

# **University capability as a micro-foundation for the Triple Helix model: the case of China**

## **Abstract**

By articulating the notion of university capability by distinguishing resources and capabilities, this paper aims to advance our understanding of the Triple Helix model from a micro-foundational perspective. From an external evaluative viewpoint, we suggest that university capability consists of (1) resource bases, (2) motivation/objectives, (3) resource allocation and coordination mechanisms, and (4) regional outcomes. Based on qualitative data collected from two leading Chinese cities in innovation and regional development, our study empirically elucidates two different approaches to deal with university capability. Our conceptualization of university capability may be a useful analytical tool to better understand the role of ‘university’ and its relationship with the other actors in the Triple Helix model.

**Key words:** Triple Helix, micro-foundation, university capability, regional development, innovation, entrepreneurial university, returnee entrepreneur

## 1. Introduction

The Triple Helix model suggests that the easy movement across organizational boundaries among the three components of university, industry, and government can smooth the flow of knowledge and engender regional innovation and regional development, in which university plays a leading role (Etzkowitz, 2008, 2012). This is supported by empirical research largely based on observations of such development and on data collected in a few highly developed countries (Anderson, Daim, & Lavoie, 2007; Balconi & Laboranti, 2006; Etzkowitz, Webster, Gebhardt, & Terra, 2000; Jacob, Lundqvist, & Hellsmark, 2003; Lawton Smith & Bagchi-Sen, 2010; Li, Arora, Youtie, & Shapira, 2016). Consequently, European policies appear to have converged on a number of initiatives aimed at transforming universities into central components of the knowledge infrastructure for innovation (Jacob et al., 2003).

However, the available research has three deficiencies. First, it has not provided a clear explanation of what university capability is. For example, some research has argued that universities differ considerably in their capability to transfer their knowledge, but has failed to define that capability (Pugh, 2017). Second, it appears to have ignored the fact that universities in transitional and developing countries do not readily have the ‘implicitly’ assumed capability found in the developed economy context (Wright, Liu, Buck, & Filatotchev, 2008). Such a one-size-fits-all approach to university capability shown by the available research on triple helix is problematic (Pugh, 2017). Third, it tends to take a static perspective, and neglects the dynamic interaction that exists among the three actors and therefore fails to appreciate the process, through which regions, which may not possess a readily available capability, can have the potential to address it in fostering innovation and regional development.

This paper therefore aims to fill an important knowledge gap—namely, what university capability is. Our contribution is two-fold. First, it is among the earliest efforts to conceptualize university capability by examining its key elements in terms of interaction with the other actors in the Triple Helix model. This paper differentiates university resources and capabilities by drawing on the research stream on organizational capability (Amit & Schoemaker, 1993; Grant, 1996; Teece, Pisano, & Shuen, 1997). Second, the Triple Helix literature tends to pay comparatively little attention to micro-level constructs (Felin, Foss, & Ployhart, 2015). A few recent studies conducted from a micro-foundational perspective have mainly focussed upon individual-level phenomena, such as technology transfer offices (O’Kane, Mangematin, Geoghegan, & Fitzgerald, 2015) or principal investigators (Mangematin, O’Reilly, & Cunningham, 2014), without devoting much attention to organizational-level constructs. Li et al. (2016) analysed micro-level Triple Helix relationships by measuring the intensity of university, industry, and governmental relationships. However, they did not touch upon university capability. By using both primary and secondary data collected from two leading cities in innovation and regional development in an emerging economy—China—our research incorporates micro-foundational thinking (Barney & Felin, 2013; Devinney, 2013) to unpack this micro-level construct that distinguishes resources and capabilities. Specifically, it reveals how external audiences evaluate the different key components of university capability. Therefore, it further identifies

two different approaches for regions to adopt to fulfil the key functions of university for their development.

In the next section, we review the role played by university in the Triple Helix model and the prevalent assumptions, which will be used to help articulate and unpack university capability by distinguishing resources and capabilities. Then, we explain our research method, including the research context, data collection, and data analysis. In the findings section, we report the audience evaluative views of the other two actors in the Triple Helix model on university capability. We further elucidate two different approaches in addressing university capability. The last two sections of the article offer a discussion, theoretical and policy implications, and a conclusion.

## **2. Literature review**

### *2.1. University in the Triple Helix model*

According to the Triple Helix model (Etzkowitz et al., 2000; Leydesdorff & Etzkowitz, 1998), university-industry-government interactions facilitate the flow of knowledge and contribute to regional innovation and development, as illustrated in cases such as the MIT and Boston, and Stanford and Silicon Valley in the USA (Etzkowitz, 2012), and Oxfordshire in the UK (Lawton Smith & Bagchi-Sen, 2010), where universities play the role of primary institutions (Etzkowitz, 2008). The existing research, which has included the term ‘entrepreneurial university’ (Etzkowitz, 2003), has documented the contributions that universities can make to regional development (Lawton Smith & Bagchi-Sen, 2012; Marques, Caraça, & Diz, 2006; O’Kane et al., 2015). However, there is an important knowledge gap in the existing literature—explicitly: there is no shared understanding of the notion of university capability. Much research tends to equal university capability to university activities or functions in relation to regional development. For example, university capability is seen as a flow of activities (Lockett & Wright, 2005; Youtie & Shapira, 2008) or knowledge transfer (Pugh, 2017). However, rooted in organizational and management studies, capability refers to “*the ability of an organization to perform a coordinated set of tasks, utilizing organizational resources, for the purpose of achieving a particular end result*” (Helfat & Peteraf, 2003:999). Hereby, resources and capabilities need to be treated separately.

University can be an important source of learning and innovative know-how, which are critical to regional development, with a provision of students, and academic and research staff (Anderson et al., 2007; Carayannis, Alexander, & Ioannidis, 2000). However, universities differ in their capability to transfer their knowledge (Pugh, 2017). There may be no transfer of knowledge between university and local firms if neither side has any interest, motivation, or mechanisms in place. Lockett & Wright (2005) therefore suggested the importance of process for spinning-out companies. Unsurprisingly, researchers have argued for the importance of boundary spanners, who can bridge different areas—academia, higher education, policymakers, and firms (Mangematin et al., 2014). However, universities may still fail in delivering what they intended to achieve in terms of knowledge exchange. For

example, firms may simply not have the capability to absorb the knowledge on offer (Li et al., 2016; Qiu, Liu, & Gao, 2017). Similarly, regions may also lack such absorptive capacity (Qiu et al., 2017). In any case, those universities that do endeavour to foster the transfer of knowledge, may nevertheless not be having a great impact on their regional economies (Youtie & Shapira, 2008), probably due to resource constraints. For example, a lack of recognition from university management can result in technology transfer offices (TTOs) being under-resourced, which, in turn, can hamper their efforts and performance (O’Kane et al 2015). Even when certain resources are available, university may not succeed in achieving its desired outcomes. Therefore, there is the urgent need to illuminate the relationship between university capability, activities, and resources (Lockett & Wright, 2005). Before we apply it as an analytical framework, we need to take the important step of defining what university capability is.

## *2.2. Unpacking university capability by distinguishing resources and capabilities*

Some extant research does appear to have examined university capability (Lockett & Wright, 2005; Rasmussen & Borch, 2010); however, those researchers have tended to focus on narrow aspects of university capability, for example, knowledge transfer (Pugh, 2017), Business Development Capability (Lockett & Wright, 2005), or similarly, the venture-formation process (Rasmussen & Borch, 2010), which is about the extent to which university has the ability to generate spin-outs. In this particular context, university capability is simply seen in terms of “*routines to promote entrepreneurial processes within the university and refer to the ability of the university organization to facilitate the spin-off-formation process*” (Rasmussen & Borch, 2010:604). The ‘university capability’ construct in the context of Triple Helix model thus lacks of clarity. Nevertheless, such research provides a helpful direction for a more comprehensive understanding of university capability; the gap that this paper aims to fill.

Amit & Schoemaker (1993) defined capability as a firm’s capacity to purposefully deploy a combination of resources and processes to achieve a desired goal. Grant (1996:377) understood organizational capability “*as a firm's ability to perform repeatedly a productive task which relates either directly or indirectly to a firm's capacity for creating value through effecting the transformation of inputs into outputs*”. Resources or inputs appear to be critical elements of capability; however, it is clear that capability is more than just a question of resources. Resources can be defined as the tangible or intangible assets or inputs to production that an organization owns, controls, or to which it has access on a semi-permanent basis (Helfat & Peteraf, 2003).

By contrast, capabilities can be harnessed against unfavourable circumstances to produce desirable outcomes (Teece, 2014). In the case of university spin-offs, their key resources include technology stock, technology transfer offices/staff, and experience of spinning-out companies (Lockett & Wright, 2005), whereas their capabilities are defined as routines, which include processes for the assessment of intellectual property rights and for spinning-out companies, and the skills embodied in university staff in terms both of those related to managing the commercialization process and of specific technical and marketing ones.

Similarly, the three university capabilities identified by Rasmussen & Borch (2010) characterize how university allocates and coordinates resources for university spin-off companies during the venture-formation process. However, their research focussed largely on internal processes, but neglected the processes and mechanisms involved in the interaction with external actors in the Triple Helix context. Interaction facilitates the flow of information and innovation (Liu, Huang, Dou, & Zhao, 2017). Li et al. (2017) pointed out that Triple Helix relationships are actually sets of communication and coordination networks among the three actors. As the leading actor (Etzkowitz, 2008, 2012), university capabilities in coordinating and allocating resources, and interacting with and responding to external environments and opportunities appears even more important.

Therefore, we suggest that, in the Triple Helix model, university capabilities should include four key elements: (1) the resources necessary for or beneficial to regional development—e.g., human capital and know-how, or knowledge hubs (Lockett & Wright, 2005; Youtie & Shapira, 2008); (2) motivation or objectives suited to working with the other two actors—e.g., missions of entrepreneurial university (Fugazzotto, 2009); (3) the mechanisms to coordinate and allocate resources to achieve the objectives—e.g., knowledge transfer (Lockett & Wright, 2005; Rasmussen & Borch, 2010); and (4) the desired regional outcomes—e.g., university's contribution to regional development through knowledge transfer and innovation (Anderson et al., 2007; Leydesdorff & Etzkowitz, 1998; Mangematin et al., 2014; Youtie & Shapira, 2008). In turn, the ways in which external stakeholders evaluate university capability not only reflect their perceptions of the potential for collaboration, but also a university's internal capability. For instance, a firm will be encouraged to seek collaboration with a university that demonstrates commitment in its engagement with industry.

### *2.3 Assumptions and approaches on university capability*

In addition to its abovementioned ambiguity in relation to the construct, the available research seems to share two basic assumptions about university capability in the Triple Helix model. One is that the three actors—university, firms, and government—are located in proximate geographic locations, which neglects that fact that knowledge can flow beyond geographic boundaries (Bathelt, Malmberg, & Maskell, 2004). Furthermore, in the age of globalization and global talent mobility (Wang & Liu, 2016), knowledge may roam the globe almost frictionlessly. Such flow of knowledge and the particular mobility of knowledge workers could be an alternative to the local availability of university capability, as shown in the emerging literature on global talent movement (Stokes et al., 2016) and entrepreneurial mobility (Liu & Almor, 2016). Another assumption denotes that, in the Triple Helix model, university always seems to readily possess 'capability'. However, this assumption ignores the fact that regions that did not readily have university capability have nevertheless been successful in innovation and regional development, especially in the context of emerging economies (Liu, Cao, & Xing, 2013), in which universities may possess relatively lower capability in generating and transferring innovative technology (Wright et al., 2008). Therefore, one option for regions with relatively low university capability is to develop it. Accordingly, whereas regional conditions and circumstances have an important bearing on

university capability, university can contribute to local regional development. We therefore specified regional outcomes as the fourth element of university capability.

In light of our conceptualization of university capability, we connect activities and functions to university capability by building upon U-Map (Bartelse & van Vught, 2009). U-Map, the European Union's project to assess the research activities of European universities, includes six dimensions of university activities/profiles, covering the university functions indicated by the available literature: 1) teaching and learning in terms of the number of degrees in different subjects awarded at different levels, 2) diversity and size of student bodies, 3) involvement in research, 4) regional engagement, 5) involvement in knowledge exchange, and 6) international orientation. The sixth dimension can be part of regional development; e.g., international students acting as a bridge between the local region and their home countries. Therefore, we suggest that the activities and functions can be categorized into knowledge base, knowledge exchange and outcomes of regional development—e.g., regional milieu. In so doing, we also consider the regional dimension of university capability by investigating the outcomes of regional development (Lawton Smith & Bagchi-Sen, 2010, 2012). By considering both the activities and their contributions to regional development through the three categories, we aim to obtain a nuanced understanding of university capability in the Triple Helix model.

### **3. Research methodology**

#### *3.1. Research context*

As the empirical setting to investigate our research questions, we chose Suzhou and Wuxi; two leading Chinese cities in innovation and regional development. They are two second tier neighbouring cities in Jiangsu Province, close to Shanghai. The timeframe for our observation ranges from 2000 to 2013; this is mainly due to three reasons: 1) both cities began to explore possible pathways in the strategic shift from a manufacturing-based economy to a high-tech/knowledge-based one; 2) both city governments realized the importance of the high-tech sector and knowledge-based economy and initiated policy intervention and; 3) the duration of our observation of these two cities holds constants defined by the temporal contextual dimension (Zahra, Wright, & Abdelgawad, 2014). In so doing, our study tried to define a comparable background in terms of the focus on building a knowledge-based economy by illuminating the role played by university and university capability in the Triple Helix model.

The two cities compete against each other while, at the same time, showing both commonalities and differences in regard to regional economic development. Nicknamed “little Shanghai”, Wuxi had accumulated a well-developed industrial foundation before 1949, when the P.R. of China was established. During the 1970s, both Suzhou and Wuxi experienced similar economic development patterns although the former possessed a relatively larger administrative territory. During the 1980s, Wuxi enjoyed a greater economic development than Suzhou thanks to its strength in township and village enterprises. The once

famous “SuNan Model” reflected the successful experiences of Wuxi (Wei, Lu, & Chen, 2009). The 1990s placed Suzhou on a fast track with the development of the Economic Development Zone (EDZ) and the implementation of a FDI (Foreign Direct Investment)-oriented regional policy; in particular, the 1994 establishment by the Chinese and Singaporean governments—with the involvement of their agencies and of various private sector organizations—of the world-class China-Singapore Suzhou Industrial Park (SIP) with the aim of transferring advanced technologies, industrial projects, and management experience from Singapore to China (Yeoh, Pow Ngee How, & Lin Leong, 2005). Even though Wuxi also endeavoured to attract FDI by establishing the Wuxi New District, it lagged behind Suzhou.

Since 2000, both regions have begun a strategic shift from a manufacturing-centric economy to a knowledge-based one. In Suzhou, this has taken the form of the establishment of a series of universities or research institutions—from domestic institutions (e.g., the University of Science and Technology of China Suzhou Institute for advanced study, which was established in 2003) to foreign ones (e.g., Xi’an Jiaotong-Liverpool university in 2006)—in response to local company needs, particularly foreign invested firms in the Suzhou Industrial Park. In contrast, Wuxi developed its own pathway by attracting overseas talent to boost its innovation and the local economy, such as the founding of Suntech power, the first Chinese solar energy company to go public in the NYSE in December 2005 (Liu, 2011). Consequently, Wuxi initiated a government-driven policy aimed at attracting overseas talent to found technology ventures in Wuxi. These divergent regional development trajectories provide an opportunity to observe, through a comparative lens, two instances of regional development and innovation characterized by the common overarching theme of building and developing a knowledge-based economy.

### 3.2. *Qualitative research method*

The nature of our research questions—our research aims to build theories—suggested the appropriateness of using a qualitative method (Eisenhardt, Graebner, & Sonenshein, 2016)., Scholars have emphasized the advantages of a methodological pluralist approach to obtain a nuanced understanding while using qualitative methods in developing theoretical insights (Cornelissen, 2017). We sought to reveal the underlying mechanisms and social dynamics by using several complementary sources of data and methods of analysis (Vaara & Monin, 2010). Therefore, we utilized a *multi-method* approach consisting of case studies (Eisenhardt & Graebner, 2007) and content analysis (Krippendorff, 2012). In-depth interviews with key actors were suited to provide insights into the mechanisms of regional innovation and development, the richness of those insights went beyond what could have been extracted just from the documentary data or by means of quantitative approaches (Collinson & Liu, 2017). In addition, we applied content analysis to examine the regulatory and policy documents and triangulate with the primary interview data (Yin, 2009). Combining primary and secondary data facilitated our research endeavour to enhance the trustworthiness of our data analysis. It also engendered a fine-grained and nuanced understanding of university capacity and of the

interactive processes occurring between relevant stakeholders captured by the Triple Helix model.

### 3.3. *Sample and data collection*

Our primary and secondary data were collected as part of a broader research project on Chinese technology entrepreneurship and regional innovation. We opted to focus on assembling various audience aspects with respect to the role of university and its capability in regional development and innovation. As for the primary data, we conducted a total of 29 in-depth interviews with governmental officials, university managers and faculty staff, high-tech entrepreneurs and local business people in Wuxi and Suzhou. Throughout the data collection, the authors sought to discuss the interviews and observations that formed the basis of our data. This sharing process enabled us to continuously adjust our enquiry directions and hone our interview techniques. We deemed the primary data collection to be complete when additional interviews did not engender significant new insights with respect to our research questions (Yin, 2009). Some examples of the key questions are: “What is your view of the role played by university in regional development?”, “How do you evaluate the existing university activities for regional development?”, and “Have you ever worked with a university, if yes, on what capacity?”. Table 1 displays the informants included in this study in a role-ordered matrix (Miles & Huberman, 1994).

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Insert Table 1 about here

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Fine-grained case studies can provide insightful information (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Yin, 2009). The secondary data were drawn from archives, and consisted of openly disclosed key policy documents in government agencies and departments in Suzhou and Wuxi (see Table 2).

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Taken together, this multi-faceted data collection approach enabled the generation of a detailed and in-depth account of university capability from an audience evaluative perspective.

## 4. Findings

In this section, we report our findings in relation to the key research question—i.e., what university capability is—by mapping out the four elements of university capability with the three dimensions of university function. Following the U-map project in the context of evaluating European universities (Bartelse & van Vught, 2009), we aim to illustrate the underlying mechanisms that connect resources and capabilities to achieve various functions.

### 4.1. *Evaluation of university capability from an audience perspective*

A university must hold a certain *capability* in order to play a strategic role in the Triple Helix model in a knowledge-based economy (Etzkowitz, 2008). Based on the four key elements of university capability we conceptualized in Section 2.2, we compared two universities—Jiangnan University (JU) in Wuxi and Xi'an Jiaotong Liverpool University (XJLU) in Suzhou—to represent the different circumstances found in the two regions, as shown in Table 3.

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Firstly, the two universities appeared to have divergent positioning, as reflected in their mission statements and objectives. A university's mission statement can resonate with its motivation (Morphew & Hartley, 2006), strategy and positioning (Fugazzotto, 2009). In the entrepreneurial university discourse, the mission statement constitutes a robust proxy that reflects the university's interest, motivation, and objectives (Foss & Gibson, 2015). JU was a university specialised in light industry that had endeavoured to become comprehensive through the 2001 merger of three local colleges. By contrast, XJLU was the first Sino-British university—as a result of the agreement between Xi'an Jiaotong University and Liverpool University, both research led universities—set up to explore new educational models for China. From its inception, XJLU had an international profile with strong research capabilities. It clearly stated its third mission to be “*integrating into global economic and social development with its expertise in business and technology*”. Furthermore, XJLU carries a strong commitment to use knowledge to promote regional economic development. By contrast, JU claims to “*demonstrate our distinguished features in light industry to serve the people*” and “*Innovate our cultivating pattern to form the backbone of the industry*”. Although both universities had mission statements, XJLU appeared to emphasize its global outlook and international reach, whereas JU had a relatively narrower focus on a particular

industry. This variation between mission statements resonated with the different positioning of each university, which, in turn, affected the motivation and willingness of each university to collaborate in regional development.

Secondly, a gap existed between the two universities in terms of the endowment of resources for their potential contribution to innovation and regional development. Xi'an Jiaotong University's 985 status (the Chinese government initiative to support the 38 most promising universities) and Liverpool University's membership of the Russell Group (which represents the 24 leading UK research universities) enabled XJLU to mobilize the resources and leverage the intellectual capital of resource-rich founding members, namely Xi'an Jiaotong University and Liverpool University.

Our data analysis shows that the local governments mainly viewed the universities as providers of teaching and training and also as (potential) knowledge bases for the commercialization of research. Such expectations were also manifested in the Suzhou branches of those universities which in Suzhou served as "*a platform for collaboration with industry in the region*". Dushu Lake Higher Education Town (HET) was established in Suzhou in 2002, with the purpose of nurturing regional innovation through the establishment of higher education institutions and research institutes while building linkages between research and local industries.

Hence, universities must possess the capability to offer qualified teaching portfolios and learning opportunities to students. Tim, head of the local department of education and technology, explained,

*"I think universities should offer quality educational opportunities to students. It is very important that they have high calibre faculty and teaching programmes beyond just the modern buildings. Teaching and learning should be one of the key missions of modern universities."*

The government view of university capability largely conforms to the key dimension of a knowledge base. Essentially, from a public policy perspective, university is supposed to be able to contribute to regional development by offering solid education, research, and a scientific knowledge base as well as the potential to engage with local government. For instance, providing policy consultancy with respect to regional development was highlighted by local government officials, which was apparently expected as one aspect of university expertise and knowledge exchange. James, from the science and technology policy department, shared his view,

*"We have some policy-related funding schemes that are open to universities. We hope that universities can offer valuable suggestions and recommendations for our regional development. For instance, we want to build a sustainable region and would like to hear how universities can contribute to this agenda."*

Furthermore, the foreign invested firms in Suzhou provide XJLU with many opportunities to collaborate on industry projects. By contrast, as a specialized university, JU's strength had

historically been in light industry—such as food and clothing. However, it lacked expertise in the emerging high-tech industry—e.g., new energy technologies—which the local government intended to develop, resulting in a limited scope for collaboration with the industry.

Thirdly, the above two aspects set the background for further differences in co-ordination mechanisms and desired outcomes. XJLU appeared to be able to engage with the industry and satisfy the latter's demands through knowledge transfer and the commercialization of university projects. Besides support in terms of personnel, the close collaboration between firms and universities in the undertaking of R&D projects emerged as another key point, which represents one dimension of the expected university capability—namely, the exchange of knowledge. Sue, the R&D manager of a multinational company, explained,

*“As we are in the high-tech sector, we try to collaborate with local research institutions and universities to carry out some research projects. We are more interested in the application side of scientific research. So far, we have worked with three research institutes located here on four projects.”*

Universities possess knowledge bases suited for commercialization activities. Academic entrepreneurship was tried out in Suzhou by the members of some university faculties. Furthermore, the collaborative activities between university and industry represented an important means to transfer and translate knowledge bases into practice. Mark, a university professor from the Suzhou subsidiary of a foreign university, echoed this,

*“As a leading research institute, we can offer what firms seek for regarding potential collaborative R&D projects. I think Suzhou government's support to establish Dushu Lake Science and Education Innovation District is of strategic importance for the region's development and innovation.”*

As indicated above, through the collaboration in research with industry partners, this reflects a university capability co-ordination mechanism. In a similar vein, the industry in Wuxi also expected to engage in knowledge exchange and collaboration with the university. Jason, the owner of a privately-owned solar energy firm, emphasized,

*“As a high-tech firm, we urgently need talent and expect the local university to supply. However, the university here is relatively weak for supplying talent and potential collaborative work. Fortunately, we have returnees in Wuxi who we could recruit as talent, or collaborate with to transfer knowledge.”*

However, our fieldwork also found that the industry experienced frustration in its aim to work with the university. For instance, one business person complained that he had been unable to find a suitable point of contact within the university. Therefore, the co-ordination mechanisms varied significantly between XJLU and JU, while diverging mechanisms constitute the third key element of university capability.

To summarize, the industry and government view largely referred to knowledge bases and exchange, the provision of personnel (university graduates), and to how to enhance the

potential for collaboration between university and industry for the purpose of knowledge exchange.

Fourthly, the desired outcomes in terms of university contributions to regional development varied accordingly. XJLU had been set up in response to the needs of foreign invested firms and regional development in Suzhou. Economic development necessitated the establishment of a comprehensive university covering Science, Technology, Engineering, Architecture, and Business disciplines. Moreover, it was part of the projects planned by the local government within the Suzhou Dushu Lake Higher Education Town (HET). By contrast, JU had been set up amid the consolidation and mergers of Chinese universities with the aim to enhance operational efficiency. Constrained by its disciplines, it failed to contribute more to local high-tech sector development. The local government had thus turned to returnee entrepreneurial talent to provide the capability needed for innovation and regional development in such sector.

For instance, Tim, a manager of the China-Singapore Suzhou Industrial Park (SIP), as well as a local government official, shared his thoughts:

*“Good students want to read at top universities. But most of the top-tier Chinese universities are clustered in big cities, like Shanghai and Beijing. We are lucky to now have campuses operated by top universities both from China and foreign countries attracting students. Furthermore, we now can see more and more university graduates who want to stay on and work here, contributing to the local economy.”*

The local government recognized the importance of university capability and its contribution to regional innovation and development.

Similarly, the industry largely expected the university to serve as source of high quality personnel and facilitated close university-industry collaboration, which highlights the role of university as knowledge base and its function in transferring knowledge for regional development. The presence of the university appeared to have enhanced the regional development milieu. One entrepreneur whose business was located in the HET shared his thoughts about why he was not willing to relocate,

*“Another high-tech park approached and tried to persuade me to relocate my business there by offering an attractive tax reduction and free office space. But I have got used to working in this kind of university environment where you can easily access the universities. Also, you can easily attract new graduates.”*

To summarize, our data analysis shows that university capability encompasses four key elements, of which resources are only one. Nevertheless, the possession of resources enables the potential articulation and manifestations of capability. Furthermore, the motivation/objective and co-ordination mechanisms enable the transfer of resources into capability suited to achieve the desired regional outcomes. From an audience’s perspective, university is expected to supply highly qualified personnel, to transfer knowledge, and to cultivate a supportive atmosphere in embracing regional entrepreneurship and innovation.

## 4.2. *Approaches for developing university capability*

Our fieldwork empirically shows two possible pathways for the development of university capability. One involves nurturing it, while the other encompasses substituting it with an alternative organizational: the recruitment of numbers of returnee entrepreneurs. Hereby, we juxtapose the two possible approaches and illuminate the mechanisms through which university capability is addressed along its three dimensions—i.e., knowledge base, knowledge exchange, and regional outcomes, as summarized in Table 4.

### 4.2.1. *Nurturing university capability*

One rather direct approach involves building up and nurturing university capability, as evidenced in Suzhou. Amid the rapid regional economic growth achieved by attracting FDI and MNCs in the manufacturing sector, Suzhou realized the important role that talent may play in its developmental trajectory from a manufacturing-centric economy to a knowledge-based one (Liu et al., 2013). In 2002, the HET was established within the SIP with the purpose of nurturing regional innovation by introducing and establishing higher education and research institutions. At the outset, the HET aimed to convince domestic top-tier universities to establish research institutions as knowledge brokers for the potential commercialization of the universities' scientific and technological research outcomes and patents. This was followed by a series of foreign higher educational institutions setting themselves up in Suzhou.

HET manager Mike explained the development of attracting universities and research institutions,

*“We began with the University of Science and Technology of China (USTC), one of the best science and technology universities in this country. In 2003, the USTC Suzhou Institute for Advanced Study was initiated as a graduate school. Beyond domestic universities, we also attracted foreign higher institutions. For instance, the first Sino-foreign joint university in China, Xi’an Jiao Tong-Liverpool University, was established and located in the central area of HET in 2006.”*

The Suzhou government proactively attracted universities by hosting promotional events—both domestically and internationally—to introduce government policies such as free land. In particular, a designated area was selected to locate universities for better resource sharing and closer industry-university collaboration. Since its inception, the Dushu Lake HET has attracted 25 higher education institutions, with a total of over 76,000 registered students and over 5,000 faculty staff. It established a rotation station for Fellows of the Chinese Academy and 38 post-doc rotation stations, five national-level incubators, and four province-level incubators, with a plan to build 201 R&D platforms.

By recruiting international faculty members and students, the establishment of new universities and institutions in Suzhou has provided a knowledge base for teaching and learning. Furthermore, the faculty members of newly established higher education institutions can explore a dual career option as academic entrepreneurs to found science and technology ventures. The SIP's industrial landscape offers them a potential market for such academic entrepreneurial endeavours.

Furthermore, the exchange of knowledge between university and industry was enabled through collaborations and joint research projects. Also, by taking internships with industry partners, students may become carriers of knowledge. In this way, the mission of bridging research and local industries was experimented.

Tom, a member of staff from a newly established university, articulated the role played by university in the interaction process in Suzhou,

*“Newly established universities can act as hubs to connect different partners from the industry and business sectors. Local government support plays a very important role to enable this university-industry collaboration, such as funding programmes that involve both university and industry.”*

The gradual establishment of universities and research institutes in Suzhou appears to have built up certain aspects of the university's function, and has largely compensated for the lack of university capability. For instance, the basic function of teaching and learning has been realized in a relatively short space of time, as the university was able to attract both students and staff.

One government official in Suzhou said,

*“It would not have been possible for Suzhou to have expertise or students trained in the needed disciplines; as you know, creating a new subject and degree scheme requires the approval of the Ministry of Education. Fortunately, the institutes set up by the leading universities help us solve this problem.”*

However, addressing university capability by building new university campuses remains challenging. For example, the director of the Suzhou Institute of WH University brought up the same challenge shared by his counterparts,

*“We aim to assist scientists in our parent university who want to locate their commercialized businesses in Suzhou. However, due to distance (six hours by high speed train from the parent university to Suzhou), this is not happening. Also, we helped the parent university win joint research bids from Suzhou, but research has to be conducted back in the home location due to facility constraints.”*

This points to the more complex issues and potential challenges that might occur when the nurturing of university capability is adopted as the approach to address university capability.

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#### 4.2.2. *Collective entrepreneurial activities as substitutes of university capability*

Another approach to address university capability takes the form of collective entrepreneurial activities undertaken by returnee entrepreneurs and their association. As the empirical evidence we drew from Wuxi indicates, this approach can provide an alternative means to achieve the key functions of university, so as to address ‘university capability’. Thus, to a certain extent, it makes up for university absence in regional innovation and development.

Wuxi attracted overseas talent to found new technology ventures in the region by launching the “530 Plan” policy initiative in 2006. The origins of the “530 Plan” in Wuxi can be found in the contingent opportunity-seeking behaviours of returnee entrepreneurs. Dr. Shi received financial and infrastructural support from the Wuxi government and founded Suntech Power in Wuxi in 2001. Suntech Power’s success was proven when it became the first Chinese solar energy manufacturing firm to be listed in the New York Stock Exchange (NYSE) in December 2005 (Liu, 2017). Inspired by Suntech’s initial success, the Wuxi government initiated the Wuxi “530 Plan” in April 2006, which was aimed to attract, within five years, 30 advanced Chinese overseas entrepreneurs to start ventures in emerging high-tech industries, such as environment protection, renewable energy, and biotechnology (Xing, Liu, & Cooper, 2018). The “530 Plan” produced a “three times one hundred” policy, which specifies that start-up firms may receive start-up capital of one million (100 Wan Chinese RMB), 100 square meters office space and 100 square meters of accommodation free of charge for the first three years (Liu, 2011). In order to receive the aforementioned policy support, returnee entrepreneurs and their teams need to apply for the “530 Plan”. As carriers of knowledge, returnee entrepreneurs bring advanced technologies, new products, and know-how that span geographical boundaries. The multitude of returnees attracted by Wuxi, both as individuals and groups, constitute a knowledge base for potential knowledge exchange.

As an official returnee organization, the WXOCICC (the Wuxi Overseas Chinese Investment Chamber of Commerce) plays an important role in promoting regional entrepreneurship and innovation in Wuxi. Given the absence of a high calibre university (the old university did not have adequate capability, and no new university was established), there was a need to fill the void. Hereby, the WXOCICC played the role of a regional hub to channel information between the government, returnees, and businesses. For instance, the returnee association attempted to proactively engage in the provision of training for aspiring entrepreneurs.

The current chairman of the WXOCICC, a returnee himself, explained:

*“Our association actually provides entrepreneurial training and workshops to aspiring returnee entrepreneurs. For instance, we invite local professional firms on a*

*regular basis to give seminars to young nascent returnee entrepreneurs. Topics include Chinese corporate law and taxation, etc.”*

Interestingly, the returnee association took the lead in regional entrepreneurship and innovation by mobilizing resources and cultivating a supportive atmosphere towards entrepreneurship. The importance of the returnee association and of its interaction with the local government resonates with a recent study that identified local government as an institutional entrepreneur in fostering regional entrepreneurship through entrepreneurial public-private collaborative partnerships (Xing et al., 2018).

Furthermore, the returnee association facilitated the potential collaboration between its members (returnees) and local businesses. The exchange of knowledge between returnees and the local industry sector possesses synergistic potential. Jack, a project manager at WXOCICC, told,

*“The knowledge transfer between returnees and local business can generate huge potential benefits. The returnees have the technology whereas the local firms understand the Chinese markets well. By working together, both returnees and local business can benefit and learn from each other. For instance a joint venture was formed by a returnee and a local business to enable ‘technology meets market’.”*

In a nutshell, our analysis empirically revealed two different approaches suited to address university capability in the two cities: either nurturing university capability by establishing new universities and institutions, or compensating by attracting returnee entrepreneurial talent. Both approaches could help achieve the university capability discussed earlier, which, in turn, could contribute to innovation and regional development to varying degrees.

## **5. Discussion**

To analyse innovation and regional development at the national and regional levels, the extant research has largely applied the Triple Helix model, in which university is assumed to play a primary role. However, it begs the question of what university capability is and of how regions lacking in such capability can prosper. Based on micro-foundational thinking, our study attempts to articulate and conceptualize university capability by illuminating the differences between resources and capabilities. Furthermore, we map out university capability with the key functions of university—namely, knowledge base, knowledge exchange, and regional outcomes. In so doing, the university functions in the Triple Helix are made explicit, so as to offer a common ground to explore university capability as one important micro-foundation of the Triple Helix model.

### *5.1. Theoretical contributions*

Our study may significantly extend the understanding of the Triple Helix model by explicating the role of university and prevalent assumptions and, more importantly, by

unpacking university capability. By building on the literature stream on organizational capability, we distinguish between resources and capabilities while conceptualizing the construct of university capability. In so doing, we connect with and contribute to the literature streams on resources and capabilities in the context of entrepreneurial university. In addition, we explore university capability from an audience evaluative perspective. In the context of the Triple Helix, university capability may be defined as ‘the ability of a university to allocate and co-ordinate resources for the mission of regional engagement and development’. The key characteristics include the mission statement, which manifests the university’s commitment to regional engagement and contribution; accordingly, a mechanism needs to be in place to facilitate the resource allocation and coordination aimed at achieving the desired outcomes. Our novel conceptualization of university capability consists of four key elements that connect resources and capabilities: (1) a resource base, (2) motivations/objectives, (3) resource allocation and co-ordination mechanisms, and (4) regional outcomes. In so doing, our study offers a nuanced understanding of the notion of university capability. Importantly, our approach to assessing university capability from an external audience perspective extends the current internal-oriented view (Rasmussen & Borch, 2010).

Furthermore, our study may contribute to the Triple Helix literature by suggesting university capability as a micro-foundation for the Triple Helix model. Recent research has begun to emphasize the importance of micro-foundations in organization and management theory (Barney & Felin, 2013). Our study extends this line of reasoning by offering empirical evidence and a contextualized understanding of university capability in the Triple Helix model. By examining university capability in the context of regional innovation and entrepreneurship, we extend the extant work on the Triple Helix model and suggest university capability to be an important micro-foundation for the Triple Helix model; future researchers may further extend the body of knowledge on this conceptualization.

This study also enhances our understanding on how, in the absence of university capability, the role played by university in the Triple Helix model could be addressed or compensated. Our study offers additional insights into the recent research that found that the spillover effect of university collaboration on local company innovation is contingent upon regional absorptive capacity (Qiu et al., 2017). In particular, our findings show two possible pathways that may address the lack of university capability in regional innovation and development—namely, cultivating university capability or fostering collective entrepreneurial activities to substitute for it. Importantly, our findings highlight the plausible variations of government policy and its implications on the Triple Helix in emerging economies and university capability in particular.

## 5.2. *Implications for practice*

This study offers several implications for higher educational institutions and entrepreneurs. The unprecedented pace of economic development being experienced in emerging economies confronts business leaders in a globalized and interconnected business environment. A

nuanced understanding of university capability may facilitate the actors involved in responding accordingly. Various regional contexts and situations present multiple opportunities to a wide spectrum of stakeholders. When regions in emerging economies choose to build up university capability, overseas higher institutions may actively contribute to shape this process and profit from such capacity-building endeavours through proactive participation and by bringing in knowledge and know-how. Nevertheless, university needs to cultivate ‘capability’—such as mission statement may serve as signalling effect for potential collaboration with industry—and the appropriate mechanisms to facilitate the allocation and coordination of resources. Furthermore, entrepreneurial university (Foss & Gibson, 2015) can take joint initiatives with government and industry to create a support structure for company formation and regional growth, which, in turn, may lead to self-sustaining dynamics (Etzkowitz, 2008; Etzkowitz & Klofsten, 2005). In so doing, the desired regional outcomes may be achieved. Furthermore, entrepreneurs may seize the opportunities linked to setting up entrepreneurial ventures while fostering innovation and regional development, especially through entrepreneurial mobility and transnational entrepreneurship (Liu, 2017).

### 5.3. *Implications for policy*

Governments should recognize and pay close attention to university capability and its role in regional innovation and development. Our research indicates that local government attempts to attract overseas talents back to their home country may, to a certain extent, compensate for the lack of university capability in promoting the regional innovation and entrepreneurship agenda. Against the backdrop of globalization and of the constantly increasing interconnectedness of world business beyond geographical boundaries, entrepreneurs can launch global ventures at the outset in pursuit of the entrepreneurial spirit (Glaister, Liu, Sahadev, & Gomes, 2014; Isenberg, 2008). Collective entrepreneurial activities may unleash the potential of returnees of substituting the key functions of university. This study can shed some light on policy making and implementation to refine regional innovation and entrepreneurship policies and to cultivate an atmosphere conducive to attracting global talent and returnees.

Our findings largely confirm the importance of university capability in regional development and innovation. By unpacking the different key elements of university capability, which constitutes an important micro-foundation of the Triple Helix model, our paper highlights the approaches to addressing university capability—i.e., either building or substituting, according to audience assessment. To varying degrees, both approaches seem to have achieved university capability. However, due to the relatively short history of university, the nurturing approach faces complex issues and challenges to fully capture its potential value, whereas the substituting approach reconciles the returnees’ entrepreneurial endeavours that might be challenged by local situations. Furthermore, talent mobility makes the substituting approach vulnerable and potentially less sustainable in the long run.

#### 5.4. *Limitations and future research*

This paper offers a conceptualization of university capability in the Triple Helix model. Furthermore, it offers empirical evidence of how university capability may be addressed by unpacking its four key elements. Although our conceptualization is supported by case studies of two adjacent regions in China, we view our findings as tentative and suggest future research efforts to validate our conceptualization by using quantitative approaches to capture university capability. The generalizability of our work is relevant to other developing economies in which universities tend to lack capability. Innovation centres throughout the world tend to be associated with leading universities—such as Cambridge in the UK, Harvard and the MIT in Boston, and Stanford in Silicon Valley—to foster regional innovation and development (Saxenian, 2007). In contrast, developing economies are still in need to cultivate ‘university capability’ when they strive for innovation in regional development, as our study of the case of China illustrates. In addition, future research could also compare university capability in emerging economies with its counterpart in advanced ones, so as to attain an enhanced understanding of comparative regional innovation and entrepreneurship (Mian, 2011).

Another fruitful research stream relates to the recent conversation on micro-foundations. Our research shows the applicability and potential value of micro-foundational thinking to advance Triple Helix research. Future research could explore other potential micro-foundations (Liu, Sarala, Xing, & Cooper, 2017), in the form of collaborative partnerships, from a multi-level perspective. Hence, we suggest that further research might build upon our conceptualization of university capability as a micro-foundation to add additional micro-foundations in order to gain a more comprehensive understanding of micro-foundations and their influence on the Triple Helix model in particular, and on regional innovation and entrepreneurship in general.

### **6. Conclusion**

Our study underpins the idea that a nuanced understanding of the role played university, its capability, and its relationship with the other two actors from a micro-foundational perspective is important to advance the Triple Helix model. In particular, our conceptualization of university capability is an attempt to elucidate the university-industry-government complexity and interaction and serves as a departure point for further theoretical refinement and empirical validation. Our paper offers regional entrepreneurial and innovation policy implications that may shed some light into regions in which university capability is lacking. In a nutshell, regional innovation and entrepreneurial development can still be realized through mechanisms suited to compensate for a lack of university capability. We hope that this study will inspire scholars to further investigate this line of enquiry on the role played by university and university capability in regional innovation and entrepreneurship.

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**Table 1: An overview of the interviewees**

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<i>Interviewees</i>	<i>Number of interviews</i>
Government officials	10
<i>High-tech park</i>	<i>(5)</i>
<i>Regional gov. officials</i>	<i>(5)</i>
Higher education institutions	6
<i>Management team</i>	<i>(3)</i>
<i>Faculty staff</i>	<i>(3)</i>
Industry	13
<i>Returnees</i>	<i>(7)</i>
<i>Local business people</i>	<i>(6)</i>

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**Table 2: A summary of the policy documents analysed**

<b>Timeline</b>	<b>Key policy documents in Suzhou</b>	<b>Policy issues in Suzhou</b>	<b>Key policy documents in Wuxi</b>	<b>Policy issues in Wuxi</b>
2006	“The 11th Five-Year Plan of Professionals Development in the SIP”	To create more sustained mechanisms to attract professionals and talents to work, live, and study in Suzhou	“Decision on implementing 530 Plan”	To attract overseas expatriates to start-up businesses with their special technological know-how
2008	“Industry Planning to Develop Service-Outsourcing Industry in the SIP”	To develop service-outsourcing industry, including ITO, BPO, KPO, CRO. In 2007, the SIP was approved by the Ministry of Commerce to be one of the 12 ‘Demonstration Zone’ of service-outsourcing industry.	“Plans of Propelling Commercialization of Pioneering Returnee Entrepreneurs’ Projects”	To implement the industrialization and commercialization of technologies from overseas expatriates
2008.11	“Decision to revise ‘SIPs Policies’ to attract and introduce high level talents and professionals in short supply”	To modify and update SIP policies to attract high-level talents to Suzhou.	“Approval of Development Planning of Wuxi as a National High-Tech Industries Base”	Aim to get another reputation as a national ‘Base’
2009	“Decisions to deepen the role played by professionals in transferring and upgrading”	To establish a comprehensive environment to attract high-level talents, to strengthen the links between industry and education,	“Decision on setting up the ‘530 Plan’ Experts Consulting Committee”	To set up a consulting committee to facilitate ‘530 Plan’ investment decisions
2010	“Creation of a National Entrepreneurship Mother Fund”	To set up an RMB investment fund for optional investment	“Notice for the 530 Plan and a Pan-530 Plan”	To set up a sister ‘Pan-530 Plan’ to attract 30 foreign technology leading experts over two years
2011	“Establishment of National ‘Thousand Talents’ Entrepreneurship Investment Centre”	To provide financial solutions for returnee high-level expatriates, cultivating new industry development	“Exhibition of 530 Plan programme achievements”	To celebrate the achievements of the 530 Plan with a continuous plan to build an Eastern Silicon Valley

**Table 3: Comparison of university capability from an audience perspective**

<i>Elements of university capability</i>	<i>Dimensions of university function<sup>1</sup></i>	<i>Jiangnan University, Wuxi</i>		<i>Xi'an Jiaotong Liverpool University, Suzhou</i>	
		<i>Government View</i>	<i>Industry View</i>	<i>Government View</i>	<i>Industry View</i>
<i>Mission/objectives</i>	<i>Knowledge Base</i>	Specialized regional university	Specialized industry expertise, such as textile, but less adapted to emerging high-tech industry, such as renewable energy	Entrepreneurial university. To become a leading research-led university with a strong international profile	Strong motivation to collaborate with industry, esp. foreign invested firms in Suzhou Industrial Park
		Lack of preparation to suit high-tech industry demand for regional development	Lack of high quality workforce from university, need returnees to compensate	Strong commitment to use knowledge to promote regional economic development	High quality workforce from university for local business
<i>Resource</i>	<i>Knowledge base</i>	Non-985 university	Specialized majors with relatively less resource endorsement	Support from Xi'an Jiao Tong University (985 project university) and Liverpool University (Russell Group <sup>2</sup> )	Industry funding project and consulting projects
		Focus on tailored teaching program with specialized majors (e.g. textile industry)	Returnees assist local university by leveraging knowledge and know-how	Quality education with high calibre faculty and teaching program	Leading laboratory to work with industry

<i>Co-ordination mechanisms</i>	<i>Knowledge exchange</i>	Collaboration within previous independent colleges	Less supply of talent to local, particularly in the high-tech disciplines	Part of Suzhou Dushu Lake Higher Education Town	Potential acquisition target for innovation and commercialization from university projects
		Lack of knowledge transfer between university and industry	Returnees as knowledge carrier to share and spill over knowledge to local business people	Sharing facilities among universities including libraries, entertainment venues, a sports centre and accommodation	Knowledge transfer between university and industry
<i>Desired outcomes</i>	<i>Regional outcomes</i>	Consolidation and merger of old universities and higher education institutions	Less capable to reflect the high-tech demand, such as renewable industry, bio-technology	Planned project within the Suzhou Dushu Lake Higher Education Town	Comprehensive university with coverage of Science, Technology, Engineering, Architecture and Business
		To enlarge “size” and achieve efficiency for university operation	Limited to constraints of specialized majors (e.g. Textile Science, Light Industry Technology)	Respond to MNEs demand for industry upgrading	Establishment of International Business School Suzhou in 2012 embraces the spirit of enterprise

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Notes:

1. Dimensions of university function adapted from U-Map (Bartelse & van Vught, 2009).
2. The Russell Group represents 24 leading UK universities committed to maintaining the very best research, an outstanding teaching and learning experience and unrivalled links with business and the public sector. (<http://www.russellgroup.ac.uk/>)

**Table 4. A comparative analysis of two approaches in addressing university capability**

<i>University function indicator</i>	<i>University function indicator</i>	<i>Nurturing approach mechanisms</i>	<i>Selective empirical evidence</i>	<i>University function indicator</i>	<i>Substituting approach mechanisms</i>	<i>Selective empirical evidence</i>
<i>Knowledge base</i>	Teaching and learning	Recruiting faculty and students to university	“We actively recruit the top faculty internationally, from North America or Europe, and offer excellent learning opportunities for our students”	Teaching and learning	Bringing across geographical boundaries by returnees	“As for core founding team, we came back from Silicon Valley, but I need to recruit a local workforce to work for us. We need to teach our locally recruited employees the skills and knowledge on the job.”
	Start-up firms	Academic entrepreneurs	“I found my venture because I saw the opportunity while working with an industry partner. I imagined it would not be easy to do so without this Suzhou campus where industry base is strong.”	Start-up firms	Returnee ventures	“As a returnee, the prerequisite to receive government support with the 530 plan is that I need to found my own technology venture in Wuxi.”
<i>Knowledge exchange</i>	Knowledge transfer	Sending students to industry internship	“We work with industry partners and send our students to do internships with them. For industry partners, the cost is relatively low. Both students and industry partners can learn something through close interaction, including us as faculty members.”	Knowledge transfer	Collective entrepreneurial behaviours	“Pioneer entrepreneurs have to pass on their knowledge of the local business environment and of Chinese business practices to late-comer returnee entrepreneurs. Returnees have been out of the country for a long time, so they need to re-learn local practices”
		University and industry collaborative	“Our university contributes significantly to this region although we are newly established. We carry joint projects with firms in the SIP.”		Returnees work with local business	“The knowledge transfer between returnees and local business can generate huge potential benefits, because the returnees have the

		projects	It is much easier to do than before, because the firms seek partners who are capable to undertake collaboration for R&D project.”			technology whereas local business firms understand the Chinese markets well. By working together, both returnees and local business firms can benefit and learn from each other”
	Engagement, provision of entrepreneurship training	University	“We offer enterprise training courses for aspiring entrepreneurs. Also, part-time program to employee from local business.”	Engagement, provision of entrepreneurship training	Returnees association	“Our association actually provides entrepreneurial training and workshops to aspiring returnee entrepreneurs. For instance, we invite local professional firms on a regular basis to give seminars to young nascent returnee entrepreneurs. Topics include Chinese corporate law, taxation.”
<i>Regional outcomes</i>	Provision of talent	Supplying qualified workforce	a “If we could have good quality university in Suzhou, the university might attract top students to come to our city. Furthermore, the university graduates might stay to contribute to the local economy. ”	Provision of talent	Talent mobility	“The arrival of talents brings an upgrade for citizen composition. In the past, Wuxi lacked culture. Now we attract many highly-educated entrepreneurs, many of them have PhD degrees from abroad.”
	Regional support structure	University-led	“Newly established universities can act as hubs to connect different partners from industry and business sectors. Also, government support plays a very important role in enabling this university-industry collaboration, such as funding the programmes offered by universities or research funding schemes that involve both university and industry”	Regional support structure	Returnee association -led	“Our Chamber has four missions: Information platform, entrepreneur helper, channel between entrepreneurs, government, and the elite circle of overseas entrepreneurs. We offer various services surrounding our missions, such as tailored training for returnee entrepreneurs on the Chinese business environment, social gatherings for returnees to stimulate business collaboration, etc.”