



Universiteit Leiden

ICT in Business

Cross-Border Innovation Intermediary: Insights from Institutional Perspective

Name: Michael Kaldenbach
Student-no: s1192485

Date: 25/07/2013

1st supervisor: Prof. Bernhard Katzy
2nd supervisor: Prof. XiaoFeng Ma

MASTER'S THESIS

Leiden Institute of Advanced Computer Science (LIACS)
Leiden University
Niels Bohrweg 1
2333 CA Leiden
The Netherlands

Table of Contents

Authors.....	2
Abstract.....	3
Introduction.....	3
Institutional Environment Influence Cross-border Innovation Intermediary.....	4
Research method.....	6
Research Findings.....	6
Discussion.....	9
Conclusion.....	11
Bibliography.....	12

Authors

Xiaofeng Ma (corresponding author)

College of Electronics and Information Engineering, Tongji University, Shanghai, China, Room 629, Dian-Xing-Building, College of Electronics and Information Engineering, Tongji-Jiading Campus, Cao-An road 4800, Jiading District, 201804, Shanghai, P.R.China,
Email: xiaofengma@tongji.edu.cn, Tel: +86 (0)21 69589338

Xiaofeng Ma is associate professor for technology and innovation management at Tongji University, Shanghai, China. He holds a PhD in technology and innovation management from Leiden University. His research interest is about international techno-entrepreneurship and ICT enabled intelligent decision making system. He is an advisor to the Beijing business incubator association and advisor to Sino-Finnish ICT strategic alliance.

Michael Kaldenbach

Leiden Institute of Advanced Computer Science, Leiden University, Leiden, the Netherlands, Email: m.kaldenbach@gmail.com

Michael Kaldenbach is a master student at the Leiden University following the program ICT in Business. Before joining the master program he obtained a bachelor degree in computer science from the Rotterdam School of Applied Science. He is especially interested in the field of Innovation and Entrepreneurship and is slated to continue his career at Royal Dutch Shell PLC.

Bernhard R. Katzy

CeTIM, University BW München, Werner Heisenberg-Weg 39, 88559 Neubiberg, Germany, Email: prof.katzy@cetim.org

Bernhard R. Katzy started his professional career with an apprenticeship as a car mechanic and later earned Master of Science degrees in electrical engineering and business management. He holds a PhD in industrial management from University of Technology (RWTH) Aachen in Germany and a second PhD (habilitation) in management from University of St Gallen, Switzerland. He is professor for technology and innovation management at University BW Munich and Leiden University and founder and director of CeTIM – Center for Technology and Innovation Management. His research interest is about entrepreneurial management of fast growing high-tech firms and the management of strategic change in the transition to the information age.

Abstract

This is an exploratory empirical study about how distant institutional environments influence cross-border collaborative innovation and innovation intermediation. 18 cross-border collaboration cases between Western and Chinese SMEs are studied. This study provides a detailed analysis from empirical data about which institutional forces greatly impact cross-border collaboration innovation outcome and how they function during the collaboration process. The identified institutional forces include: lack of factual data, fragmented government, regulated market, policy difference, IPR protection, language, culture and guanxi. The second contribution is that effective ways of mitigating and managing cross-border contradictory institutional forces are identified and discussed, which is inspiring and useful for cross-border innovation intermediation.

Keywords: Innovation Intermediary, Institutional Environment, Collaborative Innovation, China, SMEs

Introduction

Innovation intermediary has been recognized as a critical role for mediating and supporting collaborative innovation, especially for small and medium sized enterprises (SMEs) in complex institutional environments (Howells 2006; Katzy, Turgut, and Holzmann 2013; S. Lee et al. 2010; Klerkx and Leeuwis 2008). In this study, we adopt the working definition of innovation intermediary as: “An organization or body that acts as an agent or broker in any aspect of the innovation process between two or more parties” (Howells 2006: 720).

Existing innovation intermediary research mainly aimed at understanding innovation intermediary functionalities and internal capabilities to coordinate bilateral and/or multi-lateral collaboration. Discussion on the role and functions of innovation intermediaries has concentrated on various fields (Howells 2006; Roxas, Piroli, and Sorrentino 2011; Katzy, Turgut, and Holzmann 2013; Xiaoyuan and Yanning 2011; Klerkx and Leeuwis 2008; Lopez-vega and Vanhaverbeke 2010). For example, Howells (2006) developed a typology and framework of the different roles and functions of the intermediation process, which lays a foundation for deriving specific intermediary functions in different industrial sectors (e.g. Klerkx and Leeuwis 2008; Alexander and Martin 2013 etc.). Katzy and others (2013) have identified three strategic capabilities of innovation intermediation. Clausen’s (2011) study reveals that public incubator can act as open innovation intermediary to facilitate knowledge and technology transfer.

Cross-border collaborative innovation partnership benefit involved parties (Vasudeva, Spencer, and Teegen 2013) as these are more likely to provide access to complementary resources (Abdi and Aulakh 2012; Morosini, Shane, and Singh 2007), contribute to the development of organizational capabilities and learning (Bartlett and Ghoshal 1989; Hitt, Hoskisson, and Kim 1997), facilitate entry into new markets (Kogut and Singh 1988), reduce the organizational risk (Kim, Hwang, and Burgers 1993), and bridge the structural holes across the nationally bounded inter-firm networks (Burt 1992) etc.

However, those collaborative partners typically are from institutionally distant environments. The institutional environment lays down a set of fundamental political, social, and legal ground rules that establish the basic structure within which its members can cooperate (Davis and North 1970). Despite the benefits accrued from cross-border collaborative innovation, inter-firm relationships among partners from institutionally distant environments naturally lack support of local institutional frameworks, and therefore face diversified cooperation governance challenges (Park and Ungson 1997; Cartwright 1993).

Little extant research is on understanding how institutional distant environments can be mitigated by innovation intermediary to improve such collaboration performance. Zaheer and Zaheer (2006) points out that collaboration partners from different countries are likely to bring asymmetric conceptions of trust to the business relationship because the institutional implication for understanding business behaviour can vary across different national contexts. Yaibuathet and others’ (Yaibuathet, Enkawa, and Suzuki 2008) findings indicate that the institutional environment play important roles in international collaboration performance and distant institutional environment is one of the main obstacle for collaboration performance.

The focus of this study is on intermediaries facilitating cross-border collaborative innovation between western and Chinese SMEs. This type of collaboration has been increasing a lot recently (Table 1 National Bureau of Statistics of China 2012). Doing business in China comes with unique

challenges and barriers (C. Su and Littlefield 2001; Weldon and Vanhonacker 1999; Xu, Bower, and Smith 2005) considering the institutional environment and culture difference. SMEs typically face more challenges than large corporation as they lack resources and networks (Eisenhardt and Schoonhoven 1996; Das and Teng 2000). Meanwhile, China's institutional environment is far distant from Western society's institutional environment from a legal, political and social perspective (Child, Chung, and Davies 2003; Cai, Jun, and Yang 2010). Hence a common practice for foreign SMEs to do business in China is to collaborate with local partners (Xu, Bower, and Smith 2005), which leads to the emergence of innovation intermediary agency aiming at promoting China-Western SMEs collaboration, e.g. incubators, science parks, chambers of commerce and consulting companies.

Table 1. Foreign invested enterprises in China

Year	Number of Registered Enterprises (household)	Total Investment (USD 100 million)
2007	406442	21088
2008	434937	23241
2009	434248	25000
2010	445244	27059
2011	446487	29931

The objective of this study is to identify those institutional forces influencing Western and Chinese SMEs collaborative innovation outcome. 18 empirical cases in the Shanghai and Beijing region have been investigated to support this study. The remaining sections of this article are structured as follows. The next section covers the literature concerning institutional environment influence in cross-border innovation intermediaries. It is followed by a section concerning the research methodology. The fourth section summarizes the key findings of this study which is base for the subsequent discussion section. The final section is the conclusion and limitations of the research.

Institutional Environment Influence Cross-border Innovation Intermediary

Innovation intermediation is critical for collaborative innovation and open innovation (Howells 2006; Katzy, Turgut, and Holzmann 2013; S. Lee et al. 2010; Alexander and Martin 2013). From a new institutional economics perspective, intermediation is a way to minimize asymmetric information in the market (Spulber 1999). It has become a public priority to support SMEs, which typically lack sufficient resources, to increase competitiveness through collaborative innovation facilitated by an innovation intermediary. E.g. incubators, technology transfer centres, etc. (S. Lee et al. 2010; Xiaoyuan and Yanning 2011). Innovation intermediary research suggests that firm-specific internal functions and capabilities are central in explaining innovation intermediation results (Howells 2006; Katzy, Turgut, and Holzmann 2013).

Howells (2006) summarizes the types of functions an innovation intermediary should have in order to support SMEs looking for partners: 'foresight and diagnostics', 'scanning and information processing', 'knowledge processing and combination/recombination', 'gatekeeping and brokering', 'testing and validation', 'accreditation', 'validation and regulation', 'protecting the results', 'commercialization and evaluation of outcomes'. Katzy and others' (2013) study identifies matchmaking and innovation process design, management of collaborative projects, project valuation and portfolio management as three strategic capabilities of innovation intermediary. Klerkx's (2008) study reveals that in the context of supporting agricultural SMEs, the main functions of innovation intermediary can be labelled as 'demand articulation', 'network brokerage' and 'innovation process management'.

Besides internal functions and capabilities, mediating cross-border partnering poses new challenges for innovation intermediaries as they normally face at least two different institutional environments. This leads to additional difficulties in governance (Wang et al. 2012). Institutions are the "rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction" (North 1990). The different institutional environments create uncertainty and ambiguity among involved partners because institutional forces facilitate or constrain a firm's behaviour (Luo, Xue, and Han 2010; Peng and Deeds 2008). Company's strategic decisions may also be a consequence of, or response to, the diversified constraint of a specific institutional framework in which a firm is embedded (Scott 1995; Lau, Tse, and Zhou 2002). This implies that a company should take into consideration not only the role of internal resource and/or capabilities, but also the institution influence for their cross-border collaboration decisions (Peng 2002).

Institutional theory has gained wide adoption as a means to explain firm's behaviour across

countries (Wu, Lawler, and Yi 2008). One of commonly used methods in the institutional studies is the institutional economic approach (Hirsch and Lounsbury 1997; Scott 1992). In this approach, an institution framework is composed of a set of political, social, and legal rules (North 1990; Roy 1997). Prior studies have identified a number of different institutional forces in cross-country setting (Yaibuathet, Enkawa, and Suzuki 2008), and unique institutional forces which can dominate in certain countries (Child, Chung, and Davies 2003). For example, Karrakot and others (2008) indicate certain institutional forces unfold differently in Japan, China and Thailand. Lane (1997) shows that trade associations, legal regulations, and technical standards result in greater inter-firm collaboration in Germany than in Britain. Therefore, findings from an institutional analysis of one country cannot be generalized to the setting of another country without the support of empirical evidence (Cai, Jun, and Yang 2010).

It is admitted that China's institutional environment is unique and different with Western developed countries (Child, Chung, and Davies 2003). Several research propose certain Chinese institutional environment impacting inter-firm relationships and transactions (Cai, Jun, and Yang 2010; Q. Su, Shi, and Lai 2008). For example, Cai (2010) has identified three major institutional forces that reflect the characteristics of China's institutional environment, including: legal protection, government support, and importance of Guanxi. Su (2008) suggests other institutional framework: the economic institution of China and the world, the history and culture institution, and the organization & management Institution.

It is also important to recognize that effects of certain institutional forces may vary in different geographical regions in China (Coulson and Tang 2013). As a consequence, Chinese firms may be subject to different types and levels of institutional forces (Cai, Jun, and Yang 2010). There are diversified regional policies implemented by local governments in China (Child and Tse 2001; Cai, Jun, and Yang 2010). Central and local governments also have different governmental policies supporting firms in specific industries. Existing research shows that regulatory compliance also varies greatly across regions in China (Child and Tse 2001). As a geographically vast nation, China displays significant differences across regional cultures (Cui 2009; Yuval Atsmon, Ari Kertesz 2011). Culture is regarded as a key component and driving force of institutional environments (Lau, Tse, and Zhou 2002; Wu, Lawler, and Yi 2008) as traditional values and practices are embedded in a country's social and economic institutions (Fey et al. 2009).

One of the most important characteristics of Chinese culture is guanxi (interpersonal relationships), which affects firms' business decisions and behaviours (D.-J. Lee, Pae, and Wong 2001; Luk et al. 2008; Park and Luo 2001). The term 'guanxi' refers to social networks of informal, personal relationships and exchanges of favours that dominate business activities throughout China (Lovett, Simmons, and Kali 1999). Persons and firms in a guanxi network are committed to one another by social norms of reciprocal and social obligations (D.-J. Lee, Pae, and Wong 2001; Park and Luo 2001). Through these networks, firms can obtain information from government officials and other sources (Luk et al. 2008). The significant and imbalanced development of Chinese society in the past decades has altered the importance of guanxi for inter-firm business activities to some extent, depending on the regions, industry sectors, and ownership of the firm (Park and Luo 2001; Xin and Pearce 1996).

The legal institution is a common and important institutional aspect for both Western countries and China. It is well known that a strong and transparent regulatory institution reduces transaction uncertainty, lowers the costs of transaction and reputation building and increases trust in markets and contracts (Oxley and Yeung 2001). Research shows that China's legal system remains subject to interventions by both central and local governments (Child and Tse 2001). Compared with Western developed countries, China's legal system is neither transparent nor consistent across regions (Hsu, B. F., Arner, D., Wan, Q., & Wang 2005; Luo 2003). Thus firms may receive different legal treatment and protection depending on their location and relationship to governments (Cai, Jun, and Yang 2010).

The various levels of support from government greatly affect the firm's behaviours in China. The role of government refers to the extent to which governments affect a firm's decision making (Cai, Jun, and Yang 2010). In Western developed countries, governments exert their influence through established and transparent policies and regulations (normative rules). Chinese governments, especially local governments, often are directly involved in firms' decision making processes. The government provides various types and levels of support, such as financial aid, favourable policies, and reduced land-use fees (Luk et al. 2008; Thun 2006), depending on the firm's strategic importance to the local economy, and size, type and ownership of the firm.

The literature analysis shows that China's institutional environment is different from those of Western countries (Cai, Jun, and Yang 2010; Child, Chung, and Davies 2003; Lewin, Long, and Carroll 1999). Our study will further explore which institutional forces, categorized within legal, social

and governmental aspects, greatly influence cross-border innovation intermediation outcome. The study also aims at extracting how an innovation intermediary can manage the contradictory institutional forces embedded in the Chinese and Western institutional environment.

Research Method

This study looks at a complex problem from multiple perspectives in a specific locale which means there is a need for deep understanding, local contextualization, and causal inference. Therefore a qualitative research design was chosen (Miles and Huberman 1994). We performed 18 exploratory case studies in the People's Republic of China (Yin 2009). Our sample was chosen from active players that operate in the Beijing and Shanghai region. They were identified through personal networks and public events such as the China (Shanghai) International Technology Exchange Fair (Table 2).

Table 2. Interviewed Organization types

Unique Organizations type	
Western SME	3
Innovation Intermediary	8
Chinese SME	4
Western chamber of commerce in China	3

We combine two primary data collection methods: archives, and interviews. The archival includes internal reports, media articles, and news. Interviews have been conducted with active managers in a semi-structured fashion. The research is divided into three data gathering phases to identify the institutional forces from each unique perspective. In phase one, desktop research was conducted and the authors aim at understanding the phenomenon from both theoretical and practical perspective. Then a semi-structured questionnaire was designed and tested by two pilot cases. In phase two semi-structured interviews were held with intermediaries that facilitate the matchmaking process such as incubators and locally based foreign chambers of commerce. The interviews were held during the period of February 2013 to March 2013. Phase 3 consisted of semi-structured interviews with Chinese and Western SMEs that have participated in the matchmaking process in order to test and reflect the phase two findings. Phase 3 interviews were held in the period of April 2013 to May 2013.

We followed the data analysis steps described by Miles and Huberman (Miles and Huberman 1994). First we transcribed the interviews and consolidated them in an excel file. To reduce the data we coded text units with abstract terms into 3 categories (Enabler, Inhibitor and General). By displaying the data in list and charts we were able to identify underlying patterns by detecting unique terms and their respective frequency. Using the displayed data we were able to deduce the following observations. It is important to note that while the frequency of an occurrence does not indicate that a variable is of tantamount importance it can be used to identify patterns and clustered themes.

Research Findings

The research findings are analysed and classified using the three main institutional aspects mentioned in section two: government, legal and social aspects. Table 3 is an overview of identified institutional forces.

Institutional aspect	Government aspect	Legal aspect	Social aspect
Institutional force	Lack of factual data Fragmented government Regulated markets Policy difference	IPR Protection	Language Culture Guanxi

Table 3. Overview of findings

Government aspect

Institutional force: Lack of factual data

All the interviewees told us that the Chinese government is reluctant to share data with firms, which is different with western governments. Therefore organizations looking to collaborate with Chinese firms first have to ingratiate themselves into the personal network of potential partners in order to ascertain the feasibility of successful matchmaking. To facilitate this process intermediaries rely on industry experts that have cultivated the required personal network. These experts utilize their past experience, personal network and industry knowledge to match organizations with potential partners. The inherently unique but limited mental model creates a discrepancy of advice between experts. The question was posed to interviewed intermediaries what they would recommend as a location for a high tech company to set up a new business. The responses ranged from Chengdu, Suzhou to Shanghai and Beijing.

Institutional force: Regulated markets

Collaborative innovation is not always possible due to government regulated markets. For example, both the Western and Chinese governments are protective of, amongst others, their education, healthcare and geographical data industries. These industries are impenetrable for foreign entities or require high level government buy-in. Attempting to penetrate these markets can be quite a challenge as the difficulty begins at identifying who and what exactly the government is.

"The challenge was that we were too early for the required infrastructure but more importantly the education sector in China is heavily regulated."

– Western SME

"It doesn't matter from which industry you are coming except that the Chinese government does limit some industries with regard to who can come to China."

– Western chamber of commerce

"We have implemented a pre-matchmaking check in their procedures which identifies compatibility issues. For example certain industries are regulated by the government and therefore inaccessible for collaboration."

– Western chamber of commerce in China

Institutional force: Fragmented government

The government in China is fragmented into a multitude of agencies and regional headquarters which have been delegated a specific task. Typically they do not function in a coordinated way, which confuses western SMEs. A Western SME compared them to horses with blinders on their head.

"Everyone talks about the government, but who is the government? I don't know, we deal with 30 different entities and they are all from the government."

– Western SME

Due to the high level of autonomy afforded to regional governmental institutions, policies and incentive structures can differ between regions. Regional governments heavily influence business decisions through these incentive structures as they create and support clusters of specific organizations that suit their economic development plan. A chamber of commerce science attaché commented on a recent fact finding mission to Chengdu. He found that the regional high tech organization cluster offered impressive bonuses and conditions: a 0% income tax, automatic registration as a high tech organization etc... Chinese SMEs raised the similar comment.

"You have to be mindful that there are a lot of activities going on in emerging cities like Chengdu where you can get special benefits because they are trying to grow."

– Chinese SME

Institutional force: Policy Difference

Policies regulated by the government can have significant impact on the business environment and strategic decisions. An example is given by an interviewee about a current ongoing project. Their client runs a tire recycling business in Europe. Governments in Europe have mandated that car tires have to be separated from ordinary waste and processed separately. These policies lay at the foundation of the

recycling business as it affords them easy access to their primary resource. The company is looking to expand into China, however they found that there is no central government organization that collects the tires and there are no incentives to do so. This results in a much higher base price for used tires, almost as high as 5 times the price in Europe.

“This process is very successful in Europe but you cannot apply the same process here because the rules of the market are very different.”

- Intermediary

Legal Aspect

Institutional force: Intellectual Property Right (IPR) Protection

IPR protection is a great concern among the organizations interviewed during the case studies. 56% percent of the interviewees expressed their concern regarding intellectual property theft.

“[An] example with Technology transfer, where the price was set at 1 million dollars. The Chinese partner [refused] to buy the technology and pay the same amount every year. He decided to copy the technology instead.”

– Western chamber of commerce in China

“[The Chinese partner] also wanted develop themselves what we were offering, which posed a threat.”

– Western SME

However, intermediary organizations refute these statements and insist that great strides have been made in the recent decade with regard to IPR protection and the overall legal environment in China. Their response was that there are always ways to protect your core technology and alleviate your concerns. For example, one of the comments is that:

“We are working on a few deals where IP is part of the deal. [However] the very last generation of technology was kept by the European company and even though the Chinese company bought the majority of the company, they didn't get the latest [technology]”

- Intermediary

An interviewed intermediary shared his experience and recommended that western firms need to keep their core technology, and outsource other operational tasks in China to local Chinese partners. The interviewed Chinese SMEs have the same opinion as the intermediary.

“I think that if you want to do something in China you need to keep your core technology but you need to let the Chinese do the rest. A lot of European companies use their own employees [for their] activities which jeopardize the long term success.”

– Chinese SME

Social aspect

Institutional force: Language

Language difference is a significant force that all interviewees reflected on. SMEs and intermediaries typically use international interfaces and emphasis on bi-directional relationships to mitigate these forces.

“What one stakeholder thinks is correct might be interpreted differently by the other stakeholder [due to the misunderstanding of translated words and cultural influences]”

– Chinese SME

“We recruited someone in France who is actually Chinese and also has industry knowledge. So we can communicate with them in Chinese and the person in France can accurately communicate any problems to the client in their native language.”

– Intermediary

The language barriers in addition to European managers' unwillingness to adapt their business to Chinese local demand often impede the collaboration.

Institutional force: Culture

Cultural influences are not only applied on individual level but also on organizational level. Interviewed intermediaries often face difficulties in reconciling Western and Chinese management conflicts as their communication and behaviour are often heavily influenced by culture. Intermediary organizations noted that it is crucial to provide a buffer that translates the behaviour and communication to their respective cultural accepted norm.

"From my experience, European companies simply don't want to change and they use local examples in their home country to validate that it should work as well in China..."

-Chinese SME

"The problem in the case of the Western organization purchasing a share of the Chinese company was a conflict in management style. Chinese management style is very different and clashes with Western methodologies."

- Chinese SME

Institutional force: Guanxi

78% of the interviewees have indicated that they rely primarily on their personal network for collaboration, hiring personnel and staying up to date on industry developments. Another Western SME commented that Western firms should understand the market environment, having the right guy in one city might be more valuable than the best guy. 81% of the intermediary organizations counteracted this challenge through the use of teams comprised of industry experts. The function of these experts is to focus on a single industry and maintain a personal network in that respective industry through which they keep apprised of internal industry developments.

"It is important that you have the right relationships in China. If you want to start the company on your own odds are that it is not going to work."

- Intermediary

Trust is given implicitly to people who are part of the personal network while relations outside of the network are unable to establish a beachhead. Intermediary organizations offer services to counter this challenge by hosting cluster to cluster matchmaking events, whereby they utilize their own personal network as an access point for matchmaking. Through these services offered by the intermediary an initial point of contact can be established. However, intermediaries have warned that from the initial point of contact the matchmaking process can take between 3 to 5 months.

"We have already identified the biggest players in the Chinese market. But identifying them is not sufficient; you also need to establish personal relationships."

- Intermediary

Discussion

In this study, we set out to examine which different institutional forces in the institutional environments influence cross-border (Western and Chinese SMEs) collaborative innovation and the innovation intermediary performance. Our empirical results support the argument that distant institutional environments trigger additional governance challenges for cross-border collaborative innovation intermediation (Hitt, Hoskisson, and Kim 1997; Vasudeva, Spencer, and Teegeen 2013). Hence, by accounting for the influence of institutions, our study offers a deep and complete analytical understanding of cross-border innovation intermediation difficulties.

Our findings validate the view that IPR protection is an legal issue in cross-border collaborative innovation (56% the interviewees expressed their concern) (Child and Tse 2001; Cai, Jun, and Yang 2010). An interesting new empirical finding is that interviewed innovation intermediaries insist that China has been making great progress with regard to IPR protection. Their response is that there are always ways to protect Western firms' IPR (see Research Finding section). The intermediary's

confidence probably can be interpreted as: (1) China's legal environment has improved significantly these years; (2) Innovation intermediaries have gained abundant experience in dealing with these issues after years of practice in mediating such collaboration efforts; (3) These intermediaries are located in Shanghai and Beijing, which are the most advanced and international oriented cities in China.

The other result of this study is that Western firms find it difficult to collect factual data to support their decision making. China has a more closed institutional environment. Whereas Western governments promote the transparent availability of data, the Chinese government is rather reluctant to release data and information. Therefore western firms first have to ingratiate themselves into the personal network in order to ascertain the feasibility of successful collaboration. Intermediaries typically negate this challenge by relying on industry experts. These experts utilize their past experience, personal network and industry knowledge to match organizations with potential partners. However, without comprehensive data, this intermediation function can only reach limited cognitive competence (Williamson 2013) – often referred to as bounded rationality. Hence, it is not surprising that intermediaries may have totally different recommendations with regards to potential collaboration partners (see Research Findings section).

Our empirical results also indicate that regions in China offer unique benefits to attract certain types of organizations, which confirms the literature findings (Luk et al. 2008; Thun 2006). These regionalized incentive programs create a strong economic cluster formation trend. Herein lays the challenge as economic cluster formation relies on reaching the critical mass in order to be successful. This ties back to the previous findings as intermediaries facilitating matchmaking for organizations have to be aware of these localized incentive structures. Without access to this information reaching the critical mass is hampered and optimal collaboration matchmaking is impaired.

Our study strengthens that close social connections and *guanxi* is critical for cross-border innovation collaboration (D.-J. Lee, Pae, and Wong 2001; Luk et al. 2008; Park and Luo 2001). Close business relationships are often perceived as necessary for successful collaboration with Chinese partners as it allows access to limited resources, accessibility to controlled information and preferential treatment (Lovett, Simmons, and Kali 1999). Our findings further indicate it is not feasible to establish ad hoc collaborative projects as expected by western SMEs. Intermediaries host multiple meetings in which they attempt to build a foundation for trust and knowledge exchange between the collaboration partners. Cluster to Cluster meetings/forums organized by intermediary are gradually accepted as an effective starting point for exploring collaboration.

The empirical findings also suggest a feasible solution to solve challenges caused by different social institutions and cultures. A small starting project will function as a playground to learn how to adjust to the cultural and language differences while simultaneously building trust and establishing communication channels. Organizations can get acquainted with the difference in management styles and acquire an understanding on what needs to be done for long term collaboration. Smaller projects allow organizations to cultivate *guanxi* through reciprocal exchange of favors and mutual obligations (Lovett, Simmons, and Kali 1999).

Another recommendation is that SMEs should do a feasibility study before entering the market, because western SMEs underestimate the influence of a different market and institutional environment. Products and services must be adapted to the Chinese market and vice versa. Organizations that are ignorant of these factors and start a local presence to "educate" the market will have a large chance of failure. Several interviewed chambers of commerce therefore have implemented a pre-matchmaking check in their procedures which identifies compatibility issues.

In summary, our research adds a cross-border institutional dimension to existing innovation intermediary research. It also goes one step beyond conceptual work on cross-border institutional environment influence on international cooperation. The 18 explorative empirical cases generated some unique and deep analytical and empirical understanding on cross-border collaboration and innovation intermediation, which will naturally lead to a large quantitative study as planned.

Conclusion and limitation

This is an exploratory empirical study about how distant institutional environments influence cross-border collaborative innovation and innovation intermediation. The study setting is 18 cross-border collaboration cases between western and Chinese SMEs. The key contribution of this paper is that it provides a detailed analysis of which institutional forces greatly impact Western - Chinese SMEs collaboration innovation and how they function during the collaboration process. The second contribution is that the empirical findings indicate a tool box for innovation intermediaries to manage this complex cross-border collaboration process. The main limitation of this study is that it cannot generate statistical confirmation of these analytical findings; these will be addressed by a successive study. Furthermore the analysed case studies are focussed in specific geographical regions in China, namely Shanghai and Beijing. These are the most advanced and international oriented cities in China and not necessarily representative for the whole of China.

Bibliography

- Abdi, Majid, and Preet S Aulakh. 2012. "Do Country-level Institutional Frameworks and Interfirm Governance Arrangements Substitute or Complement in International Business Relationships?" *Journal of International Business Studies* 43 (5) (May 10): 477–497.
- Alexander, Allen T, and Dominique Philippe Martin. 2013. "Intermediaries for Open Innovation: A Competence-based Comparison of Knowledge Transfer Offices Practices." *Technological Forecasting and Social Change* 80 (1): 38–49.
- Bartlett, Christopher A, and Sumantra Ghoshal. 1989. *Managing Across Borders The Transnational Solution*. Harvard Business School Press Books. Vol. 16. Harvard Business School Press.
- Burt, Ronald S. 1992. "Social Structure of Competition." In *Structural Holes The Social Structure of Competition*, 1–49. Harvard University Press.
- Cai, Shaohan, Minjoon Jun, and Zhilin Yang. 2010. "Implementing Supply Chain Information Integration in China: The Role of Institutional Forces and Trust." *Journal of Operations Management* 28 (3): 257–268.
- Cartwright, S. 1993. "The Psychological Impact of Merger and Acquisition on the Individual: A Study of Building Society Managers." *Human Relations* 46 (3): 327–347.
- Child, John, Leanne Chung, and Howard Davies. 2003. "The Performance of Cross-border Units in China: a Test of Natural Selection, Strategic Choice and Contingency Theories." *Journal of International Business Studies* 34 (3): 242–254.
- Child, John, and David K Tse. 2001. "China's Transition and Its Implications for International Business." *Journal of International Business Studies* 32 (1): 5–21.
- Clausen, T, and E Rasmussen. 2011. "Open Innovation Policy through Intermediaries: The Industry Incubator Programme in Norway." *Technology Analysis Strategic Management* 23 (1S1): 75–85.
- Coulson, N. Edward, and Mingzhe Tang. 2013. "Institutional and Demographic Influences on the Presence, Scale and Geographic Scope of Individual Chinese Real Estate Investment." *Regional Science and Urban Economics* 43 (2) (March): 187–196.
- Cui, Geng. 2009. "Journal of International Segmenting China 's Consumer Market" (July 2013): 37–41.
- Das, T K, and Teng. 2000. "A Resource-Based Theory of Strategic Alliances." *Journal of Management* 26 (1): 31–61.
- Davis, Lance, and Douglass North. 1970. "Institutional Change and American Economic Growth: A First Step Towards a Theory of Institutional Innovation." *The Journal of Economic History* 30 (1): 131–149.
- Eisenhardt, Kathleen M, and Claudia Bird Schoonhoven. 1996. "Resource-based View of Strategic Alliance Formation: Strategic and Social Effects in Entrepreneurial Firms." Edited by N Herrera F Fyfe C Benitez J M Ali M GarciaPedrajas. *Organization Science* 7 (2): 136–150.
- Fey, Carl F, Sergey Morgulis-Yakushev, Hyeon Jeong Park, and Ingmar Björkman. 2009. "Opening the Black Box of the Relationship Between HRM Practices and Firm Performance: A Comparison of MNE Subsidiaries in the USA, Finland, and Russia." *Journal of International Business Studies* 40 (4): 690–712.
- Hirsch, P M, and M Lounsbury. 1997. "Ending the Family Quarrel: Toward a Reconciliation of 'Old' and 'New' Institutionalisms." *American Behavioral Scientist* 40 (4): 406–418.

- Hitt, Michael A, Robert E Hoskisson, and Hicheon Kim. 1997. "International Diversification: Effects on Innovation and Firm Performance in Product-Diversified Firms." *Academy of Management Journal* 40 (4): 767–798.
- Howells, Jeremy. 2006. "Intermediation and the Role of Intermediaries in Innovation." *Research Policy* 35 (5) (June): 715–728.
- Hsu, B. F., Arner, D., Wan, Q., & Wang, W. 2005. "Banking Liberalization and Restructuring in post-WTO China." *Banking and Finance Law Review* 21 (1): 23.
- Katzy, Bernhard, Ebru Turgut, and Thomas Holzmann. 2013. "Innovation Intermediaries : a Process View on Open Innovation Coordination." *Technology Analysis Strategic Management* 25 (3): 295–309.
- Kim, W Chan, Peter Hwang, and Willem P Burgers. 1993. "Multinationals' Diversification and the Risk-return Trade-off." *Strategic Management Journal* 14 (4): 275–286.
- Klerkx, L, and C Leeuwis. 2008. "Matching Demand and Supply in the Agricultural Knowledge Infrastructure: Experiences with Innovation Intermediaries." *Food Policy* 33 (3): 260–276.
- Kogut, Bruce, and Harbir Singh. 1988. "The Effect of National Culture on the Choice of Entry Mode." *Journal of International Business Studies* 19 (3): 411–432.
- Lane, C. 1997. "The Social Regulation of Inter-firm Relations in Britain and Germany: Market Rules, Legal Norms and Technical Standards." *Cambridge Journal of Economics* 21 (2): 197–215.
- Lau, Chung-Ming, David K Tse, and Nan Zhou. 2002. "Institutional Forces and Organizational Culture in China: Effects on Change Schemas, Firm Commitment and Job Satisfaction." *Journal of International Business Studies* 33 (3): 533–550.
- Lee, Dong-Jin, Jae H. Pae, and Y.H. Wong. 2001. "A Model of Close Business Relationships in China (guanxi)." *European Journal of Marketing* 35 (1/2): 51–69.
- Lee, Sungjoo, Gwangman Park, Byungun Yoon, and Jinwoo Park. 2010. "Open Innovation in SMEs—An Intermediated Network Model." *Research Policy* 39 (2) (March): 290–300.
- Lewin, Arie Y, Chris P Long, and Timothy N Carroll. 1999. "The Coevolution of New Organizational Forms." *Organization Science* 10 (5): 535–550.
- Lopez-vega, Henry, and Wim Vanhaverbeke. 2010. "How Innovation Intermediaries Are Shaping the Technology Market ? An Analysis of Their Business Model." *MPRA Paper No 27016*
- Lovett, Steve, Lee C Simmons, and Raja Kali. 1999. "Guanxi Versus the Market: Ethics and Efficiency." *Journal of International Business Studies* 30 (2): 231–247.
- Luk, Chung-Leung, Oliver H M Yau, Leo Y M Sin, Alan C B Tse, Raymond P M Chow, and Jenny S Y Lee. 2008. "The Effects of Social Capital and Organizational Innovativeness in Different Institutional Contexts." *Journal of International Business Studies* 39 (4): 589–612.
- Luo, Yadong. 2003. "Industrial Dynamics and Managerial Networking in an Emerging Market: The Case of China." *Strategic Management Journal* 24 (13): 1315–1327.
- Luo, Yadong, Qiuzhi Xue, and Binjie Han. 2010. "How Emerging Market Governments Promote Outward FDI: Experience from China." *Journal of World Business* 45 (1): 68–79.

- Miles, M B, and A M Huberman. 1994. *Qualitative Data Analysis: An Expanded Sourcebook*. Edited by Sage Publications. *Beverly Hills Sage Publications*. Vol. 2nd. Sage Publications.
- Morosini, Piero, Scott Shane, and Harbir Singh. 2007. "National Cultural Distance and Cross-Border Acquisition Performance" 29 (1): 137–158.
- National Bureau of Statistics of China. 2012. "China Statistical Yearbook."
- North, Douglass C. 1990. *Institutions, Institutional Change and Economic Performance*. Edited by James Alt and Douglass C North. *North*. Vol. 104. Cambridge University Press
- Oxley, Joanne E, and Bernard Yeung. 2001. "E-commerce Readiness: Institutional Environment and International Competitiveness." *Journal of International Business Studies* 32 (4): 705–723.
- Park, Seung Ho, and Yadong Luo. 2001. "Guanxi and Organizational Dynamics: Organizational Networking in Chinese Firms." *Strategic Management Journal* 22 (5): 455–477.
- Park, Seung Ho, and Gerardo R Ungson. 1997. "The Effect of National Culture, Organizational Complementarity, and Economic Motivation on Joint Venture Dissolution." *Academy of Management Journal* 40 (2): 279–307.
- Peng, Mike W. 2002. "Towards an Institution-Based View of Business Strategy." Edited by Henry Wai-chung Yeung. *Asia Pacific Journal of Management* 19 (1996): 251–267.
- Peng, Mike W, and David L Deeds. 2008. "E T & P Ventures To" 1 (972): 59–82.
- Roxas, Salvatore Amico, Giuseppe Piroli, and Mario Sorrentino. 2011. "Efficiency and Evaluation Analysis of a Network of Technology Transfer Brokers." *Technology Analysis Strategic Management* 23 (1): 7–24.
- Roy, William G. 1997. *Socializing Capital: The Rise of the Large Industrial Corporation in America*. Edited by Frank Dobbin. *American Journal of Sociology*. Vol. 103. Princeton University Press.
- Scott, W.R. 1992. *Organizations: Rational, Natural, and Open Systems*.
- . 1995. *Institutions and Organizations*.
- Spulber, D F. 1999. *Market Microstructure : Intermediaries and the Theory of the Firm*. *Kyklos*. Vol. 53. Cambridge University Press.
- Su, Chenting, and James E Littlefield. 2001. "A Business Ethical Dilemma in Mainland China ?" *Journal of Business Ethics* 33 (3): 199–210.
- Su, Qiang, Jing-hua Shi, and Sheng-jie Lai. 2008. "Study on Supply Chain Management of Chinese Firms from the Institutional View." *International Journal of Production Economics* 115 (2): 362–373.
- Thun, Eric. 2006. *Changing Lanes in China: Foreign Direct Investment, Local Governments, and Auto Sector Development*.
- Vasudeva, Gurneeta, Jennifer W Spencer, and Hildy J Teegen. 2013. "Bringing the Institutional Context Back In : A Cross-National Comparison of Alliance Partner Selection and Knowledge Acquisition" 24 (2): 319–338.
- Wang, Chengqi, Junjie Hong, Mario Kafourous, and Agyenim Boateng. 2012. "What Drives Outward FDI of Chinese Firms? Testing the Explanatory Power of Three Theoretical Frameworks." *International Business Review* 21 (3): 425–438.

- Weldon, E, and W Vanhonacker. 1999. "Operating a Foreign-invested Enterprise in China: Challenges for Managers and Management Researchers." *Journal of World Business* 34 (1): 94–107.
- Williamson, Oliver E. 2013. "New Taking Institutional Economics : Ahead Looking" 38 (3): 595–613.
- Wu, Cindy, John J Lawler, and Xiang Yi. 2008. "Overt Employment Discrimination in MNC Affiliates: Home-country Cultural and Institutional Effects." *Journal of International Business Studies* 39 (5): 772–794.
- Xiaoyuan, Zhao, and Zheng Yanning. 2011. "Development of Chinese Science and Technology Intermediaries and Their Integration into the Open Innovation Paradigm." *Technology Analysis & Strategic Management* 23 (1) (January): 25–48.
- Xin, Katherine R, and Jone L Pearce. 1996. "Guanxi: Connections as Substitutes for Formal Institutional Support." *Academy of Management Journal* 39 (6): 1641–1658.
- Xu, T, DA Bower, and NJ Smith. 2005. "Types of Collaboration Between Foreign Contractors and Their Chinese Partners." *International Journal of Project Management*.
- Yaibuathet, Korrakot, Takao Enkawa, and Sadami Suzuki. 2008. "Influences of Institutional Environment Toward the Development of Supply Chain Management." *International Journal of Production Economics* 115 (2): 262–271.
- Yin, Robert K. 2009. *Case Study Research: Design and Methods*. Edited by Leonard Bickman and Debra J Rog. *Essential Guide to Qualitative Methods in Organizational Research*. Vol. 5. Sage Publications.
- Yuval Atsmon, Ari Kertesz, Ireena Vittal. 2011. "Is Your Emerging-market Strategy Local Enough?" *McKinsey Quarterly*, April.
- Zaheer, Srilata, and Akbar Zaheer. 2006. "Trust Across Borders." *Journal of International Business Studies* 37 (1): 21–29.