REs in a mentoring semester and the NSP regularly collected feedback from REs concerning the process of mentoring. At the same time, the participated ETs could contact the NSP whenever they faced issues regarding the mentoring. In some cases, those ETs would like to invest in the new ventures of REs when they found the project was promising.

Second, under the direction of NSP-B, private organizations were actively sponsoring a wide variety of social events, such as entrepreneurship competitions, fora and matching sessions. The city in which NSP-B located was filled with entrepreneurship atmosphere and countless investors and intermediaries were looking for collaboration opportunities with proper entrepreneurs, including REs. As a PWTC-NSP, NSP-B was a perfect destination for investors to find entrepreneurs. *Every day, we received many requests from various entrepreneurship intermediaries on hosting social events, and only those with good plan and probable high influence could gain support from us (B3, April, 2015, See Table 18)*, one staff member of NSP-B reported.

Third, the ‘accreditation of RHs’ service was supported by the database, and only REs of this science park were entitled to access it.

The black list contained RHs who severely violated the contract with or did serious frauds to firms within this science park. This list was considered by REs as useful in avoiding high-risk collaborators. *We usually did not know the local business environment and could not figure out which RHs were incredible, but the black list offsets our disadvantage (B4, April, 2015, See Table 18)*, reported by one RE.

Fourth, in addition to the benefits of the association with the PWTC-NSP, many honour awards helped REs increase their credibility. These honour awards were divided into several political levels and came from either the government or the NSP. In many cases, the NSP's awards' political level was lower than that of the government, and the lower-level awards acted as the premise to get the higher-level ones. Furthermore, the PWTC-NSP was usually assigned by the government with many quotas of awards, which made it relatively easier for REs in the PWTC-NSP to be granted government awards than those in ordinary NSPs or outside NSPs. The awards granted to REs served as an endorsement of the NSP or the government to make REs more trustworthy for RHs. For example, one RE from NSP-B commented that: *'I was introduced by this NSP to join the Youth Committee of this district, and next year I might be introduced to join a higher-level Youth Committee. One of my business partners told me the title of Youth Committee Member gave him a good first impression before the*

collaboration (B7, April, 2015, See Table 18).'

4.3.2 Governance structures

Similar to NSP-A, NSP-B also delivered strong support to the establishment of governance structures between REs and RHs (Table 21). In terms of the development of legal contracts between entrepreneurs and angel investors, NSP-B regularly updated a recommended package consisting of contract clauses and offered it to its REs with free of charge. Many REs agreed this package can accelerate the negotiation process with investors by making both sides accept the contract more easily as those clauses were not only professional but also widely used by many firms before. In addition, the package emphasized the importance of protecting REs' interest as new ventures were usually vulnerable. This further encouraged REs' motivation to adopt the package and fed back to NSP-B if there was anything requiring to be added or adjusted. In the aspect of social relationship between REs and RHs, many REs reported they found the environment of this science park made it easier to establish two-way trust with RHs, leading to a better guanxi with them.

4.3.3 Costs

Similar to NSP-A, NSP-B did a good job in reducing REs' costs of resource acquisition (Table 21). For instance, the search costs were

decreased as NSP-B helped REs identify proper RHs more easily. Further, NSP-B's services were useful in supporting REs to accelerate the contract negotiation and finalization, and as such reduce the contracting costs. Lastly, the science park facilitated the establishment of guanxi between REs and RHs, which reduced REs' costs in monitoring RHs. One RE reported: *in the environment of this science park, I intended to trust the recommended RHs and build up long-term guanxi with them, which relived me much pressure in monitoring their possible cheating behaviours (B5, April, 2015, See Table 18)*.

4.4 NSP-C

NSP-C was entitled as national science park by State Council in 1991 and then was appointed by MoST as one of six PWTC-NSPs in 2006. It located in an ordinary urban agglomeration and occupied 518 kilo metres. In 2014, NSP-C's annual GDP took up 25% of the local city and spent RMB 16.87 billion yuan on internal R&D and RMB 0.54 billion yuan on industry-academic collaborative R&D. In the same year, the income of hi-tech industries was RMB 169.81 billion yuan. Till 2014, there were 777 R&D institutes, 66 science and technology service agents, 1157 tech-start-ups in incubation and 2516 returnees. NSP-C had acquired 608 industrial, national and international technological standards and 32398 key IPRs till 2014. The key industries in this science park included information technology,

high-end manufacturing, environmental friendly industry. Next, this study will characterize NSP-C's four services and its support to REs' governance structures building and costs reduction (Table 22).

Table 22 NSP-C's Services and Support to its REs
(Source: Generated by the author)

1 Four Services of NSP-C	
1.1 Mentoring & Training for REs	+
1.2 Accreditation of RHs	−
1.3 Promotion of REs	+
1.4 Social Event	+
2 NSP-C's Support to the Governance Structures Building of REs	
2.1 Building of Legal Contracts	−
2.2 Building of Guanxi	−
3 NSP-C's Support to the Costs Reduction of REs	
3.1 Reduction of Search Costs	−
3.2 Reduction of Contracting Costs	−
3.3 Reduction of Monitoring and Enforcement Costs	−

Note:

1) All the results are based on the perception of REs in the NSP;

2) In the NSPs' Service Section, '+' stands for the services of the NSP are strong, ' − ' stands for the services of the NSP are weak.

3) In the 'Governance Structures' and 'Costs' sections, '+' stands for the support of NSPs is strong, ' − ' stands for the support of NSPs is weak.

4.4.1 Services

Three out of four services were perceived by REs as strong (Table 22). For instance, this science park brought useful mentoring & training for REs. NSP-C worked with several universities and professional agencies to provide REs with high quality training camps with low charges. Each camp usually lasted several days with intensive training

content. One REs reported: *I benefited a lot from the camp in which I met one of my key partners and it enabled me to understand the negotiation process and identify possible hidden traps more easily (C5, March, 2015, See Table 18)*. In addition, NSP-C encouraged REs to exploit training resources in top urban agglomerations by covering some of the tuition and traffic fees.

In terms of the social events service, NSP-C actively worked with local government to hold many exhibitions and conferences to attract influential scholars, investors and intermediaries to meet with its REs and share newest ideas and information. Meanwhile, since there were many influential events in top urban agglomeration, REs were financially supported by NSP-C to grab those networking opportunities. REs there were satisfied with the support of NSP-C for them to take advantage of social events to meet with potential RHs.

NSP-C was seen as poor in offering the service on 'accreditation of RHs.' Even though many departments of the science park administration committee and some inner zones collected a large amount of information on RHs, the integration of the information from different sources was not well. This divided database brought many obstacles to REs to figure out the proper RHs for collaboration. One RE from NSP-C told the research team: *I usually had to consult with different departments [of the committee] before obtaining useful*

information on an investor (C6, March, 2015, See Table 18). Another REs reported: *'When I was looking for angel investors, I usually worried about the capability and reputation of them even if after meeting them, and as such I had to check a huge amount of files and consult many of my friends (C5, March, 2015, See Table 18).'*

NSP-C brought significant reputation-related benefits to its REs. Many REs reflected the reputation of this science park did make them easier to be trustworthy by RHs. One RE reported: *some of my partners told me the entrepreneur projects from this NSP was their first choice [to do collaboration] (C7, June, 2015, See Table 18)*. Some REs agreed the identity from NSP-C placed them in an advantageous post in attracting investors, compared with other entrepreneurs outside of this science park. *In the innovation exhibition and exchange festival of this province, I could strongly feel the projects from this NSP were surrounded by more visitors (C6, March, 2015, See Table 18)*, one RE said. Also, NSP-C, joined by the local government, regularly held high-profile sharing sessions to motivate and educate nascent entrepreneurs. These sessions inviting representative REs were usually regarded as a form of endorsement from the authority and as such could facilitate REs to be more trustworthy by RHs.

4.4.2 Governance structures

NSP-C delivered weak support to the building of both legal contracts and guanxi between REs and RHs (Table 22). On the one hand, REs reflected NSP-C's mentoring & training on negotiation did bring them enough useful tactics in developing legal contracts with RHs. For instance, One REs reported: *after joining those training, I did not save much time in thinking and consulting about the contract design (C4, March, 2015, See Table 18)*. However, REs there still felt that their costs on legal contracts building did not decrease significantly. On the other hand, the difficulty of establishing guanxi with RHs was not been decreased significantly, although this science park had offered many services for REs. *It usually took a long time to build trust between business partners who were strangers to each other beforehand, especially in this society lacking the awareness of rule of law (C6, March, 2015, See Table 18),* said one RE. Another REs reported*: I heard a lot of cases in which cheatings lead to the collapse of collaboration ultimately, and my friends and parents also told me to be cautious in working with stranger*s *(C7, June, 2015, See Table 18)*.

4.4.3 Costs

It was surprising that NSP-C offered weak support for its REs in all three aspects of costs reduction, although it provided three strong

and important services for the REs (Table 22). Specifically, REs reported they did not find their search costs was decreased significantly through the help of NSP-C. *I still need to look for my suppliers mainly by my friends and I did not hear of any authoritative databases [offered by this science park] where I could narrow down my search area (C6, March, 2015, See Table 18)*, reported one RE. Further, REs' contracting costs was not reduced significantly by the support of NSP-C. REs there still tended to adopt relatively complex legal contracts to protect their own interests, which incurred significant time and energy. Lastly, REs reflected their monitoring and enforcement costs were not decreased evidently through NSP-C's help, although it offered many services for REs.

4.5 NSP-D

NSP-D was founded in an ordinary urban agglomeration. It was entitled as national science park by State Council (China) in 1992 and then appointed by MoST as PWTC-NSP in 2006. NSP-C occupied around 130 square kilometres and the physical space for incubating start-ups was over 1.4 million square meters. In 2014, NSP-D's annual GDP occupied 25% of the local city. There were 314 R&D institutes, 199 science and technology service agents, and 908 tech-start-ups in incubation till 2014. That year witnessed that more than RMB 11.28 billion yuan was spent on internal R&D and RMB 0.58 billion yuan on

industry-academic collaborative R&D. As a result, this science park had owned 31608 key IPRs, 462 technological standards recognized by industries, government and international standard associations till 2014, and a total income of RMB 217.61 billion yuan for hi-tech industry in 2014. In the reporting period, over 8900 returnees worked in NSP-D, and its key industries include information technology, biomedicine, aviation equipment, and environmental friendly industry and so on. In the same year, the added value of strategic emerging industries was RMB 6.5 billion yuan. Many influential multinationals established R&D centres or manufacturing plants in NSP-D, such as Intel, Dell, SIMENS, General Electric and so on. Among the 'Fortune Global 500 Companies', over 100 had branches in NSP-D till 2015. In the following, NSP-D's four services and its support for REs' governance structures building and costs reduction will be summarized (Table 23).

Table 23 NSP-D's Services and Support to its REs
(Source: Generated by the author)

1Four Services of NSP-D	
1.1 Mentoring & Training for REs	-
1.2 Accreditation of RHs	+
1.3 Promotion of REs	+
1.4 Social Event	+
2 NSP-D's Support to the Governance Structures Building of REs	
2.1 Building of Legal Contracts	-
2.2 Building of Guanxi	+
3 NSP-D's Support to the Costs Reduction of REs	
3.1 Reduction of Search Costs	+
3.2 Reduction of Contracting Costs	-
3.3 Reduction of Monitoring and Enforcement Costs	-

Note:

1) All the results are based on the perception of REs in the NSP;

2) In the NSPs' Service Section, '+' stands for the services of the NSP are strong, '-' stands for the services of the NSP are weak.

3) In the 'Governance Structures' and 'Costs' sections, '+' stands for the support of NSPs is strong, '-' stands for the support of NSPs is weak.

4.5.1 Services

NSP-D was not as good as NSP-C in offering 'mentoring & training' services (Table 23). NSP-D did hold mentoring programmes and training schemes, but the content was not tailored enough for REs. One RE commented: *the sessions usually were joined by both returnee and domestic entrepreneurs, and as a result the knowledge delivered by the sessions sometimes could not meet the specific need of REs (D7, January, 2015, See Table 18)*. Another RE reflected: *the efficiency of training should be improved through offering more customized knowledge (D6, January, 2015, See Table 18)*.

NSP-D adopted much successful experience from NSP-A and served its REs well in offering the service on RHs accreditation. Even though the history of this service was not long, NSP-D made a significant progress in integrating information on RHs from various sources. REs there perceived they got a strong support from the science park in evaluating and figuring out RHs, although there still existed some flaws in this service, such as the mistakes and relatively low update frequency of database content. One RE mentioned: *this place [NSP-D] created a helpful service for me to check out the reputation record of some RHs, but it would be better if the database could be expanded and include more details [of RHs] (D9, January, 2015, See Table 18)*.

Similar to other PWTC-NSPs, NSP-D's reputation was beneficial to increasing REs' credibility. Actually, many REs said one of the motivations to create new ventures in this science park was to leverage its reputation to draw more attention and increase their own reputation. In addition, NSP-D and the local government jointly issued various talent introduction and cultivation programmes to attract REs. The people who got support from those programmes could use them as an official endorsement to increase their credibility. *From my communication with my friends and my own observation, I strongly sensed the distributer tend to collaborate with me rather than my*

friends who was doing the similar thing [product], and as such I had more bargain power in the negotiation with distributers (D10, January, 2015, See Table 18), said one RE who was granted by one talent plan after creating his new venture in NSP-D.

In terms of the social events, NSP-D regularly organized parties for REs to meet not only other entrepreneurs within the science park, but also angel investors and government officials. Besides, NSP-D held some fora on one or several industries to give REs a platform to communicate with professionals and practitioners in a given area. *These events were helpful in solving some of my doubts and helping me find probable partners (D6, January, 2015, See Table 18),* said one RE. In addition, roadshows were regularly held to match REs with investors.

4.5.2 Governance structures

Compared with NSP-C, NSP-D was good at facilitating REs to build guanxi with RHs, but not good at supporting REs' legal contracts finalizing (Table 23). For instance, many REs expressed a dissatisfaction on the lack of useful mentoring & training on business negotiation. One RE reported: *in the early days of my firm, I pretty lacked experience and skills of discussing equity deals with investors, but the training programme of this science park did not give enough*

help to complement my disadvantage (D10, January, 2015, See Table 18). However, the community of NSP-D was beneficial to REs' guanxi building with RHs. *Weekly dinners and parties let me feel relaxed in making friends with prospective partners, which paved a key step to build a strong guanxi (D7, January, 2015, See Table 18)*, reported one RE.

4.5.3 Costs

The REs in NSP-D reported they received a strong support in reducing search costs, and NSP-D performed better than NSP-C in this aspect (Table 23). Many REs reflected the accumulated data on RHs, which was sponsored by the NSP-D, was useful in directing them to the appropriate RHs group. However, in the aspect of reducing contracting, NSP-D only offered weak support to its REs. After founding prospective RHs, REs still faced many costs in pushing the collaboration for the future resource exchange. Many REs reported the lack of high quality mentoring & training could not effectively increase their understanding of the negotiation and contract-related issues, which led them to spend much more time in conceiving contracts, even with the help of external professional firms. Lastly, NSP-D delivered weak support to REs' monitoring and enforcement costs reduction, which was similar to NSP-C.

4.6 NSP-E

NSP-E was entitled by State Council as national science park in 1992. This science park located in a top urban agglomeration, and the area of land that had been developed was around 320 square kilo meters. In 2014, NSP-E's annual GDP occupied 20% of the local city and owned 150 R&D institutes, 9 science and technology service agents, and 221 tech-start-ups in incubation. In the same year, this science park invested RMB 2.51 billion yuan in internal R&D and RMB 0.02 billion yuan in industry-academic collaborative R&D, and got a total income of RMB 246.84 billion yuan from hi-tech industries. Till 2014, this science park had acquired 2938 key IPRs, 15 industrial, national and international technological standards, and 152 returnees. The key industries of NSP-E included information technology and biology industry, and many influential companies had established manufacturing or R&D centres, such as Samsung, Sony, LG, SIMENS, Schneider Electric and Bridgestone and so forth. In the next, this study will present NSP-E's four services and its support to REs' governance structures building and costs reduction (Table 24).

Table 24 NSP-E's Services and Support to its REs
(Source: Generated by the author)

1 Four Services of NSP-E	
1.1 Mentoring & Training for REs	-
1.2 Accreditation of RHs	+
1.3 Promotion of REs	-
1.4 Social Event	-
2 NSP-E's Support to the Governance Structures Building of REs	
2.1 Building of Legal Contracts	-
2.2 Building of Guanxi	-
3 NSP-E's Support to the Costs Reduction of REs	
3.1 Reduction of Search Costs	+
3.2 Reduction of Contracting Costs	-
3.3 Reduction of Monitoring and Enforcement Costs	-

Note:

1) All the results are based on the perception of REs in the NSP;

2) In the NSPs' Service Section, '+' stands for the services of the NSP are strong, '-' stands for the services of the NSP are weak.

3) In the 'Governance Structures' and 'Costs' sections, '+' stands for the support of NSPs is strong, '-' stands for the support of NSPs is weak.

4.6.1 Services

Compared with the PWTC-NSPs, NSP-E, as an ordinary NSP, commanded relatively fewer resources, and only one out of four services was perceived by REs as strong (Table 24). First, NSP-E's 'mentoring & training' service was not supportive enough to REs there. Even though NSP-E launched a programme to match ETs with REs, similar to NSP-B, the REs were not satisfied with it. One reason was those ETs were not as high quality as those in NSP-B. For instance, some ordinary scholars were invited by NSP-E to act as tutors but, actually, they were not familiar with the real practice of

entrepreneurship or operation management. One REs reported: *I was a little disappointed with the capability of the ET assigned to me as the ET did not know much about the new trend in the venture capital sector (E7, April, 2015, See Table 18)*. In addition, the number of ETs was relatively small, partly owing to the limited attractiveness of the NSP-E's brand, which sometimes limited NSP-E's ability to invite top ETs to join its mentoring & training schemes.

NSP-E began to imitate successful experience of some PWTC-NSPs in recent years, and made significant achievements on the 'accreditation of RHs' service. REs there perceived the service as useful since they could access to some significant data on RHs. One RE reported: *the information on angel investors recommended many options [RHs], which reduced my concern of being defrauded or cheated (E8, April, 2015, See Table 18)*.

The support for 'promoting REs' was not perceived as strong in NSP-E. Different from those PWTC-NSPs, NSP-E could not bring significant reputation-related benefits to its REs. *This science park is not well known outside of this province (E3, April, 2015, See Table 18)*, said one staff member of NSP-E. In addition, neither the honour awards granted by NSP-E nor the local government was influential enough to complement the disadvantage of the not high reputation of this science park in promoting REs. *The political level of the local government and*

science park is relatively low in China's political system (E2, April, 2015, See Table 18), said one staff member of NSP-E. As a result, REs there usually could not receive strong support in increasing their credibility or reputation. One REs told us: *we do not look to gain much reputation from this science park in the competition for investors with entrepreneurs from other NSPs, and as such we must depend on ourselves and let the product talk (E8, April, 2015, See Table 18)*.

NSP-E was relatively poor in offering the social event service. This science park did not hold regular social events until the recent years since the number of entrepreneurs, especially REs, was not big in the past. In the last two years, NSP-E gradually began to organize meetings and sessions joined by REs, investors and scholars, but those activities were usually random. Furthermore, the staff members there were not motivated to push social events as their incentive mechanism did not emphasize this aspect. As a result, some REs reported they usually did not resort to this science park's social events to find suitable collaborators, as the attendance was low and not many people were willing to join it.

4.6.2 Governance structures

NSP-E offered weak help for the set-up of governance structures between REs and RHs (Table 24). Specifically, on the aspect of legal

contract building, REs there did not get enough support from either NSP-E or professional organizations related to it. *The training sessions did not bring the expected progress to my team, such as improving the skills of developing equity deals (E7, April, 2015, See Table 18)*, said one RE. Another RE reported: *this science park's relatively low quality of business negotiation training forced us to resort to help from professional firms outside of this science park, but there were not enough high quality ones (E4, April, 2015, See Table 18)*. Further, with regards to the guanxi building, REs did not receive strong support from NSP-E as well. Even though the science park tried to offering the accreditation of RHs service, the one-way trust was not enough to build guanxi between REs and RHs.

4.6.3 Costs

NSP-E was perceived as helpful by its REs in reducing search costs (Table 24). For example, one RE from NSP-E commented: *'With the help of NSP-E, I can more easily check the basic background of RHs, which facilitates me to more quickly exclude inappropriate options and narrow down to a list of probable collaborators (E5, April, 2015, See Table 18).'* Nevertheless, NSP-E provided weak support to the reduction of REs' contracting, monitoring and enforcement costs. REs there reflected they did not feel evident help from NSP-E in accelerating the contract negotiation and finalization with RHs after

coming to this science park. Also, in terms of the costs assigned to the contract implementation, REs found it did not change significantly after receiving NSP-E's services.

4.7 NSP-F

NSP-F was entitled by State Council as national science park in 1991. It was located in an ordinary urban agglomeration and occupied 73 kilo metres. In 2014, NSP-F's annual GDP accounted for 5% of the local city and achieved RMB 10.93 billion yuan in the income of hi-tech industries. The above two indexes of NSP-F were far lower than the other NSPs in this study. In the same year, this science park spent RMB 1.89 billion yuan on internal R&D and RMB 0.24 billion yuan on industry-academic collaborative R&D. Till 2014, NSP-F had accumulated 41 R&D institutes, 14 science and technology service agents, 137 tech-start-ups in incubation and 1423 returnees. The key industries in this science park were information technology, biology and medicine, manufacturing industry. Next, this study will characterize NSP-F's four services and its support to REs' governance structures building and costs reduction (Table 25).

Table 25 NSP-F's Services and Support to its REs
(Source: Generated by the author)

1 Four Services of NSP-F	
1.1 Mentoring & Training for REs	-
1.2 Accreditation of RHs	-
1.3 Promotion of REs	-
1.4 Social Event	+
2 NSP-F's Support to the Governance Structures Building of REs	
2.1 Building of Legal Contracts	-
2.2 Building of Guanxi	-
3 NSP-F's Support to the Costs Reduction of REs	
3.1 Reduction of Search Costs	-
3.2 Reduction of Contracting Costs	-
3.3 Reduction of Monitoring and Enforcement Costs	-
Note:	
1) All the results are based on the perception of REs in the NSP;	
2) In the NSPs' Service Section, '+' stands for the services of the NSP are strong, '-' stands for the services of the NSP are weak.	
3) In the 'Governance Structures' and 'Costs' sections, '+' stands for the support of NSPs is strong, '-' stands for the support of NSPs is weak.	

4.7.1 Services

NSP-F offered a weak support to the aspect of the mentoring & training (Table 25). This science park had not established effective ETs-schemes nor regular sessions. One RE there reported: *the lack of mentoring and experience made me feel helpless when I was dealing with tricky issues in preparing my new ventures (F5, January, 2015, See Table 18)*. Another RE said: *it was a shame that when I joined some useful training in other cities, the related expense fees usually could not be covered by this science park (F6, February, 2015, See Table 18)*. The staff of NSP-F admitted the disadvantage in the

mentoring & training aspect and reflected that the priority of the new year would be launching a new scheme on entrepreneurship tutor, with the help of the local entrepreneurship associations.

NSP-F did not deliver a strong support for its REs' promotion. Similar to NSP-E, the reputation of the NSP-F was not strong enough to bring significant benefits to its REs. However, the city in which NSP-F located in was directly administrated by China's central government and as such enjoyed a higher political level than ordinary cities. Hence, in theory, the awards jointly issued by the local government and NSP-F were relatively more influential. However, REs there reflected the government awards granted to them did not distinguish them from other entrepreneurs. *One reason is the social recognition or awareness of the RE-related awards was relatively low because those awards were introduced only in the recent years. More precisely, only from this year did the local government begin to prioritize entrepreneurship (F3, January, 2015, See Table 18)*, said one staff member of NSP-D.

In NSP-F, the 'social event' service was perceived as strong. NSP-F worked closely with the local government to hold regional, national and international events, such as exhibitions, fora and trade fair. As mentioned above, the high political-level enabled the local government to leverage more resources to support the various social

events, which helped NSP-F to complement its disadvantage of the resources limitation because of the fact that it was not a member of PWTC-NSPs. Also, NSP invested a significant amount of funds to support the social events, so as to promote the brand and influence of itself and as such to promote its national ranking. Actually, many REs reflected the versatile high profile social events offered them a precious platform to meet with top investors, R&D collaborators and distributers. One RE expressed his satisfaction with the social events: *I could meet many experts and famous entrepreneurs in our specific industry, which I never dreamt of before (F5, January, 2015, See Table 18)*.

In terms of the 'accreditation of RHs' service, NSP-F did not provide strong a support for its REs. It was still very hard for REs to verify the credibility of RHs before collaboration. The staff member of this NSP reported: *we have not established unified database on investors, distributors or suppliers, but it [a powerful database] is our goal in the future (F2, January, 2015, See Table 18)*. The main channel REs used to evaluate RHs' credibility was consulting with the staff members of NSP-F or their friends, but each people only held relatively limited information and, sometimes, there existed contradictory opinions. Therefore, even after a long time of consulting, some REs still found it hard to evaluate whether the information on REs is correct.

4.7.2 Governance structures

Similar to NSP-E, NSP-F was not good at offering strong support to the governance structures building between REs and RHs (Table 25). Compared with PWTC-NSPs, NSP-F was still at a relatively early stage of offering services to REs, with social events as the main tool. Although these social events enabled REs to meet with RHs, it did not bring about enough mutual trust, which further hindered the guanxi building. One RE commented: *...in this society, it is hard to trust strangers even after meeting them, unless the middle people who are trusted by both sides intervene the interaction in some forms (F6, February, 2015, See Table 18)*. Another RE added: *without mutual trust, building guanxi will be baseless (F7, February, 2015, See Table 18)*. In addition, the lack of guanxi between REs and RHs became an obstacle to the legal contract building. *If we assumed the opposite side was not trustworthy enough, then we had to think about the cheating probability in each step of the contract designing, which usually consumed our much time (F5, January, 2015, See Table 18)*: reported one RE.

4.7.3 Costs

NSP-F delivered weak support for its REs in reducing all three aspects of costs (Table 25). REs there reported they did not receive

enough help in smoothing the collaboration process with RHs. Actually, NSP-F provided a successful social event service, but it alone could not ensure a significant reduction of search costs. REs reported, after meeting some RHs, they still needed to bear many costs in searching for their background to evaluate their credibility. Also, the negotiation would waste much time before REs and RHs built enough mutual trust between them. *If the possible collaborators and I were strangers beforehand and there were no middlemen, such as friends or authoritative institutions, to introduce the two sides, we usually spent much energy in discussing or even debating whether one given clause was fair for both sides (F4, January, 2015, See Table 18)*, said one RE. Lastly, REs there reflected they did not receive enough support in reducing monitoring and enforcement costs.

4.8 Chapter summary

This chapter conducts within-case analyses and obtains many meaningful findings. In particular, this study characterizes each of the six NSPs by three dimensions: the services for REs, the support to REs' governance structures building with RHs, and the support to RE's costs reduction. The findings are summarized in Table 26, which reveals that the six NSPs performed variedly in the three dimensions. These findings act as a basis for chapter 5 to do cross-case analyses among the six NSPs and explore the patterns amongst structures.

Table 26 Summary on Within-Case Analyses
(Source: Generated by the author)

1 NSPs' Service	**NSP-A**	**NSP-B**	**NSP-C**	**NSP-D**	**NSP-E**	**NSP-F**
1.1 Mentoring & Training for REs	+	+	+	−	-	-
1.2 Accreditation of RHs	+	+	−	+	+	-
1.3 Promotion of REs	+	+	+	+	-	-
1.4 Social Events	+	+	+	+	-	+
2 Governance Structures	**NSP-A**	**NSP-B**	**NSP-C**	**NSP-D**	**NSP-E**	**NSP-F**
2.1 Building of Legal Contracts	+	+	-	−	−	−
2.2 Building of Guanxi	+	+	-	+	−	−
3 Costs	**NSP-A**	**NSP-B**	**NSP-C**	**NSP-D**	**NSP-E**	**NSP-F**
3.1 Reduction of Search Costs	+	+	−	+	+	−
3.2 Reduction of Contracting Costs	+	+	−	−	−	−
3.3 Reduction of Monitoring and Enforcement Costs	+	+	−	−	−	−

Note:

1) All the results are based on the perception of REs in each NSP;

2) In the NSPs' Service Section, '+' stands for the services of NSPs are strong, ' − ' stands for the services of NSPs are weak.

3) In the 'Governance Structures' and 'Costs' sections, '+' stands for the support of NSPs is strong, ' − ' stands for the support of NSPs is weak.

Chapter 5 Cross-Case Analyses and Findings

5.0 Introduction

The previous chapter 4 gets important findings through within-case analyses, and based on which, this chapter will use the cross-case analyses to explore the relationships among constructs and develop testable propositions. The analysis logic of this chapter (Figure 14) is referred to the research framework which was presented in section 2.4. In particular, through the comparison among the six cases, rival explanations will be examined to explore the specific way through which NSPs' services, individually or jointly and directly or indirectly, help REs establish governance structures and reduce costs in the resource exchanges with RHs.

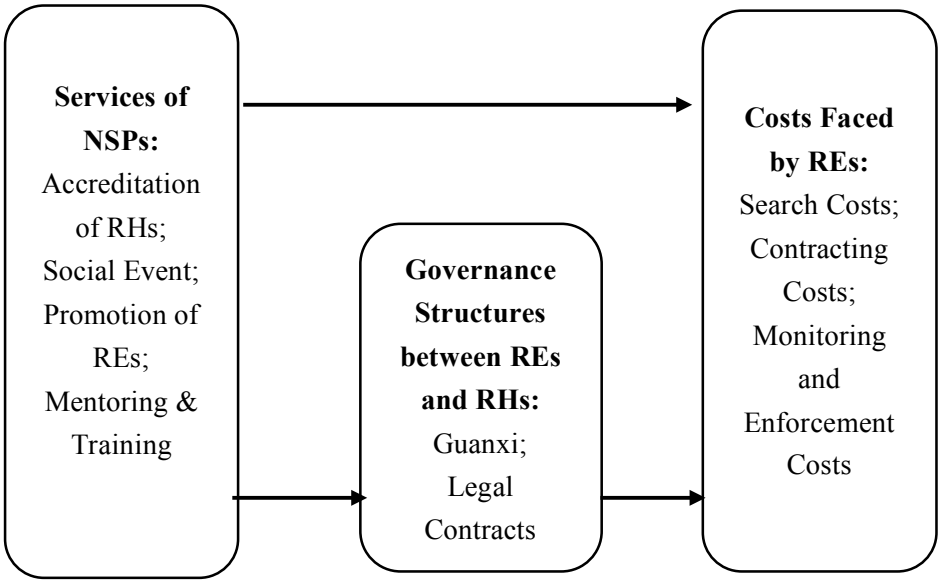


Figure 14 General Logic of Cross-Case Analyses

(Source: Created by The Author)

- Section 5.1 presents how NSPs' services reduce REs' search costs.
- Section 5.2 explores the specific mechanisms through which NSPs'

services combine direct and indirect approaches to help REs reduce contracting costs.

- Section 5.3 conducts the analyses on how NSPs support the establishment of governances structures between REs and RHs, and then leverage them to help REs decrease monitoring and enforcement costs.

- Section 5.4 presents a chapter summary

5.1 The impact of NSP's services on search costs

In the following, the current research will explore the separate influence of NSPs' four services on search costs. First, this study finds that NSPs' 'accreditation of RHs' service can effectively reduce the search costs of REs (Figure 15). A strong 'accreditation of RHs' service is usually supported by a large and regularly updated database on RHs, and is in form of recommendation (and, by omission, a 'black list'). Through these databases, REs can better identify and screen RHs, and then get in touch with selected RHs to negotiate collaborations. For instance, NSP-E offered a strong service on 'accreditation of RHs' but delivered weak services in other three aspects (Table 26), and as a result, REs there tended to regard the support from this NSP as an effective shortcut to narrow the journey of looking for proper RHs. On the contrary, without a strong service on 'accreditation of RHs', it appears hard to reduce the search costs. For instance, REs from NSPs-C, which offered a weak 'accreditation of RHs' service but delivered strong services in other three aspects (Table 26), complained that they felt 'blind' when starting seeking potential RHs.

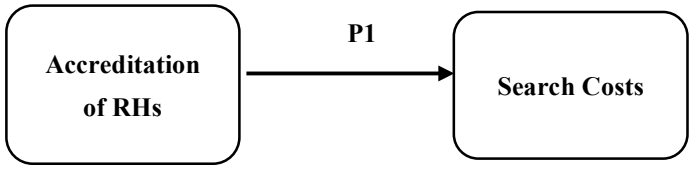


Figure 15 Accreditation of RHs Service and Search Costs

(Source: Generated by The Author)

Second, this study finds that the effectiveness of the 'social event' service on search costs depends on the presence of other services. Traditionally, researchers argue that the social networking provided by science parks can help firms find collaborators (e.g., Bøllingtoft and Ulhøi, 2005; Carayannis and von Zedtwitz, 2005). However, this case analysis reveals that although Chinese NSPs' 'social event' services create a good platform for REs to meet and interact with potential RHs, this is not enough to effectively reduce REs' search costs. In particular, RE's search for RHs included several stages, including accessing, screening and selecting. The 'social event' service only enabled REs to get access to RHs, but it did not offer enough help in letting REs understand the background of RHs, namely, reputation, capability and so forth. As a result, REs still had to put in efforts in searching information on potential RHs so as to make an informed decision on who is more appropriate to collaborate with. For instance, among the four services provided by NSP-F, only 'social event' was perceived strong by the REs, and as a result, REs there contended they did not get enough support from the NSP in searching for RHs.

Third, this study finds that there appears to be little evidence that the 'mentoring & training' service is an effective tool to reduce search costs of REs. Particularly, through the 'mentoring & training' service, NSPs usually used some benchmarking organizations in that industry

as typical cases to impart operational skills and experience to REs. Those exemplar firms could, in theory, be potential RHs and as such this service might reduce the search costs for REs, to some extent. However, these benchmarking organizations were usually big players in that sector and were busy in dealing business with big firms. Hence, it was rare for them to notice and have an interest in collaborating with start-ups. Furthermore, the number of benchmarking firms introduced in the mentoring & training was relatively small, which meant those firms usually did not fall into the particular type of RHs expected by REs. This was confirmed by REs from NSP-C, in which they got strong a 'mentoring & training' service but perceived a weak support from the NSP in reducing search costs (Table 26).

Fourth, this study finds that NSPs' 'promotion of REs' service cannot guarantee the reduction of REs' search costs. New ventures typically have little or even no reputation or legitimacy in the market (McAdam & Marlow, 2007; Studdard, 2006). Even though NSPs' strong promotion for REs was reported to increase REs' credibility as perceived by potential RHs, this study found that this was not enough to turn the new ventures of REs into well-known business partners. The case analysis revealed that it was rare that RHs actively came to knock the door of REs. Furthermore, through the promotion of NSPs, some RHs might gradually get to know and get in touch with REs, but the lack of information on the RHs still created many costs for REs in screening and selecting appropriate collaborators. This was supported by REs of NSP-C who felt they were offered a strong service on 'promotion of REs' from the NSP, but still perceived a weak help from the NSP in reducing the search costs (Table 26). Hence, this study develops the following proposition.

Proposition 1: *The 'accreditation of RHs' service directly helps REs reduce search costs.*

5.2 The impact of NSP's services on contracting costs

This study finds out that NSPs' services help REs reduce contracting costs through the integration of both direct and indirect ways (Figure 16). On the one hand, NSPs' services indirectly help REs reduce contracting costs through facilitating them to build up guanxi with RHs (Section 5.2.1). On the other hand, NSPs' service directly reduce REs' costs of contracting with RHs by providing REs with releted training and mentoring. However, only the combination of direct and indirect ways can NSPs' multiple services significantly reduce the contracting costs (Section 5.2.2).

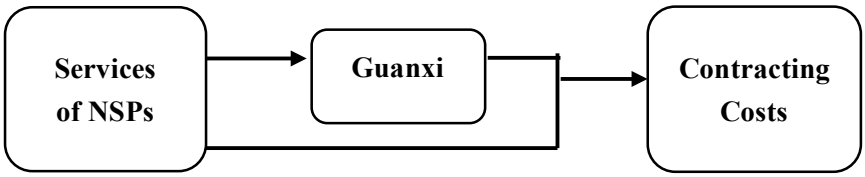


Figure 16 Impact of NSPs' Services on Contracting Costs

(Source: Created by The Author)

5.2.1 The impact of NSP's services on guanxi

This study will explore the impact of NSPs services on the guanxi building between REs and RHs. As mentioned in section 2.3.5.3, trust (xin) and feeling (qing) are two key elements of guanxi. Hence, the below section 5.2.1.1 will find out how to combine 'accreditation of RHs' and 'promotion of REs' services to build trust (xin) between REs and RHs. Section 5.2.1.2 will explore the the way the 'social events' service help build up the feeling (qing) between REs and RHs. Finally,

section 5.2.1.3 will seek the joint impact of the three services on the guanxi building between REs and RHs (Figure 17).

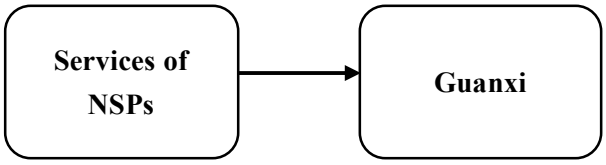


Figure 17 Impact of NSPs' Services on Guanxi

(Source: Created by The Author)

5.2.1.1 The impact of NSP's services on trust

Trust is significant to drive social exchanges and do business in China where the regulations and standards are not fully exercised and the uncertainty is relatively high (Chua, Morris and Ingram, 2009; Tsang, 1998). In most cases, trust can be regarded as an important indicator to differentiate guanxi level: the higher trust the better guanxi (Chen and Chen, 2004). Hence, before exploring how NSPs' services affect guanxi, this study will first explore how two types of services, provided by NSPs, improve the trust between REs and RHs (Figure 18).

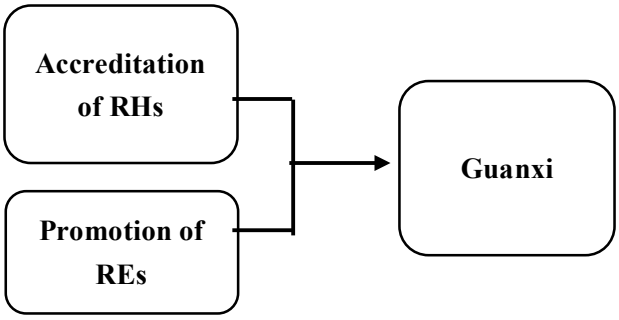


Figure 18 Two Services and Guanxi

(Source: Generated by The Author)

This section is divided into three parts. In the first part, this study will present the effect of the 'promotion of REs' service on trust building between REs and RHs. After that, this study will find out the

influence of the 'accreditation of RHs' service on the trust establishment. In the final, the combination effect of the above two services on the trust development will be explored.

1) 'Promotion of REs' service and trust

This study finds that the 'promotion of REs' service can help RHs build trust in REs, but it requires the coordination of other services if the NSP tends to offer strong support to the building of mutual trust between REs and RHs.

One people only trust another who is trustworthy and credible (Yen, Barnes and Wang, 2011). Therefore, it is important to promote REs to be more trustworthy, so as to make RHs trust them, which is the first step for future collaborations. The 'promotion of REs' service is a pivotal way to increase REs' credibility. For entrepreneurs who just create new ventures, the reputation is usually pretty low in the market (McAdam & Marlow, 2007; Studdard, 2006). This disadvantage seriously inhibits REs from gaining resources for their new firms, as many RHs do not trust or even never hear about them. Further, many REs lack domestic networks after the long staying in overseas countries, which means it is hard for them to find middle persons to introduce them to prospective RHs. The difficulty of embedding into local networks consisting of RHs concerned REs when they just came back to China. Therefore, NSPs' service on promoting REs became an important tool to complement REs' disadvantage and relieve their concern.

NSPs mainly had three paths to deliver the 'promotion of REs' service. The first path built on REs' association with the NSP by registering their new ventures in it. The link to science parks has

reputational and signalling content (Hoang & Antoncic, 2003). In the dynamic and uncertain environment, RHs need to obtain more information to evaluate the potential of a venture and avoid risks. Hence, it is sensible for REs to gain legitimacy from well-regarded organizations (Hoang & Antoncic, 2003), such as NSPs, so as to reduce RHs' perceived risks. In this case, the image benefits of the entrepreneurs and their firms depend on the reputation of the NSPs (Schwartz & Hornych, 2008). That is to say, the higher the reputation of the NSPs, the higher probability of a positive image delivered to REs and their new ventures. RHs' positive perceptions on REs will lead to beneficial resource exchanges in the subsequence.

The second path might be seen as a particular Chinese approach and required the special efforts of NSPs. For instance, to attract REs and to set models for other entrepreneurs to learn, NSPs usually sought to entitle some outstanding REs with political posts or government-backed honours as mentioned in section 2.2. Political posts, such as the member of Youth Committee, CCPCC or People's Congress, offered an opportunity for REs to participate in some policy discussion, consultation and networking with government officials. Further, the honours enabled REs to have more opportunities to be selected as representatives to strengthen the relationship with the government when officials inspected local regions or organized symposia.

Third, being selected by NSPs as representatives to give presentations in social events was another way to promote REs' reputation. For instance, NSP-C and D regularly held sharing sessions by inviting outstanding entrepreneurs to share their experience with nascent entrepreneurs. The REs who got this opportunity of giving

speech reflected that, after the session, they received many collaboration intentions from some investors, soft developers and distributors whom they had never met before.

In general, interviewed REs reported they regarded the above three approaches as a recognition of NSPs, and such a valuable and intangible resource could significantly increase the credibility of REs and their new ventures. However, many REs also reflected that being trusted by RHs did not stand for the fact that RHs could be trusted (Table 27). Hence, it is also necessary for NSPs to facilitate REs to more easily evaluate the trustworthiness of RHs.

Table 27 Two Services and Mutual Trust
(Source: Generated by The Author)

	Strong Service on 'Accreditation of RH'	**Weak Service on 'Accreditation of RH'**
Strong Service on 'Promotion of REs'	**1 Strong Support to Mutual Trust Building** (NSP-A, B, D)	**2 Weak Support to Mutual Trust Building** (NSP-C)
	1.1 REs have trust on RHs;	2.1 REs lack trust on RHs;
	1.2 RHs have trust on REs	2.2 RHs have trust on REs
Weak Service on 'Promotion of REs'	**3 Weak Support to Mutual Trust Building** (NSP-E)	**4 Weak Support to Mutual Trust Building** (NSP-F)
	3.1 REs have trust on RHs;	4.1 REs lack trust on RHs;
	3.2 RHs lack trust on REs	4.2 RHs lack trust on REs

2) 'Accreditation of RHs' service and trust

This study finds that the 'accreditation of RHs' service can help REs build trust in given RHs, but this service alone cannot, it seems, guarantee the establishment of mutual trust between REs and RHs as well.

In particular, the 'accreditation of RHs' could operate either positively, through recommendation, and negatively, through black listing. For instance, the violation of the agreements with REs or the conduct of serious opportunistic behaviour might lead RHs to a negative accreditation from NSPs. One outcome was reported as that RHs might be banned by the NSP from doing business with its firms in the future. Also, the poor reputation of RHs in their collaboration with REs might be broadcasted to a wide area because of the large networks of the NSP with both the government and industries. On the contrary, a good reputation record signified a positive accreditation by the NSP and as such would bring more opportunities to RHs' further development. In some cases, NSPs might directly introduce REs to RHs with good reputations.

The above recommendation and black lists could bring benefits to REs in two ways. On the one hand, the RHs on the recommendation list would be the priority collaborators for REs, which could save them much time in searching and evaluating a large number of RHs. On the other hand, the two types of lists could contribute to encouraging RHs to pursue good will in their collaboration with REs. Specifically, to avoid the risk of getting a negative accreditation, it was advisable for RHs, in many cases, to comply with contracts and do not seriously violate regulations and laws. Also, the motivation of getting on the recommendation list would lead RHs to pursue and keep positive reputation in collaborating with REs associated with NSPs. This was another source of RHs' good will. To sum up, the potential good will of RHs could help REs build more trust in their counterparts.

However, this study found the 'accreditation of RHs' service, alone, could facilitate REs to trust RHs, but was not enough to build

mutual trust between the two sides. For instance, NSP-E offered a strong service on 'accreditation of RHs' but delivered weak services on the three other aspects, and as a result, its REs reported they tended to trust RHs but it could not ensure the establishment of guanxi with RHs. In other words, REs' trust in RHs could not guarantee that RHs trusted REs (Table 27).

3) 'Promotion of REs' and 'accreditation of RHs' services and mutual trust

Based on the above analyses, it indicates that a strong 'accreditation of RHs' or 'promotion of REs' alone can help build one-way trust, but cannot guarantee the mutual trust between REs and REs (Table 27). Nevertheless, the combination of the two strong services will make a difference. For instance, NSP-A, B and D offered strong services on 'accreditation of RHs' and 'promotion of REs', simultaneously. Accordingly, these science parks brought strong support to the mutual trust between REs and RHs. One RE reflected: *I can sense that the business partner has a relatively high trust in me since he believes that, under the administration and monitoring of the science park, I will not do illegal things to his company. Meanwhile, I, of course, believe in the recommendation list offered by this science park when choosing my business partners (A4, May, 2015, See Table 18)*.

5.2.1.2 The impact of NSP's service on feeling

This study found that even though the 'social event' service is important in building feeling, one element of guanxi, this service alone cannot, it seems, guarantee the guanxi building (Figure 19). This is in accordance with the argument of Tsang (1998) who contends that the

experience of sharing and interaction is the necessary but not a sufficient precondition of the guanxi building between two sides.

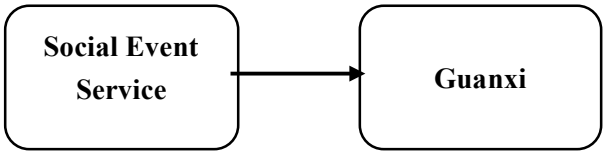


Figure 19 Impact of Social Event Service on Guanxi
(Source: Created by The Author)

The 'social event' service in this study refers to a wide range of activities held or sponsored by NSPs, which includes fora, conferences, exhibitions, parties and so on. By leveraging its close links with the local authority, NSPs sometimes invited the government to become a sponsor of some important social events. The government's involvement could usually bring many benefits to the events essentially. First, the endorsement of the government would increase the attractiveness and credibility of the social events. Also, some local governments even issued special documents to their subsidiary units to encourage them to participate into the social events. This way could significantly increase the influence of the events. To further promote the events, some local governments even would like to capitalize on its own networks with other local governments to advertise the events in other regions. In some cases, the government was willing to bear part of the expenses of holding the events, or allocate some staff members to directly lead or join the preparatory committee of the social events. In this way could the event leverage many more resources to increase the quality to better serve the interaction between REs and RHs.

Actually, the local government had a strong motivation to select some suitable entrepreneurship and innovation-related events and promote them. On the one hand, those events could serve to promote

the local entrepreneurship atmosphere and bring convenience to entrepreneurs to get access to various resources for venture creature and development. On the other hand, these activities complied with the spirit of central government who was striving to advocate innovation and entrepreneurship across China. More importantly, these events were usually high profile and could more easily attract media, which was a convenience way for local officials to get attention from their superiors. In summary, the above three aspects jointly led to the social events to be regarded as important political achievements for local officials, which created opportunities for their future promotion. As a result, NSPs' social events, backed or directly involved by the government, were usually influential, at least in the local region. This was good to attract more REs and RHs to join the events.

In China, a relationship based society, the social engagement is especially emphasized as a key element for guanxi building. One RE commented: *I believe in what I see (Yan Jian Wei Shi), and my eyes can tell whether one person is trustworthy to make friends (D7, January, 2015, See Table 18). It is pretty hard for me to make friends with a stranger without social engagements, let alone establishing strong guanxi with him or her (B5, April, 2015, See Table 18),* said another RE. In actual, many REs agreed that the social engagement enabled them to profile RHs approximately, which could be seen as a precondition for further interactions and collaborations.

NSPs' social event service provided a significant platform for REs to meet, interact and select prospective collaborators among RHs. For instance, many REs reflected that the social events were efficient to meet various potential collaborators within a relatively short of time at a stable location. More importantly, this platform brought REs precious

opportunities to meet relatively famous or successful RHs, who were not easy to get access by nascent entrepreneurs, including REs. *Without these social events, I have to meet RHs' firms one by one located in different places (A7, May, 2015, See Table 18)*, said one RE. Another RE reported: *I was so excited to meet my idol in the social events [held by one NSP], and he introduced me to meet one of his friends to do collaborative research and development for a new software (F6, February, 2015, See Table 18)*. On the contrary, in NSP-E where there were no strong social events provided by the science park, the interviewed REs agreed that the lack of high quality social engagement inhibited their guanxi building with RHs. In general, the social events are important for the guanxi building between REs and RHs.

However, the NSPs' social event service alone could not bring strong support to the guanxi building. For example, among the four key services, NSP-F only delivered the strong service on 'social event', but this could not ensure this science park to be helpful in enabling its REs to build guanxi with RHs (Table 28). The REs there reported that to build up guanxi with RHs, the social interaction was significant but not enough, and the verification of the potential partner's trouble-free character was necessary. *Meeting strangers face-to-face could not persuade me to trust them, I hope the science park could provide us more information on the background of those RHs who participated in the conferences and exhibitions (C4, March, 2015, See Table 18)*, said one RE. Disputes or litigation of either party in the past may damage the closeness of guanxi (Tsang, 1998), and it is necessary for NSPs to provide more services rather than the social event only.

Table 28 Mutual Trust, 'Social Event' Service and Guanxi

(Source: Generated by The Author)

	Strong Support to Mutual Trust building	**Weak Support to Mutual Trust building**
Strong Service on Social Event	1 Strong Support to Guanxi Building (NSP-A, B, D)	2 Weak Support to Guanxi Building (NSP-C, F)
Weak Service on Social Event	3 Weak Support to Guanxi Building	4 Weak Support to Guanxi Building (NSP-E)

5.2.1.3 'Social Event', 'promotion of REs' and 'accreditation of RHs' services and guanxi

This study found that through an appropriate combination of the three services, including social events, promotion of REs and accreditation of RHs, NSPs could play a significant role in facilitating the build-up of guanxi between REs and RHs who were strangers to one another before wards. Therefore, in the design of the services combination, it is advisable to take account of both trust and feeling construction between REs and RHs simultaneously.

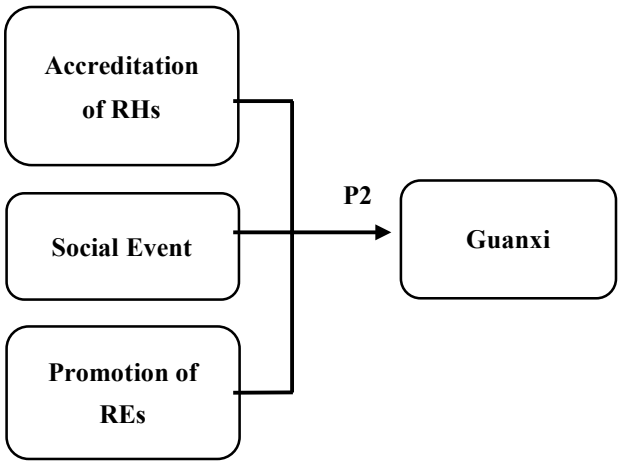


Figure 20 Three Services and Guanxi's Two Elements

(Source: Generated by The Author)

Mutual trust is important for any businesses that can take place

(Arregle et al., 2000). Depending on the above analyses, the unidirectional trust alone, pushed by the 'promotion of REs' service, with the aim of enhancing RHs' trust in REs, was not enough to build guanxi between REs and RHs. In the mean time, the 'accreditation of RHs' service, intending to strengthen REs' trust in RHs, only foster one-way trust as well, and as such it was not capable of cultivating guanxi on its own. In addition to this, the social engagement was also important, which enabled REs and RHs to further evaluate whether the opposite side is appropriate to collaborate, and simultaneously to enhance trust through interaction. Therefore, to facilitate the guanxi building between REs and RHs, NSPs not only needed to cultivate the two-way trust between the two sides, but also offered appropriate platforms to improve social engagements.

Actually, this study found the combination of 'promotion of REs' and 'accreditation of RHs', together with 'social event' services, enabled NSPs to offer strong support to the guanxi building between REs and RHs. For instance, NSP-A, B and D, which offered strong services on 'promotion of REs', 'accreditation of RHs' and 'social event' simultaneously, could bring their REs strong help in the guanxi building (Table 28). Many REs there agreed that the science park created a convenient environment for them to not only interact with RHs, but also accelerated the process of the mutual trust enhancement, and correspondingly the guanxi building, with RHs. Nevertheless, although NSP-C delivered two strong services on both 'promotion of REs' and 'social event', its REs still perceived a weak help from the NSP in building guanxi with RHs (Table 28). The main reason was attributed to NSP-C's weak service on 'accreditation of RHs', with some REs reflecting that they usually concerned the trustworthiness of

some investors even after meeting them in roadshows and conferences. This led REs in NSP-C to spend much more time in evaluating those investors' background and doing relevant comparisons. Hence, this study develops the following proposition.

Proposition 2*: NSPs effectively help the guanxi building between REs and RHs by combining the 'promotion of REs', 'accreditation of RHs' and 'social event' services.*

5.2.2 The impact of guanxi and 'mentoring & training' service on contracting costs

To find out the way the 'mentoring & training' service and 'guanxi' influence contracting costs (Figure 21), this study conducted analyses in three aspects. First, this study explored the way guanxi affected contracting costs in section 5.2.2.1, then analysed the influence of the 'mentoring & training' service on those costs in section 5.2.2.2, and finally discussed the joint influence of guanxi and 'mentoring & training' service on the costs in section 5.2.2.3.

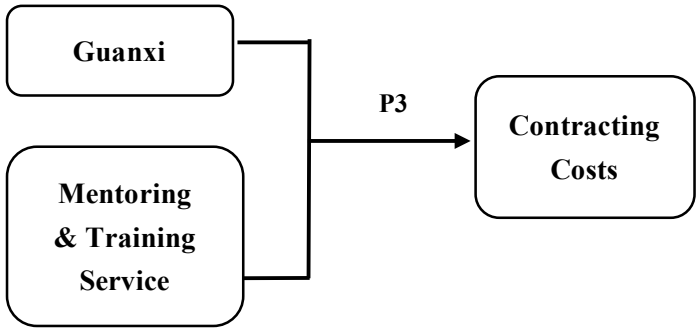


Figure 21 Service, Governance Structures and Costs

(Source: Generated by The Author)

5.2.2.1 Guanxi and contracting costs

This study found that a relatively strong guanxi could accelerate the contract negotiation between REs and RHs, but it alone could not

significantly reduce the contracting costs, nor offer strong help in the contract building.

Particularly, REs reported that a relatively strong guanxi with RHs usually made them believe that the other side would not take advantage of their vulnerability and the allocation of future benefits between them would be fair. One reason was that the trust, as one key element of guanxi, was usually regarded as helpful in limiting opportunistic behaviours (Wong and Leung, 2001; Luo, 2001). In this case, both sides would be relatively flexible when negotiating specific contract clauses, and would not spend too much time in arguing back and forth on every terms. Therefore, a relatively strong guanxi could help smooth the process of negotiation and bargaining between REs and RHs.

However, the guanxi alone was not helpful enough for REs to either reduce contracting costs or accelerate the contract negotiation and finalizing. For instance, NSP-D delivered a strong help in guanxi building but failed to do so in offering the 'mentoring & training' service. As a result, its REs reflected the science park provided a weak support to the contracts building and contracting costs reduction (Table 29).

Table 29 'Mentoring & Training' Service, Guanxi, and Contracting Costs
(Source: Generated by The Author)

	Strong Service to Mentoring & Training for REs	**Weak Service to Mentoring & Training for REs**
Strong Support to Guanxi Building	1 Strong Support to Contracting Costs Reduction (NSP-A, B)	2 Weak Support to Contracting Costs Reduction (NSP-D)
Weak Support to Guanxi Building	3 Weak Support to Contracting Costs Reduction (NSP-C)	4 Weak Support to Contracting Costs Reduction (NSP-E, F)

The reason was, after a long time being exposed in developed countries where there were relatively complete institutions and the spirit of rule by law was relatively well established, REs usually had a strong legal awareness and guanxi could not substitute the importance of legal contracts. That was why many REs from NSP-D commented that they still insisted to sign a relatively complete legal agreement even if they had a strong guanxi with the collaborators. In the mean time, a strong guanxi between REs and RHs could not ensure the reasonability and appropriateness of contract clauses. Hence, REs still had to spend much time on learning and understanding related legal clauses before negotiating specific conditions and terms with RHs.

5.2.2.2 'Mentoring & Training' service and contracting costs

This study found that NSPs' 'mentoring & training' service could help REs speed up the process of designing a relatively complete and specific contract, but this service alone was not enough to significantly reduce contracting costs, and as such could not offer strong support to the contract building.

By organizing training sessions and seminars, NSPs enabled REs to gain skills in business negotiation and contract designs. For instance, NSP-A offered several types of standard contracts as a reference when REs were negotiating with investors concerning the equity structure, input share, intellectual property right (IPR) management and benefits distribution. NSP-B regularly organized training on understanding the IP- and investment-related laws and policies. Many sessions hosted by NSP-C focused on the potential traps in the negotiation phase, which was especially useful for nascent entrepreneurs. REs reported that the above 'mentoring & training' service reduced some of their contracting

costs in two ways. First, the knowledge obtained through those services not only enabled REs to be more familiar with various typical contract clauses, but also helped them understand new clauses more easily and deeply. This facilitated REs to be more intentional in designing and discussing clauses with RHs, which saved REs much time and energy. Second, the mentoring & training could help REs not only identify unfair or even malicious clauses, but also actively design more specific and complete terms and conditions to better protect their vulnerability.

However, just obtaining knowledge upon legal contracts was not enough to facilitate REs to efficiently accelerate their negotiation with RHs. Many REs reflected the weak guanxi between the two sides would be a significant obstacle, which slowed down the negotiation process. For instance, NSP-C offered services on mentoring & training but failed to give its REs strong help on the guanxi building with RHs, and as a result, REs there perceived the science park's support to the legal contract building, and accordingly the contracting costs reduction, was relatively weak (Table 29).

5.2.2.3 'Mentoring & Training' service, guanxi, and contracting costs

This study found that the combination of 'guanxi' and 'mentoring & training' service was beneficial to the contracting costs reduction, and the following was a comparison among NSP-A, B, C and D.

Among the four science parks, NSP-C delivered a strong service on 'mentoring & training' but was not good at helping REs build up guanxi. On the contrary, NSP-D could effectively help REs build up guanxi but failed to deliver a strong service on 'mentoring & training'. Interestingly, neither NSP-C nor NSP-D could offer strong help to their REs in reducing contracting costs (Table 29). This indicated the

reduction of contracting costs could not just depend on either the 'mentoring & training' service or guanxi alone.

By contrast, NSP-A and B were seen to be good at not only delivering a strong service on 'mentoring & training', but also helping REs build up 'guanxi'. As a result, both NSP-A and NSP-B were seen to be helpful in facilitating their REs to reduce contracting costs (Table 29). REs from the two science parks agreed the importance of both guanxi and 'mentoring & training' service in building legal agreements. *Guanxi helped build our positive attitudes in negotiating specific clauses and the training impart me necessary knowledge on negotiating contracts (A6, May, 2015, See Table 18)*, reported on RE. Hence, this study develops the following proposition.

Proposition 3*: The combination of 'mentoring & training' service and 'guanxi' enables REs to reduce contracting costs.*

5.3 The impact of NSPs' services on monitoring and enforcement costs

In addition to helping RE reduce search and contracting costs, NSPs' services also brought benefits to REs' costs reduction on monitoring and enforcement. This section will explore how the services leverage governance structures between REs and RHs to decrease the given costs (Figure 22). Specifically, section 5.3.1 presents the way through which the services affect the building up of governance structures while section 5.3.2 finds out the relationship between those structures and monitoring and enforcement costs.

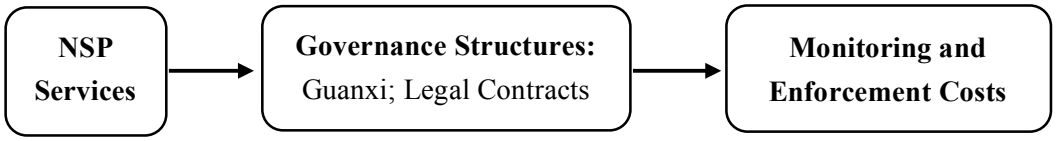


Figure 22 Impact of NSPs' Services on Monitoring and Enforcement Costs

(Source: Created by The Author)

5.3.1 The impact of NSPs' services on governance structures

As explained in section 2.3.5, this study characterises the governance structures between REs and RHs as two types, guanxi and legal contracts, respectively. Further, this research found that NSPs' services help the establishment of guanxi and legal contracts. In particular, the previous section 5.2.1 presents three services, 'promotion of REs', 'accreditation of RHs and 'social event', work jointly to help REs build up guanxi with RHs. In addition, section 5.2.2 states that the combination of guanxi and the 'mentoring & training' service can facilitate REs to reduce contracting costs, which is beneficial to establishing legal contracts with RHs. Through offering help on the governance structures establishment, NSPs' services facilitate REs to reduce their monitoring and enforcement costs, which is presented below.

5.3.2 The impact of governance structures on monitoring and enforcement costs

To find out the role of informal (i.e. guanxi) and formal (i.e., legal contracts) governance structures in reducing REs' monitoring and enforcement costs (figure 23), this study conducted analyses in three aspects. First, this study explored the influence of guanxi on monitoring and enforcement costs in section 5.3.2.1, then discussed legal contracts' impact on monitoring and enforcement costs in section

5.3.2.2, and finally analysed the joint effect of guanxi and legal contracts on monitoring and enforcement costs in section 5.3.2.3.

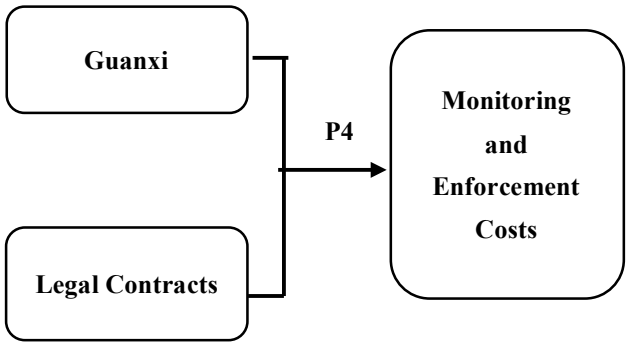


Figure 23 Governance Structures and Monitoring and Enforcement Costs

(Source: Generated by The Author)

5.3.2.1 Guanxi and monitoring and enforcement costs

This study found that it was hard to significantly reduce REs' monitoring and enforcement costs by using guanxi only. On the one hand, guanxi did contribute to the reduction of monitoring and enforcement costs. In particular, the guanxi meant a two-way trust and would lead REs to expend fewer resources in monitoring whether RHs took full responsibility as ruled by the agreement. Even if there was a contingency, and as a result, renegotiations were required in the course of an agreement's enforcement, guanxi could make each party interpret the behaviour of the other side as positive and thus reduce costs of enforcement for REs.

On the other hand, however, guanxi could not substitute legal contracts' role in reducing monitoring and enforcement costs. For instance, NSP-D was seen as providing strong support to the guanxi building but not to the legal contracts building, and as a result, REs there perceived the NSPs' help as weak in reducing monitoring and enforcement costs (Table 30). Many REs reported that no matter how strong the guanxi would be, they still insisted to utilize legal contracts

to manage the collaboration with RHs. This study found that this was partly because REs' relatively high legal awareness influenced by their overseas experience. Also, the insisting on using legal contracts was regarded by some REs as a way to mitigate possible risks from RHs. Specifically, new ventures' ability to bear risks usually was extremely weak, and various possible opportunistic behaviours of RHs might seriously affect the firms' survival. As a result, REs reported a preference for caution in the collaboration with RHs and, therefore, tended to avoid uncertainty by adopting legal contracts as an ultimate governance structure to safeguard interests.

Table 30 Guanxi, Legal Contracts and Monitoring and Enforcement Costs

(Source: Generated by The Author)

	Strong Support to Guanxi Building	**Weak Support to Guanxi Building**
Strong Support to Legal Contracts Building	1 Strong Support to Monitoring and Enforcement Costs Reduction (NSP-A, B)	2 Weak Support to Monitoring and Enforcement Costs Reduction
Weak Support to Legal Contracts Building	3 Weak Support to Monitoring and Enforcement Costs Reduction (NSP-D)	4 Weak Support to Monitoring and Enforcement Costs Reduction (NSP-C, E, F)

5.3.2.2 Legal contracts and monitoring and enforcement costs

This study found that, by adopting legal contracts only, it was hard to significantly reduce REs' monitoring and enforcement costs. On the one hand, legal contracts did play a key role in reducing REs' costs in monitoring RHs' behaviours and promoting the enforcement of deals. Specifically, through the design of relatively complete and specific clauses, RHs' key decision and performance could be more transparent to some extent, which decreased REs' monitoring costs in evaluating

whether RHs meet the requirements stated in the contracts. Also, the arrangement of reasonable penalty clauses could lead to RHs to be concerned with the possible punishments, which, in most cases, enforced them to mitigate opportunistic behaviours and observe the agreed deals, and as such reduced REs' enforcement costs.

On the other hand, legal contracts could not substitute guanxi's role in reducing monitoring and enforcement costs. Specifically, because of the bounded rationality and uncertainty (Williamson, 1985), REs and RHs could not design perfectly complete legal contracts that predicted every contingency and, accordingly, stated various clauses to respond to each possible conditions. Hence, there were many areas that legal contracts did not cover and the enforcement of the deals was limited. In this case, REs and RHs needed to use the other governance structure, guanxi, to coordinate their collaboration with RHs. Actually, guanxi, as a Chinese culture, consistently and fundamentally influenced REs' business behaviour and mind-set, even if they had stayed in western countries. *In China I definitely know the importance of guanxi and it is a precondition of doing any businesses (A5, May, 2015, See Table 18)*, reported one RE from NSP-A. Another RE in NSP-B commented: *I agree with one of my tutors' opinion, in one training course, that guanxi dominates the business world, and sometimes it is more important than product quality (B5, April, 2015, See Table 18)*. In addition, REs from NSP-A and B also reported that if the NSP ignored the importance of guanxi, and only helped them build up legal contracts, the reduction of monitoring and enforcement might be less significant.

5.3.2.3 Guanxi, legal contracts and monitoring and enforcement costs

Based on the above discussion, this study found that when NSPs offered help to the establishment of one governance structure only between REs and RHs, either guanxi or legal contracts, REs did not receive a significant costs reduction on monitoring and enforcement. On the contrary, this study found when NSPs offered strong help in both the guanxi and legal contracts building, REs would perceive the science park as helpful in reducing their monitoring and enforcement costs. The instance could be found in NSP-A and NSP-B (Table 30), where REs agreed both guanxi and legal contracts were two crucial and complementary governance structures to manage the collaboration with RHs. Between the two governance structures, guanxi was useful to make REs and RHs hold a good will in negotiation and as such they did not need to struggle with some specific clauses for the fear of being cheated. Also, legal contracts were important in clarifying participants' rights and obligations, and they acted as an ultimate approach to protect new ventures' vulnerability. Hence, this study develops the following proposition.

Proposition 4*: The combination of guanxi and legal contracts building effectively help reduce REs' monitoring and enforcement costs.*

5.4 The general relationship among services, governance structures, and costs

Depending on the findings in the section 5.1-5.3, this study developed figure 24 to summarize the relationships among services, governance structures and costs facing REs. The two governance structures include legal contracts and guanxi. First, this study found NSPs' 'accreditation of RHs' service could directly help its REs reduce search costs (Proposition 1). Second, the reduction of other costs could

not be easily realised by any individual services, and it required multiple services to offer indirect support via the governance structures between REs and RHs. In the mean time, the influences of those services were usually exerted in an indirect way (Via governance structures). Specifically, the reduction of contracting costs required the combination of mentoring & training service and guanxi (Proposition 3). The guanxi building depended on the joint effect of NSPs' 'social event' service and the mutual trust between REs and RHs, while the establishment of mutual trust was supported by the combination of two services: 'accreditation of RHs', 'social event' (Proposition 2). Finally, reducing the monitoring and enforcement costs needed the joint effect of two governance structures, guanxi and legal contracts (Proposition 4), and the establishment of them depended on the integration of all the four services.

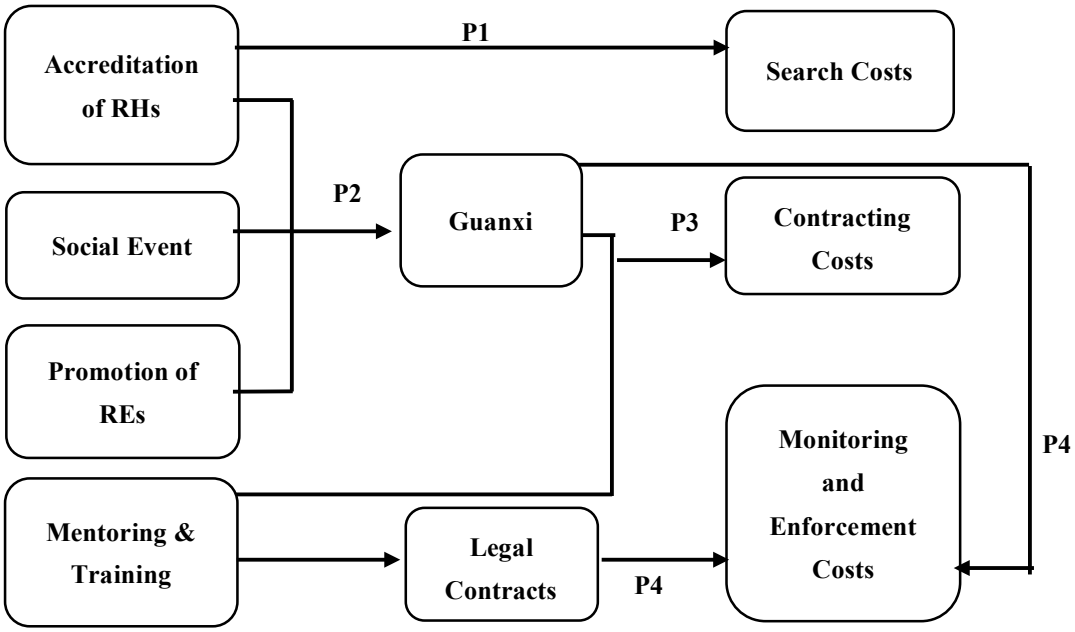


Figure 24 Summary on Four Propositions

(Source: Generated by The Author)

5.5 Chapter summary

This chapter conducts cross-case analyses and gains several significant and meaningful findings. In particular, this study finds out NSPs directly help REs reduce search costs by using 'accreditation of RHs' service. Further, decreasing the contracting costs requires the combination of four services and through the guanxi building. Finally, the reduction of REs' monitoring and enforcement costs depends on the combination of four services to facilitate the establishment of governance structures, guanxi and legal contracts, between REs and RHs. Accordingly, four propositions are raised.

Chapter 6 Discussion

6.0 Introduction

This chapter will discuss the meaning of this study's findings for the extant literature, which will be achieved by comparing the case-analyses in chapter 4 and 5 with the literature in chapter 2. This chapter consists of five sections and the discussion will be related to the propositions raised in chapter 5.

- Section 6.1 utilizes TCP to explain how Chinese NSPs affect the transactional dimensions to help REs reduce costs.
- Section 6.2 states that this study challenges the research on science park and shows that it is the service on 'accrediting of RHs', rather than the traditionally considered social event service, that is significant to REs when they are seeking RHs.
- Section 6.3 extends the literature on science park by embedding guanxi into science parks' discussion. Further, this study adds insights into the research on RE and science park by exploring how to build up social networks, e.g., guanxi. Finally, since trust is a key element of guanxi, this study extends the research on trust by exploring the role of third parties, such as NSPs, in establishing trust between two sides and the Chinese way of increasing credibility.
- Section 6.5 adds insights into the literature on governance structure by discussing the importance of combining formal and informal governance structures for REs in Chinese context.

- Section 6.6 presents a chapter summary

6.1 The rationality of reducing REs' costs

This study extends the existing literature on science park and RE by explaining how NSPs affect transactional dimensions, which are key concepts in the TCP literature, to help REs decrease costs in resource acquisition (Table 11, which was first presented in section 2.3.4.1).

Table 11 Relationships between Transaction Dimensions and Costs
(Source: adapted from Rindfleisch and Heide, 1997; Dyer,1997; Artz and Brush, 2000)

	Asset Specificity	**Environmental Uncertainty**	**Behavioural Uncertainty**
Main sources of costs facing REs	Safeguarding	Adaptation	Performance Evaluation
Main costs facing REs	Contracting Costs *(Crafting Safeguards Costs)*	1.Contracting Costs *(Costs of coordination and communication)* 2.Enforcement Costs *(Costs of renegotiation)*	1.Search Costs *(Screening and Selection Costs);* 2.Monitoring Costs *(Measurement Costs)*

First, NSPs help REs reduce search costs by decreasing the behavioural uncertainty of RHs (Table 11). The 'accreditation of RHs' service provides recommendation or black lists, which bring convenience to REs in identifying dependable RHs. This service significantly reduces REs' perception on RHs' behavioural uncertainty, and as such REs do not need to spend too many costs on obtaining and processing the background information of a wide variety of RHs. Therefore, NSPs, with a strong 'accreditation of RHs' service, are helpful to REs to reduce screening and selection costs.

Second, NSPs facilitate REs to reduce contracting costs through influencing both the safeguarding issue, originated from asset

specificity, and adaption issue, coming from environmental uncertainty (Table 11). On the one hand, NSPs' support to the guanxi building between REs and RHs relieves safeguarding and adaption issues. Specifically, guanxi leads one party to be more confident that the information provided by the other party is not misrepresented (Dyer & Chu, 2003; Zaheer, McEvily, & Perrone, 1998). Also, both sides will tend to believe the other side will conduct less or even no opportunistic behaviours. Thus, the safeguarding issues is relieved, and as such there is no need to design overly complex agreements to protect the vulnerability coming from the specific assets. Further, guanxi enables two parties to believe that payoff will be divided fairly and the transactors will be reciprocate (Dyer & Chu, 2003). As a result, the adaption issue is relieved and, therefore, there is no need for both parties to plan for all future contingencies. Putting the above two conditions together, the negotiation for agreements is accelerated, which decreases REs contacting costs. On the other hand, the 'mentoring & training' service enables REs to be more familiar with business negotiation and contract drafting, which decreases REs' costs in the safeguarding design as well.

Third, NSPs facilitate REs to decrease monitoring costs by reducing the behavioural uncertainty (Table 11). In particular, NSPs' efforts in helping the guanxi building between REs and RHs will make both parties tend to believe the other party will be less opportunistic (Dyer & Chu, 2003; Zaheer et al., 1998). Accordingly, each party will perceive less behavioural uncertainty of the other side. As a result, it is reasonable for REs to spend less cost in monitoring RHs behaviours after signing the agreements. Further, NSPs help REs establish legal contracts with RHs to force their key decision and performance to be

more transparent and easier to be evaluated. This reduces RHs' behavioural uncertainty and as such decreases REs' monitoring costs.

Fourth, NSPs help REs reduce enforcement costs through relieving the environmental and behavioural uncertainty issues (Table 11). Specifically, the 'mentoring & training' service enables REs to design a more complete contracts that is helpful in discouraging RHs to conduct opportunistic behaviours on REs. This decreases the behavioural uncertainty of RHs and as such reduces REs' enforcement costs. Further, NSPs' help on building up guanxi between REs and RHs reduces both behavioural and environmental uncertainty issues. On the one hand, guanxi makes the two parties believe that the output will be divided in a fair way (Dyer & Chu, 2003). This leads the partners to be more flexible in renegotiating agreements to adapt to the changed external environment, which relieves the adaptation issue. On the other hand, even if there are some problems emerged, the guanxi will make each party to be inclined to assume that the other side is acting in good faith (Uzzi, 1997). Accordingly, both parties will tend to interpret the other side's behaviour as positive (Dyer & Chu, 2003). Further, the guanxi stands for a reciprocal responsibility (Hung, 2004; Vanhonacker, 2004; Xin & Pearce, 1996) and will discourage RHs from doing opportunistic behaviours, to some extent. This is useful to reduce RHs' behavioural uncertainty perceived by REs. Combining the above two aspects together, guanxi reduces REs time and resources on bargaining and haggling with RHs when facing problems or changing environment, and as such reduces REs enforcement costs.

6.2 The reduction of REs' search costs

6.2.1 Challenging the usefulness of social events in searching for cooperators

This study finds that the 'accreditation of RHs' service directly facilitates REs to reduce search costs, which challenges the extant literature by indicating that the social events are not as useful as expected for entrepreneurs to seek business partners. Traditionally, researchers find that social activities, such as parties, demonstrations and forums and so on, are key tools to enable entrepreneurs to get access to RHs (e.g. Cooper and Park, 2008; Hackett and Dilts, 2008; Lewis et al., 2011; McAdam and McAdam, 2008). Nevertheless, this study argues that REs regard the 'accreditation of RHs' service, rather than the 'social event' service, as a significant approach when they are searching for RHs in China where guanxi is significant. This is similar to Tsang (1998)'s view, which contends that the social sharing and interaction is not a sufficient precondition of a guanxi building. Because of the unfamiliarity with the local business environment (Li et al., 2012), REs interviewed found it was unsafe to build up guanxi with RHs even after meeting them in social events. In that case, unless there was a scheme or service that could offset REs' concern on being cheating by potential business partners, REs did not consider social events as an useful tool to seek proper RHs.

6.2.2 The significance of the accreditation of RHs service

This study extends the literature on science park by emphasizing the importance of the service on 'accreditation of RHs'. Even though the existing research has listed various science park services related to the 'accreditation of RHs' (e.g., Connell and Probert, 2010; Dee et al.,

2011; Hackett and Dilts, 2008; Harwit, 2002; Karatas-Ozkan et al., 2005; Khalid et al., 2012; Lalkaka, 2006; Soetanto and Jack, 2013), few scholars emphasize the extreme importance of accrediting RHs. Further, this study finds that some practitioners have not yet recognized the significance of the services related to the 'accreditation of RHs' for REs as well. For instance, some Chinese NSP staff members, especially those who were not from PWTC-NSPs, still got used to focusing on REs within the science park, while usually neglected the influence of outsiders, such as RHs. As a result, the service on 'accreditation of RHs' was not strong in those NSPs. This might explain why the 'accreditation of RHs' service does not attract enough attention of researchers, let alone enabling scholars to do deep observation and investigation into it.

This study argues that the 'accreditation of RHs' service stays in a pivotal place in Chinese NSPs' service system. As shown in the four propositions in chapter 5, REs' costs reduction heavily depended on the quality of the 'accreditation of RHs' service. Specifically, without a strong service in this regard, NSPs' support to REs' search costs reduction and the guanxi building between REs and RHs was seriously weakened. Consequently, the lack of a strong support to the guanxi building led NSPs to be unable to provide a strong support for REs' contracting costs reduction. Further, this will badly affect NSPs' efforts on helping REs reduce monitoring and enforcement costs. The above findings reflect the significance of the service on 'accreditation of RHs' and complement the extant literature.

6.3 The reduction of REs' contracting costs

This study finds that the combination of 'mentoring & training'

service and ‘guanxi’ enables REs to reduce contracting costs. Further, the establishment of guanxi requires the combination of the ‘promotion of REs’, ‘accreditation of RHs’ and ‘social event’ services. These findings not only confirm the importance of guanxi in reducing costs, but also extend the understanding of building guanxi in the literature on science park and RE.

6.3.1 Embedding guanxi into science park research

This study extends the existing literature on science park, which mainly bases in developed countries (e.g., Bakouros et al., 2002; Bøllingtoft, 2012; Ratinho and Henriques, 2010; Soetanto and Jack, 2013), by embedding guanxi into the research on Chinese NSPs. China is a relation-based society and guanxi fundamentally influence business activities (Hung, 2004; Luo, 2003; Xin and Pearce, 1996), including REs’ resource exchanges with RHs. This study centers guanxi through out the analyses by exploring how Chinese NSPs help establish the guanxi between REs and RHs, and then leverage it to help REs reduce costs.

This study confirms that guanxi is critical for reducing costs by influencing transactional dimensions. On the one hand, this research confirms with Standifird and Marshall (2000) and Standifird (2006) that guanxi is helpful to minimize the opportunism from collaborators. In this case, the hold-up risk associated with the input of specific assets will be decreased (Audretsch, 1995). Therefore, the costs spent on the contracting, monitoring and enforcement are reduced. On the other hand, this study confirms that guanxi is helpful to reducing the perceived risk of uncertainty (Audretsch, 1995) and dealing with bounded rationality (Standifird, 2006; Standifird & Marshall, 2000).

This leads both parties to be more flexible to the contract details, which will reduce the costs spent on negotiation and bargaining. Since guanxi is beneficial to REs in reducing their costs, the way of establishing guanxi deserves exploration.

6.3.2 Exploring the way of building guanxi

This study explores the specific way taken by NSPs to help REs build up guanxi with RHs, which extends the existing literature on RE and science park. Specifically, although the extant RE literature agrees that REs lack local social networks (e.g., Li et al., 2012; Lin et al., 2014), it is still unclear how to help REs deal with this problem. Even though the previous literature confirms that science parks' services are important in helping entrepreneurs build social networks, little is known about the specific mechanisms adopted by science parks to achieve it (Sá & Lee, 2012). This study adds insights into this issue by two aspects.

First, this study confirms that the social event alone cannot guarantee a guanxi building between REs and RHs, let alone further collaborations. This is in accordance with Ebbers (2014)'s view who contends that linking entrepreneurs to potential business partners and resource providers, without matching other services, often does not result in a successful cooperation. Similarly, Tsang (1998) contends that social interaction is the necessary but not sufficient precondition of building guanxi between two sides.

Second, this research confirms with Yen et al. (2011), Wang (2007), Kipnis (1997) and Chen and Chen (2004) that the combination of trust (xin) building and feeling (qing) is significant for the guanxi building. On the one hand, NSP services on 'promotion of REs' and

'accreditation of RHs' work together to help REs build up trust with RHs. On the other hand, the social event service facilitates the two sides to increase their feeling. Hence, the three services collectively support the guanxi establishment between REs and RHs.

6.3.2.1 Confirming the importance of trust

Trust is one key element of guanxi (Chen & Chen, 2004; Wang, 2007; Yen et al., 2011), and this study extends the findings of Dyer and Chu (2003) and Mayer et al. (1995) to Chinese context and confirms that trust is critical for collaborations where the specific investment and uncertainty is high. In particular, the REs interviewed by this study came from the information technology industry, which had a high knowledge intensity and a high speed of product iteration to meet a changing market. Accordingly, REs, along with RHs, in this sector faced a high market and technology uncertainty. In addition, the R&D and personnel training required high specific investments from both REs and RHs. In the condition with high uncertainty and high asset specificity, trust was significant to the collaboration, which was confirmed by REs in this study.

6.3.2.2 Third party's role in building trust

This study extends the literature on trust by exploring how one third party helps two sides build mutual trust. Currently, very few studies on entrepreneurship, let alone those on returnee entrepreneurship, explicitly explain how to establish mutual-trust between entrepreneurs and the business partners during the resource acquisition stage of new ventures (e.g. Bergh et al., 2011; Neergaard and Ulhoi, 2006; Nguyen and Rose, 2009; Smith and Lohrke, 2008).

The establishment of trust can be completed without previous

experience with the trustee (McKnight et al., 1998), as the social relationship is transferable (Park & Luo, 2001; Tsang, 1998). Hence, third parties are significant in acting as a bridge to accelerate the trust establishment between two sides who were strangers for each other. However, the function of third parties varies and it depends on their initiatives and the approaches adopted. This study extends the literature by exploring how Chinese NSPs help REs establish a two-way trust with RHs, which acts as a foundation for the guanxi building.

Specifically, REs' trust in RHs does not stand that RHs trust REs. In other words, any unidirectional trust is not enough. Therefore, it is advisable for Chinese NSPs to provide a proper combination of services to support the two-way trust building between REs and RHs. However, this view had not been recognized by many staff members of Chinese NSPs, especially those coming from the science parks that were not awarded as PWTC-NSP. As a result, some NSPs got used to building up RHs' trust in REs, with the service on promotion of REs. Nevertheless, the lack of a strong service on 'accreditation of RHs' led to a condition in which NSPs could not bring enough support to REs to build trust in RHs. This study extends the literature by indicating how to balance the multiple support of third parties, e.g., Chinese NSPs, to more effectively help build mutual trust between two sides.

6.3.2.3 Exploring Chinese special way of increasing REs' credibility

The promotion of REs service is important for the trust establishment as mentioned above, and Chinese NSPs adopt two types of approaches to deliver this service. On the one hand, this study reinforces extant research by confirming that the association with science parks increases REs' credibility in the eyes of RHs. Specifically,

the findings of this study support the view of Lin et al. (2016) who argue that the referral and endorsement of government help REs build up legitimacy, which is useful for REs to gain support from venture capitals, banks and other third parties. Similarly, many other academics, such as McAdam and McAdam (2008), Schwartz and Hornych (2008), Gassmann and Becker (2006) and Chan and Lau (2005), share the opinion that science parks and incubators' reputation acts as endorsement to increase entrepreneurs' credibility, which accelerates entrepreneurs' social network establishment and the following business cooperation.

On the other hand, this study supplements the extant literature by presenting some Chinese special approaches of increasing REs' credibility. Chinese governments have a significant impact on society (Bruton & Ahlstrom, 2003; Unger, 1996) and Chinese NSPs share many characteristics with the authority, which was mentioned in section 2.2. Naturally, NSPs get used to drawing lessons from governmental ways to enable REs to be more trustworthy by RHs. For instance, NSPs not only award REs honours at the science park level, but also introduce REs to apply for political rewards or positions of municipal, provincial and national governments. Traditionally, each NSP is attributed by the government with a given number of political rewards, such as a member of the Youth Committee (YC) or the Chinese People's Political Consultative Conference (CPPCC), a deputy to the People's Congress (PC) and so on. Usually, one NSP with a higher political level and reputation enjoys more attributed quota of the political rewards. The introduced representative REs by NSPs have a relatively high probability of being granted by the government with a given political rewards. The endorsement from NSPs and governments

is beneficial to increasing REs' credibility.

6.4 The reduction of REs' monitoring and enforcement costs

This research finds that the combination of guanxi and legal contracts building effectively helps reduce REs' monitoring and enforcement costs. This extends the literature on governance structure by considering Chinese context and REs' characteristics.

Governance structures are regarded as a key tool to reduce transaction costs under TCP (Dyer and Singh, 1998; Williamson, 1985). Both formal and informal governance structures co-exist in long-term economic collaborations (Granovetter, 1985; Williamson, 1991). Naturally, the relationship between formal and informal governance structures influence the costs reduction. Nevertheless, the bulk of the existing research on governance structures is based in western society, and the relevant understanding on Chinese context is limited. Further, there is even less literature considering REs' views in discussing the relationship between the two types of governance structures.

This study argues that the combination of formal and informal governance structures is important for REs to manage their collaboration with RHs, and as such reduce costs. This view is similar to Poppo and Zenger (2002), Klein (1996), Gulati (1995b) and Baker et al. (1993) who contend that the co-existence of the two types of governance structures benefits the economic collaboration. However, this argument is different from Dyer and Singh (1998), Bernheim and Whinston (1998), Uzzi (1997) and Ghoshal and Moran (1996) who

contend that the collaboration will be damaged if simultaneously adopting the two types the governance structures.

The main reason underpinning this study's argument comes from the fact that REs are deeply influenced by both Chinese and western cultures. On the one hand, the informal governance structure (guanxi) is important for business and economic activities in China (Xin & Pearce, 1996; Yang & Wang, 2011). REs were born and grew up in this social environment and, therefore, they understand and value the informal governance structure in the collaboration with RHs. Further, the long staying in western countries leads REs to be tended to believe in the spirit of rule of law and value the role of formal governance structures (legal contracts) in protecting interests. Therefore, in the collaboration with RHs in Chinese context, REs value both informal and formal governance structures.

6.5 Chapter summary

This chapter presents how this study extends and challenges the extant literature on science park, RE and governance structure by discussing the four propositions issued in Chapter 5. First, this study utilizes TCP to explain the rationality by which NSPs affect transactional dimensions to help REs reduce costs. Second, the current research finds that when NSPs help REs seek for RHs, it is the 'accreditation of RHs' service, rather than the social event service, that is significant to REs. Third, the importance of guanxi in reducing contracting costs when uncertainty and asset specificity are high is confirmed. Also, the finding of the current research extends the understanding of how a third party should act to build up guanxi between two strangers. Further, the Chinese special way of accrediting

REs provides academics another view when discussing the function of science parks. Finally, this study adds insights into the literature on the governance structure by considering REs' requests and Chinese context in the discussion of reducing monitoring and enforcement costs.

Chapter 7 Conclusions

7.0 Introduction

This chapter will first summarize the thesis and then discuss the theoretical and practical implications, separately. In the theoretical aspect, the key constructs (types of NSP services and costs facing REs) are firstly clarified and then the relationship among them are explained to demonstrate how NSP services help REs reduce costs in the resource acquisition. In the practical area, this study will give suggestions to NSPs, REs and governments, respectively. Lastly, limitations and suggested future research directions are presented.

- Section 7.1 summarizes the thesis, which consists of the theoretical areas on which this study rests, the research methods and main findings.
- Section 7.2 presents the theoretical implications in several aspects. This study clarifies the types of costs facing REs and typical services of NSPs. Further, this study demonstrates the specific mechanisms by which NSP services help REs reduce costs. Finally, insights are added into the debate in the science park and governance structure literature.
- Section 7.3 gives practical suggestions to three stakeholders, such as NSPs, REs and the governments.
- Section 7.4 lists this study's limitations and the suggested directions for future research.
- Section 7.5 presents concluding remarks.

7.1 Summary of thesis

This thesis explores the answer to the question of how China's NSPs support REs' resource acquisition for their new ventures. In the last several years, Chinese NSPs configured more and more types of services to attract and support entrepreneurship. However, it is still unclear about the specific mechanisms via which NSP services support REs. Meanwhile, REs need to have a better understanding of how to make full use of different types of NSPs' services to reduce the costs of resource acquisition.

This study rests on three streams of the literature: entrepreneurship, science park and TCP. Entrepreneurship is significant to employment, innovation and economic development (Radosevic & Yoruk, 2013; Short et al., 2009; Van Stel & Storey, 2004; Zahra et al., 2009; Zahra & Wright, 2011). The research on entrepreneurship mainly investigates three types of questions: what shapes entrepreneurs? What activities conducted by entrepreneurs? What are the impact of entrepreneurship? (Baron & Shane, 2007; Shane & Venkataraman, 2000). This study locates in the second research question and explores the resource acquisition of returnee entrepreneurs. Further, there are four perspectives of viewing entrepreneurship. The first perspective classifies entrepreneurship into four types: conventional, institutional, cultural and social (Dacin et al., 2010). The second perspective views entrepreneurship as either initiative or imitating (Bailetti, 2012; Doganova & Eyquem-Renault, 2009). The third perspective contends that both opportunity- and necessity-driven entrepreneurship exists (Kobia & Sikalieh, 2010; Low, 2001). The last view regards entrepreneurship as either technological or non-technological (Baumol,

1986). This research situates in a cross area amongst conventional, technology, imitative and opportunity-driven entrepreneurship.

In the past, the entrepreneurship literature mainly bases in North American and European contexts (Aldrich, 2012; Davidsson, 2013; Down, 2013). Entrepreneurship research in China is still at a very early stage and related understanding of China's entrepreneurship is extremely limited (Schweinberger, 2014). China is a valuable research site for entrepreneurship research (Ahlstrom & Ding, 2014) and, therefore, deserves more academic attention. In recent years, entrepreneurship has been being unprecedentedly advocated in China (Li, 2015; Phelps, 2013; Xi, 2016). Among the group of entrepreneurs, REs receive much attention across multiple disciplines (Filatotchev et al., 2009; Harvey, 2009; Li et al., 2012; Liu et al., 2014; Wright et al., 2008) and are regarded as a key vehicle to boost China's innovation (Liu, Lu, et al., 2010; Tung, 2008).

However, REs face many obstacles in their resource acquisition for the new ventures (Groen, Wakkee, & De Weerd-Nederhof, 2008; Van Geenhuizen & Soetanto, 2009). The first obstacle comes from that fact that the resource profile significantly influences new ventures' survival and growth (Acs & Storey, 2004; Aldrich & Martinez, 2001; Baumol, 1996; Levinthal, 1991), but new ventures usually have limited internal resources. Therefore, REs have to seek external resources by the cooperation with RHs. Nevertheless, the low reputation and legitimacy of start-ups usually makes it hard for REs to be trusted by potential collaborators (Schwartz and Hornych, 2008). Second, the regulation environment in China is still not conducive enough for entrepreneurs' new ventures, although the last decade witnessed an impressive

progress (Puffer et al., 2010; World Bank, 2016). As a result, new businesses still face many institutional obstacles, such as industry entry threshold and discrimination (Zhou, 2011). Third, the relatively weak formal institutional environment forces REs to resort to informal institutions to support their business activities. Nevertheless, the lack of local social networks makes it hard for REs to utilize informal institutions (Li et al., 2012), such as guanxi. In actual, REs usually have limited access to RHs and are unfamiliar with local business culture because of the decay of their domestic networks after staying in foreign countries for a long time (Li et al., 2012; Lin et al., 2014).

All of the above obstacles incur REs significant costs in their resource acquisition for the new ventures. Unfortunately, the existing literature on returnee entrepreneurship ignores the resource acquisition stage of RE new ventures and, as such, the understanding is limited on how to help REs reduce costs at this stage.

Science parks play a key role in supporting new ventures and entrepreneurs (Bakouros et al., 2002; Chan and Lau, 2005) and Chinese NSPs are the one of most important institutes to incubate REs and their start-ups (MoST, 2014). To better support entrepreneurs, NSPs pay much attention to offering more types of services. Based on the extant literature on science park and confirmed by the empirical data, this study summarizes four typical services that are closely related to REs' resource exchange with RHs for their new ventures, which includes 'social event', 'mentoring & training', 'the promotion of REs' and 'the accreditation of RHs'. The existing literature assesses the general effect of science park services on firms but the findings are mixed, with some academics contending that the effect is positive (e.g., Colombo and

Delmastro, 2002; Löfsten and Lindelöf, 2002), while others arguing that the effect is not significant or even negative (e.g., Bakouros et al., 2002; Tamásy, 2007). Further, the existing research not only rarely takes account of the combinative effect of several services, but also usually neglects the specific requests of REs who have many different characteristics from their local counterparts. This study explores the specific mechanisms through which NSPs services help REs acquire resources in China's context. To achieve this goal, transaction costs perspective (TCP) is adopted as the main analyses tool, which is useful in discussing science parks' incubation (Theodorakopoulos et al., 2014).

TCP belongs to 'New Institutional Economics' and rests on three behavioural assumptions of transactors (Williamson, 1979, 1985), including bounded rationality, opportunism, and risk neutrality, and all of which are applicable to REs and RHs in this study. In the resource exchange with RHs, REs face four typical transaction costs explained in the TCP literature: search, contracting, monitoring and negotiation costs, respectively. Further, the costs facing REs are influenced by transactional dimensions stated by classic TCP research, including asset specificity, uncertainty (environmental and behevioural uncertainty), and transaction frequency. To decrease the various costs, REs need to adopt appropriate governance structures according to the given transactional dimensions. Based on the wisdom of the TCP literature, this study mainly discusses the mediate governance structures used by REs, which can be further classified as formal (e.g., legal contracts) and informal (e.g., guanxi) ones. There exist contrasting views on the relationship between the formal and informal governance structures, with some scholars arguing they are

complementary (e.g., Baker et al., 1993; Klein, 1996) while others contending they are substitutive (e.g., Dyer and Singh, 1998; Ghoshal and Moran, 1996; Uzzi, 1997). This study explores the relationships between the two types of governance structures through REs' point of view and under China's context.

In a nutshell, the current research is dedicated to exploring the specific way by which NSPs' services help REs reduce costs in their resource exchange with RHs for the new ventures. To better answer the research question, six cases were purposely selected following the theoretical and literal replication logic. The analysis unit is the Chinese NSP, and multiple REs and staff members of each science park were interviewed with related documentations and archives obtained, such as reports, policy documents and year books. The selection criteria of interviewed REs in each NSPs are reasonable and rigorous, which is presented in chapter 3. In terms of both the data sources and data collection techniques, the data collection process complies with triangulation principles. In total, forty-nine face-to-face interviews were completed, with four conducted in the pilot research and forty-five in the main research.

In the data analyses, this study takes on the wisdom of the TCP literature and measures the costs facing REs through a subjective way, which is in accordance with the fact that the mainstream TCP research views costs as a subjective conception (e.g., Walker and Weber, 1984; Williamson, 1985, 1979). Economic costs are subjective as decision makers are based on their different perceptions and preferences when making decisions in an uncertain world (Chiles & McMackin, 1996).

The current research finds that NSPs' services help REs reduce

costs through either direct or indirect ways. Also, the right combination of multiple services is significant. Specifically, the 'accreditation of RHs' service directly helps REs reduce search costs. Nevertheless, the other costs cannot be easily reduced by any individual services. In particular, the reduction of contracting costs requires the combination of 'mentoring & training' service and guanxi between REs and RHs. The establishment of guanxi depends on the combination of the 'promotion of REs', 'accreditation of RHs' and 'social event' services of NSPs. Finally, the joint-effect of all the above services support REs to decrease monitoring and enforcement costs via helping REs build guanxi and legal contracts with RHs.

7.2 Implications for theories

This study contributes to the theory in five aspects. First, it clarifies the types of costs facing REs in their resource exchange with RHs. Also, the types of NSP services that are closely related to the costs reduction of REs are identified. Third, this research demonstrates how NSPs' multiple services, directly and indirectly, individually and jointly, support REs to reduce different types of costs in their resource acquisition. This also add insights into the debate in the governance structure literature. Fourth, this study provides explanations to the dispute on science parks' impact on entrepreneurs and firms.

- Clarifying types of costs facing REs;
- Clarifying types of NSP services for REs' resource acquisition;
- Demonstrating NSP services' specific mechanisms of

decreasing REs' resource acquisition costs and adding insights into the

debate in governance structure research.

- Providing explanations to the dispute on science parks' impact on entrepreneurs and firms;

7.2.1 Clarifying types of costs facing REs

This study takes on TCP to clarify the costs facing REs in their resource exchange with RHs. The resource acquisition stage of REs' entrepreneurship brings them with a large amount of costs, but unfortunately there is limited understanding within the existing literature on REs (e.g., Filatotchev et al., 2011, 2009; Liu et al., 2010). The bulk of the literature on REs pays attention to either the opportunity discovery or the growth stage of RE firms, while ignores the resource acquisition stage. For new ventures, the resource endowment significantly influences their survival and growth (Aldrich & Martinez, 2001; Baum & Oliver, 1996), but unfortunately, the lack of legitimacy and reputation (McAdam & Marlow, 2007; Schwartz & Hornych, 2008) impedes them from acquiring external resources. Further, the lack of domestic networks brings more costs to REs' resource acquisition. To help REs reduce these costs, it is necessary to first identify what types of costs RE face.

This study makes contributions by clarifying the types of costs in resource acquisition of REs' new ventures. Based on TCP, transaction costs refer to all the costs incurred by economic exchanges, and include both ex ante and ex post costs (Hennart, 1993; North, 1990; Williamson, 1985). The ex ante costs include search and contracting costs and the ex post costs consist of monitoring and enforcing costs (Dyer, 1997; Dyer & Chu, 2003).

Search costs come from the process of identifying, screening and selecting proper partners (Dyer, 1997). The lack of local social networks, unfamiliarity with local business environment, and cultural conflicts collectively bring REs with many difficulties (Li et al., 2012; Lin et al., 2014) in timely and accurately gathering and evaluating information on RHs. These obstacles lead to significant costs. Contracting Costs are associated with negotiating and writing mutually acceptable agreements (Dyer & Chu, 2003; Williamson, 1985), which are influenced by a wide range of factors, such as the preference and characteristics of both REs and RHs, the investment input by each party, and the external technology, policy and market environment. Monitoring Costs are related to the activities of monitoring the partner (s) to ensure each side realizes responsibilities as agreed beforehand (Dyer, 1997). The gathering and processing information to evaluate whether RHs' conduct is in accordance with contracts bring REs with significant costs. The result of the monitoring will influence the enforcement costs afterwards. Enforcement costs refer to the costs associated with ex post renegotiation with or sanctioning partners (Dyer & Chu, 2003). Owning to the changing external environment, the renegotiation process is not easy and will lead to significant costs for REs. Also, REs have to bear costs when resorting to arbitration or lawsuit to punish the defaulting RHs.

7.2.2 Clarifying types of NSP services for REs' resource acquisition

The clarification of the NSP services is the precondition of exploring the relationship between the services and the costs reduction of REs' resource acquisition. Unfortunately, the present literature fails to identify those services based on REs' requests. For instance, a large amount of literature presents different types of services of science

parks and related incubators (e.g., Dee et al., 2011; Ebbers, 2014; Ratinho and Henriques, 2010; Soetanto and Jack, 2013), but it is still unclear which one or several services are more dominant (Todorovic & Moenter, 2010). Even though some scholars find that different services are needed for firms in different development stages (e.g., Chan and Lau, 2005; McAdam and McAdam, 2008), the present science park literature does not make it clear which services are really what REs request for their resource acquisition in Chinese context.

The main reason of the above issue is the extant literature usually does not distinguish the difference between REs and their local counterparts. For instance, REs usually own relatively more advanced knowledge but lack local networks and are unfamiliar with local environment (Li et al., 2012; Lin et al., 2014). Unfortunately, the bulk of the literature on science park and incubator ignores the entrepreneurs' specific requirements for particular types of services (Theodorakopoulos et al., 2014), despite some exceptions (e.g., Marlow and McAdam, 2012; Patton et al., 2009). Further, new ventures are different from mature ones as the former usually have limited resources and face many obstacles in acquiring external resources, such as the low reputation, legitimacy and social networks (McAdam & Marlow, 2007; Schwartz & Hornych, 2008). Hence, it is necessary to distinguish the services for start-ups from those for bigger firms. In addition, the impact of Chinese context on NSPs deserves more attention, as the findings based in western countries might not be applicable to China (e.g., Bakouros et al., 2002; Bøllingtoft, 2012; Ratinho and Henriques, 2010; Soetanto and Jack, 2013). China is a relation-based society and guanxi fundamentally influences the business activities (Hung, 2004; Luo, 2003; Xin and Pearce, 1996).

Meanwhile, Chinese NSPs share many characteristics with governments, owning to their special links to governments (See section 2.2), which is different from western science parks and incubators. As a result, the content of Chinese NSPs services offered to entrepreneurs should be different from the western.

This study contributes to the science park literature by taking account of REs specific characteristics and requests as well as considering the early stage of REs' firms in Chinese context. Referring to the existing literature, this study identified four typical science park services that are closely related to REs resource exchange with RHs, including 'social event', 'mentoring & training', 'the promotion of REs' and 'the accreditation of RHs'. Specifically, 'mentoring & training' refers to the services of NSPs, usually in form of seminars and courses, with the aim of developing REs basic skills in business planning, marketing, negotiation and so on. 'Social event' refers to activities, such as conferences, exhibitions, fora and parties etc., organized by NSPs so as to provide REs with access to prospective RHs. 'Promotion of REs' refers to the efforts of NSPs to increase the trustworthiness of REs, and is usually in two forms: 1) rewarding REs political posts or honours and 2) associating REs with the science park's reputation. The 'accreditation of RHs' service is established by NSPs, usually in the form of recommendation lists or black lists, so as to facilitate REs to more conveniently evaluate RHs' basic background, especially the reputation. This classification was confirmed by interviewed REs and staff members of NSPs.

7.2.3 Demonstrating NSP services' mechanisms of decreasing REs' costs

The bulk of the literature on REs tends to focus on the growth stage of RE firms and discusses the role of REs on firms and local industries (e.g., Filatotchev et al., 2011; Lin et al., 2014; Luo et al., 2013; Wang et al., 2015). However, few studies on REs explore how to reduce REs' costs at the resource acquisition stage. Additionally, even less literature takes account of the influence of science parks on REs. Nevertheless, in fact, the characteristics of science parks significantly affect REs' decision and behaviours (Wright et al., 2008). Furthermore, considering various obstacles facing REs, including the low legitimacy of new ventures (Schwartz and Hornych, 2008), relatively weak formal institutions in China (Puffer et al., 2010; World Bank, 2016), and the lack of local social networks and the unfamiliarity with local environment (Li et al., 2012), the support from science parks is significant for REs.

Identifying NSP services and the types of costs facing REs is not enough to explore how science parks serve their clients. The mechanism by which NSP services affect costs is complex and requires more studies. Nevertheless, the bulk of the existing science park literature tends to analyze the individual function of each service, and does not pay enough attention to their joint effects on entrepreneurs (e.g., Chan et al., 2011; Mian, 2014; Minguillo et al., 2015; Soetanto and Jack, 2013).

This research demonstrates that NSPs support REs' costs reduction through both the individual and joint-effect of multiple services. Further, NSPs deliver the support through both direct and indirect ways.

In particular, this study finds NSPs' 'accreditation of RHs' service can individually and directly help the REs reduce search costs. Nevertheless, when it comes to the reduction of other types of costs, NSPs offer an indirect help to REs and the combination of multiple services is required. Specifically, the reduction of contracting costs requires the combination of the 'mentoring & training' service and guanxi, while the guanxi building depends on the joint effect of NSPs' 'promotion of REs', 'accreditation of RHs' and 'social event' services. Finally, the combination of all the above NSP services indirectly facilitates REs to decrease costs in monitoring and enforcement by leveraging both formal and informal governance structures between REs and RHs.

There is a dispute on the relationship between formal and informal governance structures in the TCP literature. One literature stream argues these two structures are substitutive (e.g., Bernheim and Whinston, 1998; Dyer and Singh, 1998; Ghoshal and Moran, 1996; Uzzi, 1997). Another literature stream, however, argues they are complementary (e.g., Baker et al., 1993; Gulati, 1995b; Klein, 1996; Poppo and Zenger, 2002). The bulk of the above research is based in western society, while the understanding of the two governance structures' relationship is limited in a Chinese context. Further, there is even less literature placing the discussion in the condition where REs deal with the two types of governance structures.

This study finds that the combination of the two types of governance structures is significant for REs in reducing their monitoring and enforcement costs in Chinese context. On the one hand, REs insist on the importance of legal contracts (formal governance structure) even when their guanxi (informal governance structure) with

RHs is strong. The reason is REs have long been exposed in developed countries and the spirit of law is prevalent. Also, the legal contracts are regarded as the ultimate approach to protect new ventures interests considering that start-ups are usually vulnerable. On the other hand, REs who grew up in eastern culture value the importance of guanxi in relieving safeguarding and evaluation issues even if they have stayed in western countries for a long time. The combination of guanxi and legal contracts significantly helps REs reduce monitoring and enforcement costs.

7.2.4 Providing explanations to the dispute on science parks' impact on entrepreneurs

Through demonstrating the specific mechanisms by which NSP services help REs reduce costs, this study provides explanations to the dispute among academics on the influence of science parks on entrepreneurs. Currently, some academics find that science parks bring positive impacts to entrepreneurs in some cases (e.g., Colombo and Delmastro, 2002; Löfsten and Lindelöf, 2002). Meanwhile, some other scholars argue science parks bring no or even negative impact to entrepreneurs (e.g., Bakouros et al., 2002; Tamásy, 2007). This study finds the dispute can be attributed to two reasons. The first one is that the extant literature has not reached a consensus on which services are really requested by a given group of entrepreneurs within science parks. The second reason is the understanding of the mechanisms through which science park services work is still limited.

This study argues that the failure of science parks in serving entrepreneurs comes, on the one hand, from the failure to provide the typical strong services requested by the entrepreneurs in their resource

acquisition. On the other hand, science parks' failure is the result of the lack of appropriate combination of given multiple services. On the contrary, the science parks which successfully help entrepreneurs reduce costs usually not only provide strong enough individual services for targeted entrepreneurs, but also pay attention to the integration of given types of services.

7.3 Implications for practices

The practical implications of this study will be presented for three types of stakeholders: NSPs, REs and governments. Suggestions will be given to help NSPs better serve REs. Also, advices will be offered to REs on how to select proper NSPs to locate their new ventures and the way of collaborating with RHs. Finally, the suggestions for governments in directing and encouraging NSPs to develop services for REs is presented.

7.3.1 Suggestions for NSPs

This study presents six constructive suggestions for NSPs to better attract and serve REs. Specifically, the recognition of REs' strategic importance to NSPs is the first step. Helping REs by influencing their transactional dimensions is a promising tool and should be made full use of by NSPs. Further, this study emphasizes the services, rather than infrastructures, are the source of NSPs' competitive advantages. To better attract and serve REs, tailored and balanced quality services are necessary. Finally, for the aim of offering strong support to REs, NSPs should take account of their own conditions and take varied routes to integrate multiple key services.

- Valuing REs' strategic importance to NSPs

- Serving REs by influencing their transactional dimensions
- Developing competitive advantages through services
- Developing more tailored services for REs
- Balancing the quality of multiple key services
- Selecting different routes to offer strong support to REs

7.3.1.1Valuing REs' strategic importance to NSPs

This study suggests NSPs to pay much more attention to the work of serving REs. This is because REs can bring innovation and economic benefits to the local area, and therefore, this work is beneficial to the promotion of NSPs' officials.

First, REs play an irreplaceable role in driving NSPs and local region's internationalization. They not only have multi-culture and -language advantages, but also hold international networks embedded in foreign countries. Further, the advanced knowledge obtained by REs from OECD countries is critical to promote the development of high-tech industries and to upgrade traditional sectors.

Second, to comply with the policy direction of central government, NSPs, entitled with a given political level and led by both local and central governments, must take actions to respond to political leaders' initiative on 'massive innovation and entrepreneurship.' Further, thanks to the entrepreneurship and globalization phenomenon advocated by governments, the work related to REs can more easily get the policy support from governments. This advantage is not only beneficial to REs, but also brings positive effects to the regional industry related to the RE entrepreneurship. Accordingly, the work on supporting REs can more easily make achievements and get the attention of media and

superior governments. This will enable NSPs' officials to obtain more political assets, and as such have more opportunities in the future.

7.3.1.2 Serving REs by influencing their transactional dimensions

As presented in the previous section 2.3.4, the existing TCP literature mainly discusses the influence of three transactional dimensions, such as asset specificity, environmental uncertainty and behavioural uncertainty, on transaction costs. This study finds that the investigated six NSPs mainly take the behavioural uncertainty dimension to help REs overcome obstacles. Actually, there is much room for NSPs to explore approaches to help REs by influencing the other two dimensions, such as asset specificity and environmental uncertainty.

First, to help REs relieve safeguarding issues, it is suggested for NSPs to reduce the asset specificity facing the collaboration between REs and RHs. For instance, NSPs can, independently or collectively with other organizations, invest in more public platforms for testing, experiment and marketing. In this case, REs and RHs will invest less in specific assets in the cooperation. Second, to facilitate REs to relieve adaption issues, it is recommended for NSPs to decrease the environmental uncertainty surrounded by the resource exchange between REs and RHs. Although it is hard to decrease the macro-economic and industrial uncertainty, NSPs can make more efforts to forecast the change of local policy and regulation environment for REs.

7.3.1.3 Cultivating competitive advantages through services

This study suggests NSPs to pay more attention to the significance of intangible resources when cultivating their competitive advantages.

The competitive advantage of one organization comes from the value of resources it holds (Barney, 1991; Barney et al., 2001). The attributes of the resources, such as value, rareness, imitability, substitutability, jointly determine the time length and extent to which, one organization maintains its competitive advantage (Barney, 1991). This argument is applicable to science park research when regarding the park as an organization.

The extant literature discusses the importance of infrastructures, such as office, parking lot, in serving entrepreneurs (e.g. Chan and Lau, 2005; McAdam and McAdam, 2008; Soetanto and Jack, 2013). The infrastructures are easy to imitate, while intangible services are more unique and difficult to copy (Bøllingtoft & Ulhøi, 2005). Further, the differential performance of one science park comes from the types and quality of services (Hackett & Dilts, 2008; Karatas-Ozkan et al., 2005). Therefore, it is advisable for NSPs to configure given services to equip targeted entrepreneurs with business management know-how and social access to relevant people and information. This will be helpful to one given NSP to stand out in the competition for promising REs and other talents.

7.3.1.4 Developing more tailored services for REs

When supporting REs to decrease costs in resources acquisition for the new ventures, it is more sensible for NSPs to focus on delivering several high quality services, rather than disperse their energy to too versatile services. Specifically, starting from the traditional model that mainly serves entrepreneurs with shared facilities and spaces (Theodorakopoulos et al., 2014), contemporary Chinese NSPs gradually emphasize the importance of intangible support. Hence, there

appeared a wide variety of services, while many of those are basic or low-end ones, such as property management, firm accounting support and so on. Increasingly, it becomes clearer that the basic services cannot meet entrepreneurs' request for strategic resources for their new ventures. This is especially true for REs who face significant costs in resource acquisition because of the lack of domestic networks (Lin et al., 2014). Unfortunately, many NSPs have not made substantial progress in identifying and providing tailored services to different types of target customers (e.g., entrepreneurs). This study finds four representative services, including 'mentoring & training', 'social event', 'accreditation of RHs' and 'promotion of REs', are not only closely related to the resource exchanges between REs and RHs, but also can significantly support REs' cost reduction in those activities.

In addition, the current research suggests NSPs should notice that although the basic services are important for REs' new ventures, the four services mentioned above are more significant for the key resources acquisition for REs. However, just providing the four services does not mean that the service quality can meet REs' expectation. Actually, the current study finds many NSPs did not deliver the four services to their REs as well as they claimed. There existed an evident quality gap with respect to those services. Hence, in the following, this study will discuss the importance of balancing the quality of multiple key services.

7.3.1.5 Developing balanced quality key services

This study argues it is very important for NSPs to offer balanced quality services, rather than only emphasizing the development of a single service or several uncoordinated ones. The right 'cocktail', an

appropriate combination of several key services, is necessary to help REs reduce contracting, monitoring and enforcement costs. However, the precondition of combining appropriate multiple services is the quality balance among them.

Not every NSP in this study was able to provide high quality services on all aspects, and there were four main reasons. First, it was because of the strategy of the NSP. For instance, NSP-E was not belonged to the group of PWTC-NSPs, and as such it owned relatively less resources, compared with PWTC-NSPs. Hence, NSP-E adopted a focus strategy to emphasize on only one most significant service, based on its own opinion, and expected to increase other services' quality in the future. Second, the service quality was depended on how deep the staff understood the incubation for REs. For example, the interviewed officials of NSP-F, which was not belonged to the group of PWTC-NSPs and located in an ordinary urban agglomeration, had not recognized the emerging characteristics in global entrepreneurship. Also, their understanding of the specific requirements of REs was limited. As a result, some of NSP-F's staff members still followed a traditional way of improving entrepreneurship, which was holding social activities. Third, it was difficult for one NSP to perfectly imitate other NSPs' successful experience in offering high quality services. Different from infrastructures with clear characteristics, services are more intangible, and harder to be standardized. This increases the difficulty of perfectly imitating one services. Also, causal ambiguity led NSPs to find it hard to explain what elements make another NSPs' given service successful. Fourth, the intention of protecting core competitive advantages made NSPs more cautious on sharing their successful experience in creating high quality services with their

counterparts. To better attract talents, it is important for one NSP to, on the one hand, iteratively increase the service quality, and on the other hand, protect the know-how of offering high quality services from leaking to its competitors.

The imbalanced service quality led NSPs to make much less achievements in reducing REs' costs, compared with the performance they had made in developing services. For instance, NSP-C and D provided three strong services, but their contribution to REs' cost reduction was as little as NSP-E and F, which only offered one strong service (Table 26). More interestingly, NSP-A and B provided four strong services, only one more than NSP-C and D, but the former two science parks' performance in reducing REs' costs was significantly better than the latter two. For instance, NSP-A and B brought their REs with strong help in all aspects of cost reduction, while NSP-D only delivered strong support to the search costs reduction and NSP-C did not bring any strong support to any aspects of REs' costs reduction. This abnormal phenomenon in the input-output ratio concerned the staff members of NSP-C and D.

In addition, the imbalanced services might bring risks to REs. The bulk of the literature tends to discuss what are the successful factors of science parks (e.g., Chan and Lau, 2005; Wiggins and Gibson, 2003), but, sometimes, fails to identify the mistakes and risks brought by science parks (Honig & Karlsson, 2010). This study argues that it would be risky for REs if NSPs offer a strong service on 'social event' only (e.g., NSP-F). The reason is the social events usually enable REs to meet RHs but cannot effectively help them evaluate the background of RHs. Further, the lack of the familiarity with the local business environment and cultural conflicts jointly put REs at a disadvantageous

position (Li et al., 2012; Lin et al., 2016) when they are facing RHs. Hence, without the strong help of other NSP services, it is hard for REs to utilize social events only to evaluate whether one RH is dependable or capable. The lack of information on RHs' background might either impede the collaboration establishment between REs and RHs or result in an early termination of the cooperation between them. What is worse, REs' risk of being cheating by RHs might increase.

In general, it is far from enough for NSPs to just expand the types of services for REs. The imbalanced quality of multiple key services brings obstacles to service integration, which, therefore, limits NSPs' capacity to support REs' costs reduction.

7.3.1.6 Selecting different routes to offer strong support to REs

The ultimate aim of creating and balancing key services is to enhance NSPs support to REs' costs reduction in the resource acquisition. This study contends that different NSPs should take into account their own conditions and, accordingly, take varied routes to deliver strong support to their REs. In the following, this study will provide suggested routes for NSP-C, D, E and F to improve their support to REs. First, to offer strong support to the trust building between REs and RHs, NSP-C should focus on increasing the quality of 'accreditation of RHs' service, while NSP-E needs to strengthen its 'promotion of REs' service (See figure 25). However, NSP-F has to improve both 'accreditation of RHs' and 'promotion of REs' services, simultaneously.

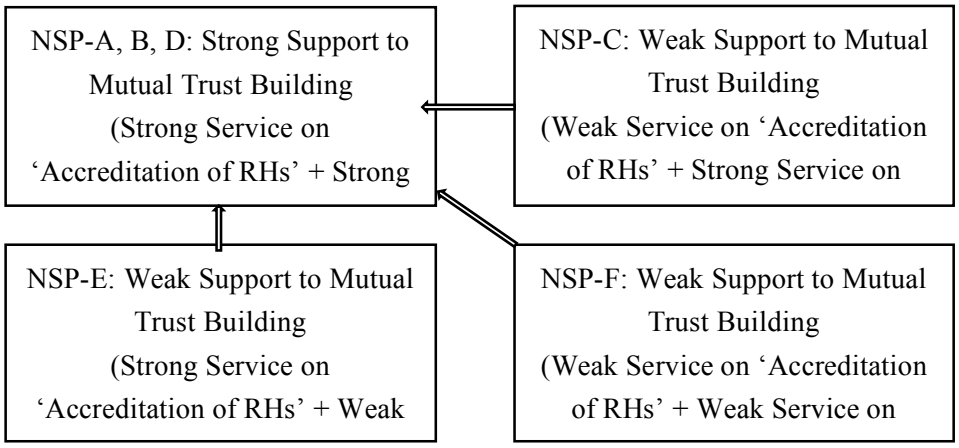


Figure 25 How to Support the Mutual Trust Building
(Source: Generated by The Author)

Second, with the aim of providing strong support to the guanxi building, it is suggested for NSP-C and F to provide stronger support to the mutual trust building between REs and RHs (See figure 26). Differently, NSP-E must not only improve its service on social events, but also strengthen the support to the trust building between REs and RHs.

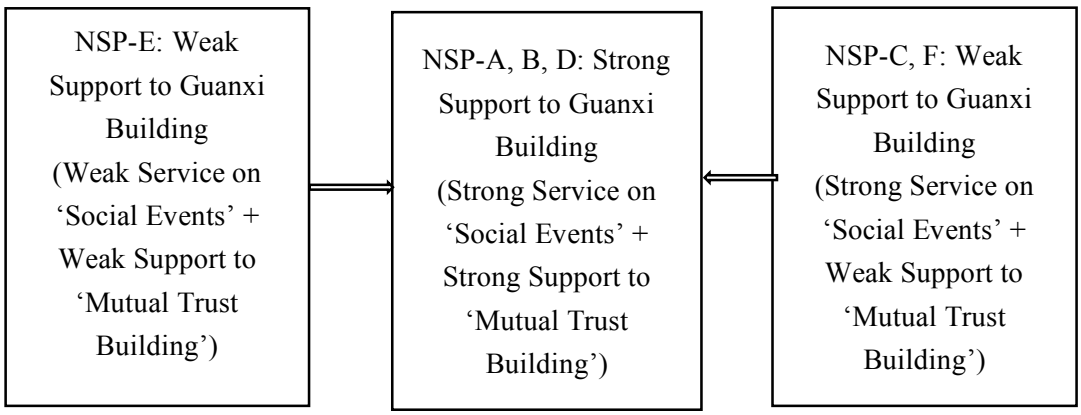


Figure 26 How to Support the Guanxi Building
(Source: Generated by The Author)

Third, to deliver strong support to the contracting costs reduction, NSP-D needs to improve its service on mentoring & training, while NSP-C should strengthen its support to the guanxi building (See figure

27). However, NSP-E and F have to make progress on both offering the 'mentoring & training' service and providing the support to the guanxi building.

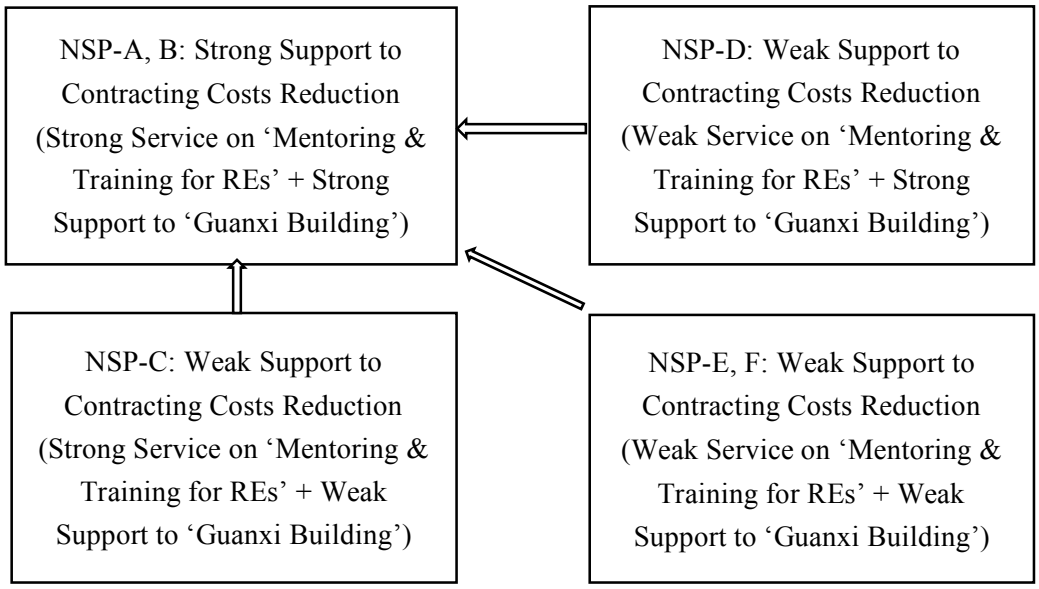


Figure 27 How to Support the Contracting Costs Reduction
(Source: Generated by The Author)

Finally, with the aim of providing strong support to the monitoring and enforcement costs reduction, it is advisable for NSP-C to strengthen the support to the guanxi building, while NSP-D should strengthen the support to the legal contracts building (See figure 28). For NSP-E and F, the support to the establishment of guanxi and legal contracts should be enhanced simultaneously.

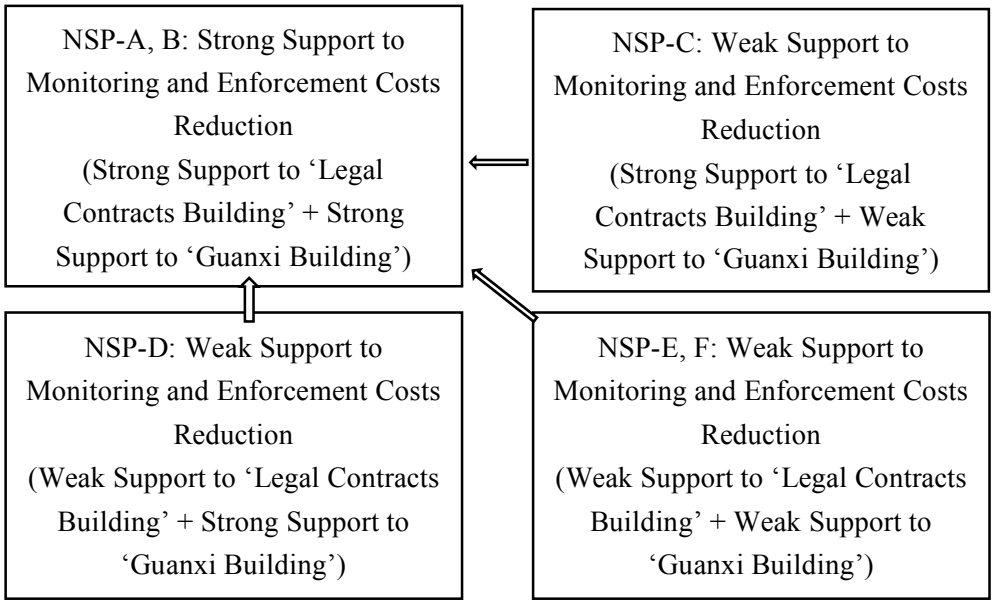


Figure 28 How to Support the Monitoring and Enforcement Costs Reduction
(Source: Generated by The Author)

7.3.2 Suggestions for REs

7.3.2.1 How to select a proper NSP to create ventures

There is little literature on the decision making of entrepreneurs on which science park to locate their firms (Phan, Siegel, & Wright, 2005), with the exception of Westhead and Storey (1994) and Wright et al. (2008). Actually, the competition for REs, especially the outstanding ones, is fierce amongst NSPs. REs are usually attracted by multiple NSPs and as such find it difficult to make the decision on the firm location.

This study suggests REs to use the deployment of NSPs services as an index to evaluate which science park is more appropriate to establish their new ventures. Meanwhile, the neither the government endorsement nor the urban agglomeration where one NSP locates should be considered as the most important index. In particular, although some NSPs are awarded by government with outstanding rewards or qualifications, they might not provide systematic services

concerning the resource acquisition for entrepreneurs' new businesses (e.g., NSP-C). Further, the urban agglomeration in which one NSP locates cannot effectively represent the service quality of the NSP. Some NSPs from developed regions might not be good at integrating multiple services to reduce REs' costs (e.g., NSP-E). In contrast, NSPs from less developed areas might bring strong support to REs' new ventures (e.g., NSP-D).

7.3.2.2 How to manage the cooperation with RHs

This study suggests REs to simultaneously establish both guanxi and legal contracts in the collaboration with RHs. As presented in section 5.3, the current research finds the adoption of both formal and informal governance structures can significantly reduce the monitoring and enforcement costs of REs. To build up guanxi, the two-way trust and feeling building is significant, which requires REs to take a full advantage of NSPs' three services simultaneously, including the 'promotion of REs', 'accreditation of RHs' and 'social event'. Furthermore, it is suggested for REs to utilize the 'mentoring & training' service, along with guanxi, to not only reduce the contracting costs, but also build up relatively complete legal contracts.

7.3.3 Suggestions for governments

The concept of innovation-driven development is strongly advocated by Chinese governments (Li, 2014, 2015; Xi, 2016). To some extent, this idea is regarded as a significant direction to help China upgrade its industry structure, increase economic quality and overcome middle-income trap (Xi, 2016). Chinese innovation and industry upgrading requires the knowledge and technology collaboration with other countries (State Council China, 2015) and REs

are a key vehicle to realize this goal. However, supporting REs' entrepreneurship cannot be achieved by NSPs alone, and it requires the direction and participation of governments. The following presents three suggestions for governments.

7.3.3.1 Encouraging NSPs to integrate multiple key services

The key point of providing strong support to REs costs reduction is the integration of multiple key and high quality services. However, the constraint of NSP officials' thoughts and the limitation of NSPs' resources might significantly impede the integration. It is suggested for governments to take a more active role in directing NSPs' service development. For instance, governments can introduce more policies to encourage the collaboration between NSPs and external organizations to increase and balance the service quality. NSPs and other entities input their respective advantages in the operation of services and share the ultimate benefits, such as the equity of successful RE firms.

7.3.3.2 Working with NSPs to better serve REs' life

To better attract high-level REs and support their entrepreneurship, the services on REs' life and work should be taken into account simultaneously. The bulk of the literature on science park limits their attention to services on REs' work, while the understanding of how to effectively serve REs' life is relatively limited. REs are usually not familiar with the local systems, such as health care and education. Hence, governments need to work with NSPs to correctly identify REs' requests and offer enough conveniences to REs and their family members' housing, health care, visa, schooling and so on.

7.3.3.3 Avoiding inefficient competitions amongst NSPs

This study suggests governments to issue more policies to encourage NSPs to establish strategic alliances, with the aim of avoiding inefficient competitions and increasing the NSPs' service quality. The staff members from the investigated six NSPs reflected that the competition for outstanding REs was fierce, which forced NSPs to endlessly raise their 'quotation' to REs. This might lead REs to be overly 'priced' and, therefore, NSPs have to spend too many resources on them. Accordingly, the amount of resources allocated to other entrepreneurs will reduce, with a consideration that the total resources are limited. This might jeopardize NSPs' entrepreneurship ecosystem as a whole.

On the contrary, the collaboration amongst NSPs might bring about higher quality services. For instance, the share of database on RHs will significantly enhance the service on 'accreditation of RHs'. Some RHs own businesses across China and have links with multiple NSPs. Sharing data on RHs amongst NSPs can provide REs with more detailed information on their prospective collaborators, which will help REs to better identify and select proper RHs.

7.4 Limitations and future research

This study has several limitations which provide directions for future research. First, this is an exploratory study regarding the role of science parks in REs' new venture, and as such, in the future, more (dis) confirmatory research is required. As mentioned in the literature review section, the study on entrepreneurship and RE in Chinese context is still at an early stage. Simultaneously, little research on Chinese science parks differentiates the REs and local entrepreneurs, and as such takes little account of the specific requests of REs. This study preliminarily

explores some patterns and mechanisms through which Chinese NSPs support REs' resource acquisition. Hence, it is suggested to conduct more research to confirm or disconfirm the findings of the current study so as to add more insights into the literature on entrepreneurship and science park.

Second, this is a cross-sectional study which reflects the phenomenon at a given time point. Future studies can take a longitudinal perspective to explore what types and combinations of NSP services REs require at different development stage of their firms. Further, the longitudinal perspective is more appropriate for untangling the relationship between monitoring and enforcement costs, which will add more insights into the literature. Also, future research can view NSPs in a dynamic way as well. Different development stages influence the approach adopted by NSPs in offering services to REs. The dynamic interaction between NSPs and REs will contribute interesting findings for future researchers.

Third, this study is reliant on the reported perceptions and memories of participants, which is in accordant with the analysis approach of TCP. Future research can validate perceptions against some objective indicators, such as the actual venture performance in innovation, operations and marketing areas. Objective indicators are better to do comparison amongst a larger number of NSPs and REs, which is useful to reflect the phenomenon at a more macro perspective.

Fourth, when collecting data from REs, this study only collected the views of high-level REs in the information technology sector. The high-level REs represent the targeted group of people that NSPs and governments pay much attention to. Nevertheless, the number of

high-level REs only accounts for a relatively small percentage of the group of REs as a whole. The opinions of less qualified REs deserve more attention as well.

Fifth, the comparison of REs' opinions in different industries would be interesting. REs coming from different industries might require different types or combinations of services of NSPs. Further, the comparison of REs who create their ventures in different regions would be meaningful. China is a vast country but the development stage of different regions is imbalanced, which will significantly influence REs' resource acquisition. Therefore, future research is recommended to explore the requests of REs in multiple industries and regions, which will be beneficial to NSPs to develop tailored services.

Sixth, the comparison between NSP services' effect on REs and local entrepreneurs is recommended for future studies. REs have advantages as well as disadvantages compared with local entrepreneurs. On the one hand, REs usually own relatively more advanced technologies and knowledge but lack local social networks. On the other hand, local entrepreneurs usually own more local networks but need the innovation transfer and spillover from REs. NSPs' service design for the two groups of entrepreneurs should pay more attention to their different requests. One given type of service might bring about different influences to REs and their local counterparts. Hence, the comparison of the services' effect between the two groups of entrepreneurs is significant. This will be helpful for NSPs develop more tailored services for different types of clients.

Seventh, the applicability of this study's findings is mainly limited to China as the data was collected within the context of Chinese REs

and science parks. More studies are encouraged to collect data in other emerging or developing countries. This will further add insights into the literature on science park and returnee entrepreneurship. In addition, the comparison among NSPs and REs from multiple emerging countries places a promising direction.

7.5 Concluding remarks

This chapter first presents a summary of thesis by three aspects: the literature review, research methods and main findings. After that, it states the current research's theoretical implications. Further, practical suggestions are presented for NSPs, REs and governments, respectively. Finally, limitations and suggested future research are listed. In general, this thesis explores how to help NSPs mix cocktails (proper combinations of services) to better reduce REs costs in the resource acquisition for their new ventures, which has significant implications for both theories and practice.

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Appendices

Appendix 1 Semi-Structure Interview Questions for REs (English Version)

Questions on NSPs' Service	
General Services	1. Please list this NSPs' services that are closely related to your resource acquisition from RHs
Mentoring & Training for REs	2. Do you think this NSP's service on 'mentoring & training' is strong enough to help you acquire resources from RHs? If so, how? If not, why?
Accreditation of RHs	3. Do you think this NSP's service on 'accreditation of RHs' is strong enough to help you acquire resources from RHs? If so, how? If not, why?
Promotion of REs	4. Do you think this NSP's service on 'promotion of you' is strong enough to help you acquire resources from RHs? If so, how? If not, why?
Social Event	5. Do you think this NSP's service on 'social event' is strong enough to help you acquire resources from RHs? If so, how? If not, why?

Appendix 1 ***(Continued)***

Questions on Governance Structures	
Finalizing of Legal Contracts	6. Do you think this NSP's services are strong enough in helping you build up legal contracts with RHs? If so, which service (s) and how? If not, why?
Building of Guanxi	7. Do you think this NSP's services are strong enough in helping you build up guanxi between RHs and you? If so, which service (s) and how? If not, why?
Questions on Costs	
Reduction of Search Cost	8. Do you think the services of this NSP are strong enough in directly helping you reduce costs in searching for proper RHs? If so, which service (s) and how? If not, why?
Reduction of Contracting Cost	9. Do you think the services of this NSP are strong enough in helping you reduce costs related to the negotiation and establishment of agreements with RHs? If so, which service (s) and how? If not, why?
Reduction of Monitoring and Enforcement Costs	10. Do you think the services of this NSP are strong enough in helping you reduce monitoring and enforcement cost? If so, which service (s) and how? If not, why?

Appendix 2 Semi-Structure Interview Questions for REs (Chinese Version)

关于 NSPs 的服务	
总体服务	1. 在 NSPs 的服务中，请列举出哪些服务和您从 RHs 获取资源紧密相关
服务海归的创业指导和培训	2. 您认为高新区是否提供了有力的创业指导和培训服务来帮助您从资源所有者那里获取创业资源？如果是，那么这个服务是怎么帮助您的呢？如果不是，为什么？
认证/鉴定资源所有者	3. 您认为高新区是否提供了有力的服务来帮助您认证/鉴定资源所有者，，以便让您更容易的从资源所有者那里获取创业资源？如果是，那么这个服务是怎么帮助您的？如果不是，为什么？
推销海归创业者	4. 您认为高新区是否提供了有力的服务来推销您，以便让您更容易的从资源所有者那里获取创业资源？如果是，那么这个服务是怎么帮助您的？如果不是，为什么？
社交活动	5. 您认为高新区是否提供了有力的社交服务来帮助您从资源所有者那里获取创业资源？如果是，那么这个服务是怎么帮助您的呢？如果不是，为什么？
关于治理结构	
订立法定合同	6. 您是否认为高新区提供了有力的服务来帮助您和资源所有者订立法定合同？如果是，那么高新区的哪些服务起到了上述效果，并且是怎样帮助您的？如果不是，为什么？
建立关系	7. 您是否认为高新区提供了有力的服务来帮助您和资源所有者之间建立关系？如果是，那么高新区的哪些服务起到了上述效果，并且是怎样帮助您的？如果不是，为什么？

Appendix 2 *(Continued)*

关于成本	
降低搜索成本	8. 您是否认为高新区提供了有力的服务来直接帮助您降低搜索资源所有者的成本？如果是，那么高新区的哪些服务起到了上述效果，并且是怎样帮助您的？如果不是，为什么？
降低订立合约成本	9. 您是否认为高新区提供了有力的服务来帮助您降低和资源所有者谈判/订立合约的成本？如果是，那么高新区的哪些服务起到了上述效果，并且是怎样帮助您的？如果不是，为什么？
降低监督和执行成本	10. 你是否认为高新区提供了有力的服务来帮助您降低在监督和执行合约方面的成本？如果是，那么高新区的哪些服务起到了上述效果，并且是怎样帮助您的？如果不是，为什么？

Appendix 3 Semi-Structure Interview Questions for Staff Members of NSPs (English Version)

Questions on General support of NSP regarding REs
1. Please introduce the general support of this NSP concerning REs' new ventures
Questions on NSPs' Services
1. Please introduce this NSP's services that are closely related to REs' resource acquisition from RHs
2. Please introduce this NSP's service relevant to the mentoring & training for REs.
3. Please introduce this NSP's service relevant to the accreditation of RHs.
4. Please introduce this NSP's service relevant to the promotion of RHs.
5. Please introduce this NSP's service relevant to social events for RHs and REs.

Appendix 4 Semi-Structure Interview Questions for Staff Members of NSPs (Chinese Version)

高新区对海归创业者的一般性支持措施
1.请介绍一下高新区是怎样支持海归创业者的初创企业的？
高新区的服务
2.请介绍一下哪些高新区的服务与海归创业者获取创业资源的活动紧密相关？
3.请介绍一下高新区哪些服务是对海归创业者提供创业指导和培训的？
4.请介绍一下高新区哪些服务是关于认证/鉴定资源拥有者的？
5.请介绍一下高新区哪些服务是推销海归创业者的？
6.请介绍一下高新区哪些服务是关于组织海归创业者和资源拥有者之间的社交活动的？

Appendix 5 Coding Scheme for Evaluating REs' Opinions

No.	Construct	Perception	Representative Opinions of REs
1.1	Mentoring & Training for REs	Strong	'This NSP's courses are useful to broaden my knowledge on business negotiation'
		Weak	'I did not get much useful skills from this NSP's training'
1.2	Accreditation of RHs	Strong	'The recommendation/black list provided by the NSP is helpful for me to figure out who is more dependable'
		Weak	'This NSP did not have a powerful data base on prospective collaborators'
1.3	Promotion of REs	Strong	'This NSP helped me a lot in increasing the reputation of myself and my company'
		Weak	'I did not feel that this NSP made a significant difference to my start-up's credibility'
1.4	Social Events	Strong	'I established many important links with business partners via this NSP's social events'
		Weak	'This NSP's social events did not enable me to find enough suitable business partners'
2.1	Building of Legal Contracts	Strong	'This NSP helped me a lot in developing the legal contracts between me and my key business partners'
		Weak	'I did not receive much support from the NSP when I was negotiating and developing the business agreements with my strategic business partners'

Appendix 5 *(Continued)*

No.	Construct	Perception	Representative Opinions of REs
2.2	Building of Guanxi	Strong	'This NSP created a comfortable environment for me to develop guanxi with my business partners'
		Weak	'This NSP did not effectively relieve my concern on building guanxi with my business partners'
3.1	Reduction of Search Costs	Strong	'This NSP offered me a lot help in searching for prospective business partners'
		Weak	'I could not sense enough help from this NSP when I was looking for business partners'
3.2	Reduction of Contracting costs	Strong	'This NSP did an effective work to help me push the negotiation process and develop legal agreements with my business partners'
		Weak	'This NSP did not provide enough support to the business negotiation with my business partners '
3.3	Reduction of Monitoring and Enforcement Costs	Strong	'I felt more confident with the enforcement of the contract with my business partners thanks to the support of this NSP'
		Weak	'I did not feel this NSP provided me with enough help in pushing my business partners to fulfill the contract'

Appendix 6 Lists of Main Documentations

No.	Name
1	Blue book on Chinese returnees 2015 (Ministry of Education)
2	2013 Torch statistics manual (Ministry of Science and Technology)
3	Monitoring report on key national science parks' innovation 2014 (Ministry of Science and Technology)
4	National high-tech zone innovation development report 2013 (Ministry of Science and Technology)
5	The action plan for constructing innovative parks (Ministry of Science and Technology)
6	Yearbook 2015 (NSP- Shanghai)
7	2015 Annual summary on NSP-Shanghai (Published on the official website of Ministry of Science and Technology)
8	Yearbook 2015 (NSP- Shenzhen)
9	2015 Annual summary on NSP-Shenzhen (Published on the official website of Ministry of Science and Technology)
10	Yearbook 2015 (NSP- Wuhan)
11	2015 Annual summary on NSP-Wuhan (Published on the official website of Ministry of Science and Technology)
12	Yearbook 2015 (NSP- Chengdu)

Appendix 6 *(Continued)*

No.	Name
13	2015 Annual summary on NSP-Chengdu (Published on the official website of Ministry of Science and Technology)
14	Yearbook 2015 (NSP- Huizhou)
15	2015 Annual summary on NSP-Huizhou (Published on the official website of Ministry of Science and Technology)
16	Yearbook 2015 (NSP- Chongqing)
17	2015 Annual summary on NSP-Chongqing (Published on the official website of Ministry of Science and Technology)

Appendix 7 Statement for Prospective Contacts (English Version)

Dear Madam or Sir,

I am a PhD candidate in the Norwich Business School, University of East Anglia, United Kingdom. I am writing this letter to request your generous help for taking part in my research. I am exploring the role of Chinese national science parks in supporting returnee entrepreneurs' resource acquisition for their new ventures.

I am sending this interview invitation to both staff members of NSPs and REs to gain relatively comprehensive knowledge about the practice. The interview period is approximately 1H-3Hs. After this interview, it would be appreciated if you could provide me with relevant documents to further support the research. Please be aware that there is NO objective intention to investigate neither secretive, technical details nor commercial sensitive information.

I confirm that I will abide by the following ethical process:

- All the information you provide is intended for academic research only. If the interview needs to be used for any other purpose, your permission will be sought;
- You have a right to full anonymity.

Once the data analyses are completed, I would like to share the results with you with some suggestions for your future practice.

The success of this research bases greatly on your participation in the interview. If you have any quires, please feel free to contact me.

Massive thanks for your time and consideration.

Yours Sincerely,

Senmao Xia
Norwich Business School
University of East Anglia
Norwich, NR4 7TJ
United Kingdom
Email: Senmao.Xia@uea.ac.uk
Tel: +86 13647619268

Appendix 8 Statement for Prospective Contacts (Chinese Version)

尊敬的女士/先生，您好：

我是来自英国东安格利亚大学的博士夏森茂，非常感谢您能参与本次研究。本研究主要探讨中国的高新区如何帮助海归创业者获取资源，以支持他们初创企业的发展。

我将采访高新区的工作人员和海归创业者这两个群体，以便尽可能的了解更全面的知识。本次采访的时长将介于1到3小时之间。访谈结束后，请您提供相关材料以便更好的支撑本研究。本次研究将不会调查任何有关秘密、技术细节和商业敏感信息。

我承诺我将严格履行一下道德准则：

- 搜集的所有信息将仅仅用于学术研究。如果需要改变用途，将首先征得您的同意。
- 您将有权匿名参与本次研究。

数据分析结束后，我讲愿意与您共享研究成果，为您日后的实践提供建议。

您的参与是本次研究成功的关键。如果您有任何问题，请联系我。

非常感谢！

此致

敬礼

夏森茂
英国东安格利亚大学诺维奇商学院
邮箱 Senmao.Xia@uea.ac.uk
电话+86 13647619268