

**Global innovation networks for Chinese
high tech small and medium enterprises:
the supportive role of highly skilled migrants
and returnees**

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Key words: global innovation networks; GIN; knowledge sourcing; small and medium enterprises; SMEs; Beijing; China; highly skilled migrants; returnees; IT and new media industry

JEL codes: O30; F20

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1 Introduction

Since the 90's and thanks to reduced barriers on technology and international mobility Chinese firms have started to exploit international markets, first by taking advantage of their increased and cheap production capabilities, and later on by sustaining and exploiting their own innovation capacity (Althenburg et al., 2008; Plechero and Chaminade, 2013). Particularly, firms located in the most advanced knowledge-intensive areas, such as Beijing, have started to increase their participation in some, even simple, global innovation networks (GINs)¹ (Plechero and Chamiande, 2013; 2016). The main reason has been the need to source knowledge and know-how from international firms and organisations, and to a lesser extent, exploit innovation overseas and collaborate with foreign partners. This phenomenon is not exclusive to large Multinational Corporations (MNC)s, but includes high tech SMEs that are growing in those locations (Barnard and Chaminade, 2017; Yang and Dunford, 2017; Zhou and Xin 2003). In Beijing, international knowledge connections are also facilitated not only by a direct presence of foreign companies in the region, but also by the pool of human resources that from the region move and migrate in foreign countries. The government has pushed forward different incentives and plans such as 'The Thousand Talents Plan' (Jia, 2018) to attract back those resources with international experiences (Zhang, 2013; Breznitz and Murphree, 2011). While different research has demonstrated the key

role of returnees and highly skilled migrants² for innovation and knowledge spillover - particularly in the high tech sectors such as IT and internet industry (Dai and Liu, 2009; Liu et al., 2010; Filatotchev et al., 2011; Saxenian, 2006; Zhang, 2013) -, there is still a lack of studies investigating the role that can be played by those individuals (beside the role of favouring export activities and market expansions) for sustaining specifically SMEs engagement in international knowledge linkages related to support innovation activities.

The main aim of the paper is to understand what types of role returnees and highly skilled migrants have in supporting the engagement of Chinese high-tech SMEs in GINs.

We will rely on a qualitative research based on 19 interviews conducted in Beijing in 2016 to SMEs operating in IT and new media industry.

This paper is organized as follow: Section 2 discusses the theoretical framework, section 3 presents the methodology that guided the collection of data and the analysis of the empirical evidence and section 4 discusses the findings. The final section concludes and highlights some policy implications.

2 Literature review

2.1 The role of highly skilled migrants and returnees in the area of origin

Recent research on the impact of migration on the areas of origin is growing (Faggian et al., 2017; Lissoni, 2018). Different studies have shown how international migration of high-skilled individuals such as star scientists from emerging economies to developed countries brings the benefits to not only to the destination regions, but also to the migrants country of origin (Naghavi and Strozzi, 2015; Saxenian, 2002; 2006; Trippel, 2013).

The works of Saxenian (2002; 2006) has represented one the most significant studies on the topics of talented and highly skilled migration flows for countries such as India and China.

Those migrants which Saxenian referred to as *'The New Argonauts'* are those that have been able to transfer skills and know-how in the countries of origin, whilst at the same time maintaining close relationships with migration destination areas. The turn from 'brain drain' into 'brain circulation' results in the phenomenon of 'diasporas' to which investment and entrepreneurship in the home countries of those returnees contributes to the diffusion of technology and production knowledge as well as the internationalization of domestic firms, and foreign investment from non-diaspora sources (Kotabe et al, 2013). Since the early 1990s China began to allow a large number of students to study abroad, generating a pool of foreign educated Chinese who, when returned home from overseas study, brought back their learning experiences to their homeland (Saxenian, 2002). However, in China with respect to other countries such as India or with respect to Taiwan the diaspora phenomenon is more recent. A massive return flow has started at the end of the 90s, which came at a time when different high tech industries were taking off in the most industrialized regions (Zhou and Hsu, 2011). By the end of 2016, more than 2.65 million foreign-educated people had returned to China (Xinhua, 2017), targeting the most advanced regions such as Beijing. Different scholars have started to pay attention to the migration of not only students, but the flows of scientists and highly skilled workers. Different analyses have been conducted with quantitative data based on patents, citations, and inventions. More ad hoc analysis and case studies have been recently used to explore the impact that those highly skilled migrants and in general returnees may have in the home regions and countries (Kenney et al., 2013; Lissoni, 2018).

The reasons why highly skilled individuals move from China to other countries are many, but the main reasons so far have been to access key skills and knowledge from developed economies (Whaba and Zenou, 2012; Docquier and Rapoport, 2012). Some of those migrants are using those skills and knowledge to start their own enterprises when they are back home (Whaba and Zenou, 2012; Zhang, 2013), while others are hired by different companies for key roles in

relation to the companies' innovation activities (Zhou and Hsu, 2011). Indeed, when it comes to studies of Chinese returnees particular attention is aimed to understand their impact on innovation (Hunt and Gauthier-Loiselle, 2010). In analysing specifically those returnees flows in SMEs some authors such as Dai and Liu (2009), Lin et al. (2014) and Liu et al. (2010) have put emphasis on the role that CEOs and entrepreneurs play for innovation performances. In other SMEs studies the focus has been on internationalization aspects. Tanchaitranon and Charoensukmongkol (2016) has, for example, analysed the mediating role of migrations forces on SMEs export performances in emerging economies. Lew et al. (2016), looking specifically at Chinese manufacturing SMEs, have instead focused on the role of overseas business and ethnic group-based social network to overcome trade barriers and facilitate international market strategies.

Despite those advancements also in relation to SMEs, it is still unclear the role that returnees as well as in general highly skilled migrants have in sustaining the engagement of SMEs in GINs. One recent study (Grillitsch and Chaminade, 2018), investigating the role played by citizenship diversity in European organisations, demonstrates, for example, that influences between different cultural backgrounds of employees supported by adequate internal capabilities sustains the engagement of SMEs in GINs. Returnees and highly skilled migrants usually bring with them the benefit of similar cross-cultural experiences. Moreover, bicultural acquired competences have been found important to facilitate cross border inter-firm knowledge transfers (Liu et al., 2015). Experiencing other cultural settings and international environments reduces institutional distance barriers between firms embedded in different contexts and geographical locations (Boschma, 2005; Grillitsch and Chaminade, 2018; Martin et al., 2018).

Since returnees have shown to influence positively, both process of internationalization and innovation, assuming often a key role in the organisations, we expect that those resources are key also for favouring firms' engagement in international networks for innovation. We expect that this

is particular key for SMEs which might not have the same organisational and structured resources of large firms to dedicate to those specific activities.

2.2 Importance of engaging in GIN for high tech Chinese SMEs

In the last decade we have witnessed an increased number of innovations lead by firms in emerging economies, such as China (Chattopadhyay et al., 2012; Corsi et al., 2015). Innovation is today an activity that also SMEs (and not only MNCs) in dynamic sectors are pursuing (Prahalad, 2006). In the high-tech sectors targeted by government policy interventions, also Chinese SMEs are involved to sustain indigenous innovation and societal advancement (Liu et al., 2017; State Council, 2016). Therefore, many high tech SMEs dedicate some activities to pursue innovation since their foundation. They are also selected by domestic customers (particularly in the public sphere) on the basis of their innovation capabilities (Plechero et al., 2017).

Networks relations for SMEs are essential (Lasagni, 2012), but when those firms are located in emerging economies, local knowledge linkages may not be sufficient to sustain long term competition (Plechero and Chaminade, 2016). Different empirical analyses have indeed demonstrated that participation of SMEs in GINs influences positively, their capabilities to reach high degree of innovation (Aslesen and Harirchi, 2015; Barnard and Chaminade, 2017; Fitjar and Rodriguez-Pose 2013; Plechero and Chaminade, 2016). Those contributions show also that the participation in GINs by SMEs is more evident in high tech sectors with respect to traditional sectors.

2.3 The importance of personal relations for sustaining SMEs' engagement in GIN

Engaging in GIN for SMEs – even if belonging to high tech sectors where a certain amount of codified knowledge flow is available – it is generally more difficult and costly than for larger firms. It requires capital and dedicated human resources (HR) that can complement geographical distances with certain organisational and cognitive proximities (Boschma, 2005; Davenport, 2005; Fitjar and Rodríguez-Pose, 2014). Social and relational proximities, which diminish institutional distance, can also compensate for the lack of geographical proximity (Gertler, 2008; Mattes, 2012). Recently some studies have shown that leveraging social connections based on personal-level ties (i.e. friendships, family relations, and acquaintanceships) may facilitate SMEs' internationalization processes and make them spread globally more easily (Lorenzen and Mudambi, 2015; Zain and Ng, 2006). Personal contacts based on informal relations also facilitate small companies in developing foreign direct investments and establish some economic and social networks in the host regions (Qiu, 2005). Moreover, in SME personal-level ties, held by employees as well as managers have been demonstrated to be important both for the acquisition of knowledge and for diffusing innovation (Ceci and Iubatti 2012; Kaufman and Todtling, 2002). We expect that this is valid not only for building close interactions, but for long distance interactions (Ellis, 2011). The idea is that mobility of returnees and skilled migrants and the social networks they could establish at international levels could buffer in SMEs the negative effects of high transaction costs in overcoming geographical barriers, as well as the lack of other internal structured figures that should act as interface for creating international contacts aimed at acquire or exploit international knowledge.

3 Method

Due to the difficulties of using conventional indicators to capture the role of individuals in sustaining the engagement of SMEs in GINs, we used some primary interviews conducted in March

2016 in Beijing to 19 SMEs in the field of IT and New Media. The semi-structured interviews with open questions have been conducted in the framework of an international research project (Wallenberg project) with the aim to grasp in a global comparative perspective both how and why firms in different locations (i.e. Beijing, Bangalore but also Oslo in Norway and Scania region in Sweden) engage in GINs. The questions included in the interview were divided into four sections: the firm's innovation, the way firm acquires external knowledge and at which geographical level, the role of the regional innovation ecosystem in supporting innovation and internationalization, and the background information of the case firm. The aim of the interviews was not specifically at expounding our understanding of the role of returnees and migrants in GINs, but the data gathered and the open questions allowed us to disentangle particularly this aspect for the Beijing region. The qualitative approach that we use is to *'seek to establish the meaning of a phenomenon from the views of participants'* (Creswell, 2013). Therefore, the construction of the case is built from the perspectives of participants on themes not only presented by the researchers but emerged during the interviews.

For the identification of cases, local partners from University of Chinese Academy of Sciences <http://englishucas.ac.cn/> assisted in detecting the companies in relation to the sector (new media industry and related IT services) and size criteria (small and medium enterprises). All interviews lasted around one hour and have been conducted with firm representatives who could had a thorough understanding of the innovation activities of the firm. All interviews have been recorded and later transcribed and coded. NVivo software was used by one of the researcher to remark and highlight the essential information in the interviews. Individual international linkages have been generated as the main category, in which keywords 'international students', 'foreign employees', and 'work abroad before' have been identified. Other key words have been coded in relation to companies background, reason for firms to engage in GINs and how firms engaged in

GINs. Results have been checked by other researchers participating in the interviews which have also read all the transcriptions³. All information gathered from the interviews are treated confidentially and therefore cases are mentioned in this paper with codes (CF1, CF2...CF19).

4 Findings

4.1 GINs for knowledge sourcing

To understand the role of returnees and highly skilled talents for the selected high-tech SMEs in GINs it is necessary to provide a brief description of the targeted market and the type of knowledge that interviewed firms have been considered key for their innovation activities. In terms of market share, only two companies have indeed some small market share abroad. One (CF6) has 20% of market share in US (but this also includes revenues generated from US MNCs in Beijing), another firm (CF16) has a 5% in Southeast Asia and Africa. The rest of the companies are concentrated in sustaining the domestic market. Few firms (CF7, CF13, CF14, CF15) have detailed future plans to exploit markets overseas. This confirms the findings of other studies (e.g. Guan et al, 2009; Plechero and Chaminade, 2013) which show how Chinese firms, have for now a lower tendency of exploiting their innovation globally. In Beijing, the reason for that is also that strong public incentives over the last few years have been provided for those who aim to sustain the growth of the national industry and the high tech sectors; which are specifically targeted in the capital by government policy (Dennis Wei, 2007; Liu et al., 2017; Liu and Peng, 2015). The plans for indigenous growth include not only the IT sector but the new media sector since it is a related sector, particularly important in sustaining some key societal targeted challenges through digitalization processes (Plechero et al., 2017). Building National New Media Base has been listed

into Beijing's policy to promote new media on the basis of 13th Five-Year Plan (2016-2020) (Beijing Municipality Website, 2016).

In terms of knowledge needed for innovation, most of the interviewees stressed the relevance of combinatorial knowledge and in particular both scientific and engineering knowledge with respect, for example, knowledge of more symbolic, managerial or commercial nature. This provides an important insight on the types of external knowledge linkages that could be traced as key for sustaining innovation activities of those SMEs. Indeed, the main focus on scientific and engineering knowledge (the latter based often on interrelation between scientific and technological aspects) may offer a good explanation of the firms needs that have been clearly detected during the interviews: establish international knowledge linkages to support mainly technological and scientific upgrading. From the interviews, pressure from the local market and limited knowledge capabilities and resources in the region were revealed by the case firms among the main reasons for going global to acquire those types of knowledge. Case CF10 and CF8 are two illustrative examples in this respect:

'The [domestic] customers know there are some foreign technologies, they're very interested. They want us help them to... to buy it or to know some information about that' (Source: interview on CF10).

'I have to admit that some core business of our company and its core theory is foreign product, so it will have its own birthplace or original place. And about the other aspect of our technology, about knowledge, it originally comes from the western world, so in fact we have to gain information from a global perspective' (Source: interview on CF8).

Due to the fact that most of the investigated firms are operating at their early stage, solid and formal linkages at international levels aiming at collaborating for research and development activities are still limited⁴. GINs are therefore principally related to some knowledge sourcing activities. One of the few exceptions is CF6, which is a Chinese distributor for an important global technological leader. In this company active and more formal international collaborations for local co-development of the products have been detected.

4.2 The role of personal connections in GINs

The role that individuals with international experience or backgrounds have played in sustaining the above described international linkages for the investigated companies is of significance. 15 case firms out of 19 case firms (CF1, CF2, CF3, CF4, CF5, CF7, CF8, CF10, CF11, CF13, CF14, CF15, C16, C17, C19) hold human resources with those characteristics. This means that around 80% of firms have within the internal team the possibility to leverage international cultural settings and cognitive proximity that some human resources have been already experiencing.

The interviews reveal in particular the international knowledge linkages for 14 cases have been favoured by the use of personal international connections (see table 1). In analysing those personal connections, we observe that are mainly related to the role specifically played by returnees and highly skilled migrants.

Table 1 below provides an overview of those types of individuals, indicating also their role as CEO or founder of the company. We identified 3 types of human resources: former students with overseas study experience, individuals with work experience at an international company, and employees of foreign origins working at the Chinese companies. Those individuals have specific roles in supporting GINs: bringing the company into pre-existing international knowledge linkages

and favouring new knowledge linkages. Their roles will be discussed in the next two subsections 4.2.1 and 4.2.2.

Table 1 Human Resources in Case Firms

	CF 1	CF 2	CF 3	C F 4	C F 5	C F 6	C F 7	C F 8	C F 9	C F 10	C F 11	C F 12	C F 13	C F 14	C F 15	C F 16	C F 17	C F 18	C F 19
Personal connections favoring international linkages	X	X	X	X	X		X	X		X	X		X	X	X	X			X
HR with study experience abroad	X	X		X			X	X		X	X		X	X	X	X	X		X
HR with previous work experience abroad		X			X		X	X			X		X	X	X				
HR of foreign origins			X				X	X			X				X				
CEO/founder with international work or study experience	X	X									X		X	X	X				

Source: data based on the analysed interviews. X indicates that a presence of those individuals has been detected.

4.2 .1 Bringing the company into pre-existing international knowledge linkages

China has the largest number of international students in the world and this number is constantly growing (National Bureau of Statistics PRC, 2017). In Beijing the number of foreign students that are moving abroad to gain international study experience is also increasing yearly.

The case firms mirror this trend. Thirteen of the firm cases analysed with the software Nvivo have within the company those resources. This means that in almost 70% of the companies there are members of staff (which includes in different cases the entrepreneur or the CEO) with international education. From the analysis of the interviews, it emerged that those overseas students who returned to China, tended to maintain their international knowledge linkages with former

classmates, professors, and any other individuals part of their former university networks bringing those linkages to the companies. More than one firm stated the way some of those individuals keep in touch with those former classmates or professors to consult. An interviewee of CF4 in answering a question on how the organisation builds international knowledge linkages, stated how a role is played by employees who have graduated from prestigious universities in US and Canada (i.e. MIT and York University). In CF11 an interviewee stated: *'Now, we have classmates in Taiwan [...] so, my classmates connect to me to as our resources and then, I find who is the best'*.

In relation to former classmates one of the founders of the company CF1 stated that in relation to technical work of more scientific nature he could count on personal contacts with other former PhD students and colleagues. Those relations have been built during his former study period in Europe. He specifically declared, *'Sometimes I call them sometimes I talk to them on the Internet on IM software...'* .

In CF13 relations have been established with previous foreign professors: *'my idea is coming from my education background... My previous supervisors and the other professors, are very supportive for my company'*.

Many of those linkages (as also in case CF15) played particular key roles in sourcing scientific knowledge. In a case (CF11) the benefit effect of previous knowledge linkages to support the company in GINs has been also indirect since it is related to the foreign background of partners: *'Some of... a lot of the partners who have studied in UK... UK and so, we can connect to UK. They are working on the cognitive research.'*

This illustrates how personal ties represents the specific way, in the investigated SMEs that returnees and highly skilled migrants have, to sustain firms engagement in GINs. This allows firms to benefit of some networks for their innovation activities without the need to dispose of strong

organisational structures or the necessity to establish formal collaborations, for example, with international universities.

In addition to overseas study experience, former work experience at international company, which some of the employees or the same CEO or founder have previously done, shows as well to have offered companies a way to tap into previous established international knowledge linkages. One firm (CF5) offered an example of how the company could benefit from an employee with an international experience. In this specific case the employees former working experience has brought to the company an important link to an international partner resulting key for their innovation processes: *'For example, very practical, we have a partner who is from Hulu and he helped us a lot, because his technique is excellent and he is good at all kinds of aspects'*.

The collaboration between CF2 and a German partner company aimed at obtaining technical advice and services is originated from the personal work connections between two CEOs: *'the CEO of our company and the CEO of German company used to work at the same place, so it has historical root. They have already had a really close relationship'*.

Case firms CF13, CF14, and CF15 represent three cases of companies settled down by 'the new Argonauts' in which previous contacts are key for the company. In particular, the CEO of CF13 after obtaining his PhD in US, and having worked abroad for 3 years, started in Beijing his innovative company. The founder's former international experience has been key for developing their own original product in the domestic market: *'.... and for the Chinese part, they also don't have such a product yet, so that's why we are the first one to really created such a [Name] methodologies, and, the product'* .

The two co-founders of CF15 had different years of work experience abroad (particularly in the US). According to one of the founders interviewed the pre-existing international linkages

they hold with former colleagues and companies sustained their ability to tap into GINs for knowledge sourcing and to start thinking about future global international market exploitation.

In the specific case of CF14 the founder had international work experience in a world's leading company (the current CTO of the firm in the case was also employed there). When the interview has been conducted the founder showed a clear intention to establish a linked start up in Seattle, taking advantages of contacts previously established with former colleagues.

The analysis of those cases illustrate that firms with HR having international experience have tapped into international linkages to gain linkages for different purposes: technology, skill, and technical know-how and to a minor extent also to develop relations for planning later one more structured collaborations or to have the possibility to exploit a foreign market.

As an emerging economy, China attracts not only international companies, but also international talents. From their own international background, foreign employees could also bring in their international knowledge and connections firms' engagement in GINs. Foreign employees can be found in 5 of case firms (CF3, CF7, CF8, CF11, and CF15). In case CF3 and CF15 those employees are Chinese with foreign nationality while in the case of CF11's the overseas employee comes from Taiwan.

Unfortunately, during the interviews there was not be the possibility to discuss too much in detail the role that those employees have played specifically in GINs. In the case of CF7 and CF8 foreign employees have contributed to the innovation mainly by their foreign background, but no other information about the relation with some innovation linkages in foreign locations have been given in this respect. In the case of CF7 the two foreign employees (one from Europe and one from Africa) were helping the company to sustain the virtual business in the international market.

In the case of the firm CF8 some former foreign employees of the CEO continue to have a role in bringing the company into previous linkages. While discussing some international knowledge linkages of the company the CEO stated:

'We had office in the United States. It was located in [Name]. In [Name] we also had an office. After 2007, we closed those two offices and returned back to China, but at the same time, there are still our foreign employees in [Name].'

Indeed, in the same locations the firm today has important connections for sustaining its own engineering activities in the domestic market.

Thanks to the presence of different typologies of human resources (HR with overseas study experience, HR with work experience at international company, and HR with own international background) the analysed companies show to have taken advantage of individuals networks for engaging in international knowledge sourcing. This is particular evident for the companies with some of those HR in leading position. While HR with overseas study experiences had mainly a bridging role for helping the firms with international knowledge sourcing of more scientific nature, the second type of HR had mainly a bridging role for a wider range of international technology, skill, and know-how which are relevant for innovation (including also some managerial practices as in the case CF14 and CF8).

For the third type of HR, their role as bridge for the involvement in international knowledge sourcing is not so clearly delineated and it seems less key. However, in the mentioned cases we could detect some roles of those employees in sustaining also indirectly or virtually the possible engagement of the company in simple forms of GINs.

4.2.2 Building new international linkages

From the analysis of the interviews the role of those typologies of returnees and highly skilled migrants is not only the ones related to bring the firm into pre-existing international linkages. Some of the detected individuals may assume a role for sustaining new international linkages and the firm engagement in potential new networks for innovation. Establishing new relations is possible only if individuals have the strategic know how in detecting those networks and have at the same time the possibility to act for taking advantages of those new international contacts. From the interviews and in particular from the analysis of firm cases CF10 and CF11 and CF14, it emerges that those who have a managerial position takes advantage when participating in international conferences and fairs for establishing new international contacts. In the case of CF11 the initiatives in joining international conferences and fairs to build new connections are taken by the CEO of the company, which in the past had some international experience acquired by visiting foreign universities. During the interview he explained how some new relations with professors from Europe can be built by inviting them to join the conferences in which he participates. Referring explicitly to a new contact established with a German professor he states:

‘For the Germany professor [...] I know they do the [Name] engineering very well. I did not know him before.... I sent an email, ask him to attend to the conference, can to connect with him.’

The founder of the CF14 in answering the question related to understanding how the company sources for new technology/ product innovation stated that one of the way is to attend international conferences:

‘We attend often, it is an international platform that connects global innovators, firms, industry professionals and high-tech enthusiasts. We also attend another

international conference, that was created in 2008 and is aimed to build connections and trust among mobile industry leaders and innovators globally.'

In the case of CF13 the interviewed who studied and worked abroad stated *'I know several top level software testing conferences, and so, I search the people there'*.

In some cases, we observed that firms created some global connections using the Internet. The engagement in virtual GINs by joining international technology forums or acquiring online databases from international websites or accessing library platforms for scientific publications can be also favoured by a more international background that returnees or highly skilled individuals that have studied or experienced activities abroad have acquired. Indeed, an international background may reduce cognitive and cultural distance (Boschma, 2005) that can affect how knowledge (also of codified nature) is understood and operatively conveyed. International background can be key, for example, for understanding which virtual channels are recognized internationally as the best to get proper information on global accepted standards or information on the most promising cutting-edge technologies.

In the case firm CF15 the chief scientist with international experience mentioned that international conferences are key not only to remain updated about the state of art in his field, but to understand who are the 'influential minds' to follow, also virtually: *'I don't have to go there. I just look at the website, download their papers and go through them. That's kind of enough'*. The same chief scientist is the one participating in the online technological forum. Also, in the case of CF14 both CTO and CEO with international foreign experiences are those directly involved in using virtual channels for global connections.

4. Conclusions

The paper contributes to the current research on SMEs as participants in GINs. It explores the specific role of returnees and highly skilled migrants in high tech SMEs belonging to the IT and new media sector to sustain the engagement of the firms in GINs, providing details on how those individuals establish new contacts at global level and bring in former international knowledge linkages. SMEs with respect to large firms have more difficulties to dispose of internal resources and structured activities dedicated specifically to innovation and internationalization. The connections and networks that individuals have on personal level may therefore be conducive for building international knowledge linkages specifically related to sustain innovation activities which result of the strategic nature in high tech sectors.

The cases show that Chinese high-tech SMEs may leverage personal networks for sustaining international knowledge linkages through three different types of human resource profiles: HR with overseas study experience, HR with work experience at international company, and HR holding an international background.

Most of the global linkages we could identify are mainly linked and limited to some international knowledge sourcing of technological and scientific nature. Nevertheless, the leading role that some of the returnees have in the company allows us to see the potential of the personal international connections they hold to support in later stages, more structured collaboration or specific alliances in foreign locations. Once companies have reached a more mature development phase of the innovation process in the domestic market those linkages may result key for facilitating the companies embeddedness in more sophisticated global networks.

The paper attempts to fill different gaps in the literature. On the one hand, for what it concerns GIN literature until now empirical investigations have been conducted by international business scholars and economic geographers with some limitations. The former have mainly focused the attention on GINs developed by MNCs. The latter have dedicated more attention to

SMEs, but the focus has been the regional and institutional conditions and the interplay of those conditions with some firms' micro determinants in favouring firms' engagement in GINs, underestimating the role played by single individuals (Barnard and Chaminade, 2017; Plechero and Chaminade, 2013). On the other hand, literature on mobility of human resources has so far concentrated research on the role that returnees and highly skilled migrants play in sustaining new business and firms' innovation performances in the country or region of origin or destination, but not in sustaining the global linkages themselves.

In terms of policy implications, this study highlights the strategic role of returnees and highly skilled migrants in supporting SMEs engagement in GINs related to knowledge sourcing. To exploit the full potential for GINs a more structured role of those individuals as interface figures should be promoted and policy tools should be directed in supporting training activities for those potential interface figures.

This study has some limitations particularly linked to the method it applies. The empirical investigation is based on a limited number of cases of innovative firms in IT and new media industry in Beijing, therefore we cannot make claims with regard to the generic value of the findings in relation to non-innovative SMEs or SMEs in other more traditional sectors. The same analysis conducted in other locations for the same sectors sustains anyway the peculiarity of Beijing high tech SMEs in the role that those resources are playing in GINs. Future research is needed to investigate in-depth the role that Chinese returnees might play for more active and sophisticated forms of involvement in global networks or when firms have already reached mature stages of development of their innovation in the domestic market and would like to explore overseas market and new fruitful collaboration.

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Notes

¹ GIN can be defined as '*globally organized web of collaborative interactions between different organisations (firms and/or non-firm organisations) engaged in knowledge production related to and resulting in innovation*' (Barnard and Chaminade, 2017).

² Literature considers returnees those individuals who have been studied abroad and returned home as well as who after the study has also worked abroad before to return and run own company (Kenney et al., 2013, p. 395). In this paper we consider both cases and we include the analysis also of highly skilled migrants intended here as Chinese with even short international work experience abroad or foreign workers employed in Chinese firms that have high educational background or in general with high professional skills.

³ As suggested by Denzin (2006) triangulation of information has been applied to enhance trustworthiness of the funding. Beside comparing different point of views of results, different data sources, such as online reports and websites of the case firms have been checked. Throughout the process of data collection, at least two researchers were participated in the entire interviews to make sure also investigator triangulation.

⁴ National linkages have been mainly established with targeted local customers and research organisations and universities. Also in this latter case many linkages have been established at informal or personal level, through direct contacts with professors at universities or with government agents.