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How Chinese entrepreneurial firms mobilize resources for innovation under institutional constraints

Mark Greeven
Geerten van de Kaa

ABSTRACT
Emerging countries are becoming increasingly innovative and in particular China draws the attention. Private-sector driven innovation is changing China’s industrial landscape. These developments are surprising from an institutional or resource perspective on innovation. In this paper we combine the resource and institutional perspective and unravel the processes by which entrepreneurial firms in China mobilize resources for innovation while acknowledging institutions as a source of uncertainty. Our findings of a sample of 45 Chinese entrepreneurial software firms show 26 distinct processes by which they mobilize resources. Based on qualitative comparative analysis we have distilled five important drivers of resource mobilization for innovation: outside-in technology development, external capital mobilization, external
knowledge transfer, organizational reputation, and strategic flexibility. We conclude with future research directions.

**KEY WORDS:** Innovation, China, emerging economies, Resource Based View, institutions, resource environment, resource mobilization

1. **Introduction**

Emerging countries are becoming increasingly innovative and in particular China draws the attention (Huang, 2010; Zhou, 2008; Lu, 2000). A private sector is rapidly emerging with new business models, new organizational forms, and the development of new products and technologies (Li, Liu, & Zhao, 2006). The emergence of new industries and the commercialization of knowledge-intensive products such as TD-SCDMA, pictographic language software and new anti-malaria drug suggest that China is becoming more innovative (Hu & Matthews, 2008; Lu, 2000; Zhou, 2008). Private-sector driven innovation is changing China’s industrial landscape (Huang, 2010).

These developments are surprising from an institutional perspective on innovation. Many studies have argued for the contingency of resource-based advantages on the business environment and, in particular, of its institutions (Brouthers, Brouthers, & Werner, 2008; Priem & Butler, 2001; Whitley, 2007). Past research have focused on a selection of the world’s economies, such as the ones of Western Europe and of the USA, and recently the unique context of successfully emerging economies (Crossan & Apaydin, 2009; Rothaermel & Hess, 2007; Wan, 2005). Emerging economies such as China undergo substantial institutional transformation (Peng, Greeven, M. and Van de Kaa, G., 2017. How Chinese entrepreneurial firms mobilize resources for innovation under institutional constraints, working paper
As opposed to reducing risk and uncertainty, institutions become a source of uncertainty, particularly regarding the formal protection of intellectual property, limitations in factor markets and higher search costs for critical resources (Dixon, Meyer, & Day, 2010; Peng, 2003).

Some studies have explored China’s unique context for innovation. Innovation is usually explained by macro-economic conditions such as increased international investments and technology spill-over, emerging private sector and increased state support (e.g. Hu & Matthews, 2008; Li, & Kozhikode, 2008; Liu & Buck, 2007). Research on innovation in China usually stays at the macro level (e.g. Hu & Matthews, 2008; Liu & Buck, 2007) explaining developments in national and regional innovation systems (Liu, et. al., 2011; Li, 2009; Liu & White, 2001; Tylecote & Visintin, 2008) and analyzing latecomer strategies and technological catching-up (Li & Kozhikode, 2008).

Previous research on emerging economies has usefully explored the use of informal institutions (Peng, 2003), the guanxi effect (Xin & Pearce, 1996; Perks, Khan, & Zhang, 2009; Siu & Bao, 2008), institutional coping strategies (Roth and Kostova, 2003), network strategies (Siu & Bao, 2008) and political strategies (Wan, 2005) by entrepreneurial firms for mobilizing resources for innovation. Yet, there is no conclusive evidence on the impact of institutional forces on the ways by which entrepreneurial firms in emerging economies mobilize resources for innovation (Bruton, Ahlstrom, & Oblój, 2008). In this paper, we unravel the processes by which entrepreneurial firms in China mobilize resources for innovation.

2. Theory

We suggest a country can be viewed as a resource environment consisting of factors and institutions that provide firms with resources for conducting business activities (Wan, 2005). These shape a firm’s potential competitive advantage. Variations in factors and institutions provide diverging sets of incentives and constraints in different countries, as extensively argued by comparative institutional analyses (Hall & Soskice, 2001; Whitley, 2007). China’s resource environment does not fit Wan’s (2005) typology of country resource environments, the four types being: developed, emerging, institution and factor driven high-growth economies. China’s resource environment is, in Wan’s terminology, neither institution-driven, i.e. top down formal institutional development, nor exclusively factor-driven, i.e. driven solely by abundance of resources, but without doubt high-growth.

As institutions vary considerably across economies, even amongst relatively stable developed economies, China’s institutional frameworks are significantly different from both developed and other developing economies (Van de Kaa, Greeven et al. 2013, Van de Kaa and Greeven 2017, Van de Kaa and Greeven 2017). China’s scientific and technological development has suffered a severe blow during the Cultural Revolution (1967-1976) which pushed China’s Science & Technology (S&T) system back (Liu & White, 2001). Moreover, China is transforming from a planned socialist economy to a market oriented economy since the reforms started in 1978 (Qian, 2000). Therefore, China poses a substantially different resource environment for innovation. Neither being institution-driven nor exclusively factor-driven, China’s resource environment is set apart from other emerging and developing economies by
two features that characterize China’s institutional environment: change and diversity (Dixon, Meyer & Day, 2010; Krug & Hendrischke, 2008; Lu & Tao, 2010; Tang, 2010).

First, as an embryonic market economy, China may lack some of the necessary market institutions to efficiently coordinate capital, labor and knowledge resources while the remaining state socialist institutions cannot govern economic market exchanges completely (Qian, 2000). For instance, while abandoning the ‘iron rice bowl’ which allocated and secured jobs from the cradle to the grave, the new labor market institutions are insufficient to match supply and demand of labor resources. It is likely that implicit enforcement rules take over certain (re)distributive functions to organize economic exchange, which leaves the country resource environment with resources that may be only selectively available. In sum, the insufficiency of institutions - or ‘institutional gap’ - as a result of institutional change influences the accessibility of potential resources for firms (Ahlstrom & Bruton, 2010; Roth & Kostova, 2003).

At the same time, as a result of gradual change, the co-existence of market and state socialist institutions may also leave some institutions ineffective or inert, obstructing the establishment and implementation of new institutions. The dismantling of the state socialist institutions and the emergence of and experimentation with market institutions causes considerable uncertainty for economic agents. In terms of institutional enforcement rules, the explicit enforcement rules, such as property rights, are changed relatively quickly. However the implicit enforcement rules are more stable and embedded in the norms, conventions and practices of groups of economic agents (Peng, 2003). Therefore, conflicts may arise between new market oriented rules and persistent implicit institutional rules. The country resource environment is then left with an ambiguous and potentially conflicting set of rules to govern

access to resources. In sum, the inefficiency of institutions – or ‘institutional baggage’ – as a result of institutional change influences the accessibility of potential resources for firms to use (Roth & Kostova, 2003; Qian, 2000).

Second, China has a variety of local institutions. The heterogeneity of China’s local business environments is a consequence of China’s decentralized government system; with the provincial level as the most relevant ‘local’ government agent (Zheng, 2007). China’s business environment has considerable vertical intergovernmental inconsistencies and horizontal government competition which increases the uncertainty of governance of critical resources. However, such local business practices coexist with the integration of markets, coherence in political institutions and conformity in behavior (Krug & Hendrischke, 2008). So, in contrast to most comparative institutional studies, which take the nation state as the boundaries of analysis, China’s economy is characterized by a diversity of local business environments at the sub-national level. The consequence for firms that are seeking to innovate is that it is difficult to develop boundary-spanning innovation networks, tap into distant resource markets and accumulate and employ experience and generic skills across China. Local institutional variety causes wide differences in local resource bases and local governance mechanisms and increases horizontal competition of resources across localities (Dougherty & McGuckin, 2008). All in all, the diversity of institutions affects what local resource base is available and accessible to firms within the overall country resource environment.

The characteristics and challenges of China’s institutional environment suggest that it is likely to find different types, forms and ways of organizing innovation in China. In particular, China’s unique institutional characteristics have two consequences for the resource environment...
of firms pursuing to success in innovation. First, firms face a changing resource environment in which it is not clear who provides what kind of resources. Second, firms face a resource environment which is predominantly locally embedded in local institutions, business and political communities. How do firms respond to these two challenges while mobilizing the resources for innovation?

An important review on technological innovation in China summarizes the importance of a firms’ internal and external factors, particular internal organizational and inter-firm factors within the context of an external environment consisting of government, market and culture (Yang, et. al., 2010). In general, strategic alliances and managerial networks have been found to lower the dependence on external resources, particularly in China’s changing and locally embedded resource environment (Yang et. al., 2010; Siu & Bao, 2008). Many studies focus on the role of managerial and political networks to mobilize resources, such as financial resources, market access (Li & Atuahene-Gima, 2002) and social capital for innovative software ventures in Beijing (Batjargal, 2007). The role of the founder/manager is significant, both in terms of accumulated experience and social connections (Batjargal, 2007; Peng, 2003). Tan (2006), for instance, shows that SMEs lower their dependence on resources in the external environment by creating small local clusters of SMEs that mobilize and share knowledge resources. The previous literature agrees that firms with high dependence on external resources are more likely to benefit from network resources by lowering the dependence. nevertheless, previous studies do not unravel the process by which Chinese entrepreneurial firms mobilize the resources. In the remainder of this paper we will explore the drivers of resource mobilization for innovation in China while acknowledging institution-based resource contingencies.

3. Method
We adopted an exploratory study by applying a qualitative multiple case study (Yin, 2009). We chose to focus on China’s emerging software industry. We selected Hangzhou as our location. Hangzhou is the capital of Zhejiang Province, a southeastern coastal province.

The qualitative study is based on firm-level in-depth interview data triangulated with background information, such as archival data, that includes company websites, industry publications and materials provided by the informants. We conducted semi-structured interviews with the founders of the companies, from which the main data was extracted. We asked open-ended questions focusing on background, innovation (i.e. strategy, processes, outcomes), business environment (i.e. competition, customers, technology, policy, novelty, founding history of the firm, and social connections. We have interviewed 45 entrepreneurial software firms with an average of 71 employees and sales revenue between 200,000 and 80 million yuan renminbi (RMB) (1 US$ = 6 RMB). The names of the companies mentioned in the cases are not the real company names, due to our anonymity agreements with the participating interviewees.

We developed the Chinese version of the interview protocol in cooperation with a team of Chinese graduate students from Zhejiang University (Hangzhou). After the first translation, the protocol was tested in a pilot interview with two IT professionals. We revised the protocol to better fit the language and understanding of an IT professional. The resulting interview protocol is a coherent and valid instrument for exploring innovation in China and is available upon request.

The data collection consisted of two phases. In the first phase, we developed our initial thoughts. In the second phase, we made return visits, which allowed us to present and

communicate some of our initial ideas to the entrepreneurs in order to create communicative - and face validity. Additional interviews were necessary to reach a saturation point. After the second round of interviews, we identified a total of 26 different strategies mentioned more than once by 45 respondents.

We followed Miles and Huberman (1994) with data analysis concerns. First, we analyzed the transcriptions for strategies that facilitate innovation from the perspectives of the interviewees. Second, for each case, we arranged the strategies in a list according to the three cases of software ventures. This phase involved the creation of cross-case displays that indicates the strategies that were unambiguously named by our respondents, which is similar to Uzzi (1997). What was crucial to this procedure was the continuing confrontation of our data with evidence from the literature. Moreover, our grouping method of strategies into different categories – the drivers – involved two sessions with two researchers independently, at first, and then it involved discussion assessing and interpreting the evidence. Then we conducted a cross case analysis to determine which drivers are playing a role in resource mobilization for innovation. Thus, we followed inductive qualitative data analysis techniques to identify those processes that mobilize resources to the sample firms for innovation.

4. Results

4.1. Innovation by Chinese entrepreneurial software firms in Hangzhou

Graduates of Zhejiang University and other local universities started setting up software and other IT companies in the early 1990s. These entrepreneurial firms were complemented by larger companies like Eastcom and UTStarcom, which developed and manufactured

telecommunications equipment. Hangzhou was the third city in China, after Beijing and Shanghai, to open connections to the Internet, in October 1995. At the end of the 1990s e-commerce firms started to move into the scene. The country’s most successful dot-com – Alibaba - opened its doors in 1999 when it chose Hangzhou as its R&D centre and headquarters. The company is unique among Chinese Internet services in that it has few equals. Whereas Sina.com, Sohu.com, Netease.com, and Tom.com all compete for the same Chinese Internet consumers by providing similar services, Alibaba is unrivaled in China.

The findings in the full sample of 45 software entrepreneurs suggest that, contrary to popular belief, Chinese software entrepreneurs are innovative and see the value of innovation as opposed to imitation. The types of innovation in the sample include: product (50%), market (14%), process (12%) and business model (24%) innovation. The findings suggest that Chinese entrepreneurs see the value of innovation and understand innovation in a wider sense. Namely, the types of innovation can be distinguished into organizational innovations, i.e. business model and market innovation, and technological innovation, i.e. process and product innovation. Looking at the whole data set, respondents indicate to have both organizational (38%) – and technological (62%) innovations.

Our first example, is Gengdai’s integrated risk management software package. This product innovation was developed in response to the opportunities that opened up after the liberalization of Chinese financial markets and increased integration of China in global financial markets. The product integrates interest rate derivative products, pricing analysis and risk management into one package, whereas financial service firms would only provide basic accounting instruments in the past. Compared to foreign suppliers, Gengdai’s software displayed a number of advantages:
competitive prices, flexible and local adaption, customer service, Chinese and English interface, and risk assessment reports.

Another example is Wanggong’s model of localizing business information. The firm develops network advertisement software that adds value by offering an attractive package on various online and offline networks that generate maximum and intelligent exposure. It works as follows: customers rent an LCD monitor that they position at the entrance of their restaurant, bar or hotel. At the same time, they buy the right to have their advertisement shown in nine other places that are within walking distance. The nine other customers have their advertisements shown on each other’s LCD monitors. Furthermore, they offer a mobile Internet service that allows consumers to find customers in the network that are near their geographical position, using GPS technology. Wanggong’s software guarantees maximum exposure and an attractive combination of advertisements. In this case, two complementary innovations were necessary. The first innovation is a mobile GPS system, using Bluetooth technology to set up a mobile website. The second is a management system that combines a client website management system with an up-to-date client database. The innovations in Wanggong’s firm cover many areas of the organization and the way the firm adds value to the customers.

Our third example is Shengyi’s quick development platform for enterprise resource planning (ERP) solutions. The platform allows for a flexible and efficient development of customized ERP products. The software technology capabilities are inspired by SAP software and developed in cooperation with universities. The CEO regularly visits companies who buy SAP software and then looks at how they implement it. Furthermore, the firm established relations with domestic universities such as Zhejiang Industry and Commerce University and China Polytechnic.

University. Interestingly, Shengyi’s has cooperation with Liverpool University for data mining database techniques. In short, Shengyi is improving the development process of its software product.

4.2 Cross-case Analysis

Table 1 summarizes the evidence of our cross-case analysis.

Insert table 1 here

We have organized the strategies that were mentioned by our interviewees into drivers of resource mobilization for innovation according to the procedure described in the research methodology section.

Our interviews suggest a type of network that shows features of inter-firm networks and local embeddedness however without a political actor: a local entrepreneurial network giving access to technological, financial and knowledge resources outside the firm boundary. The CEO of Yuhe, a Chinese search engine, summarizes the function and operation of such local entrepreneurial network as such: “We, as CEOs in the [internet/e-commerce industry], formed a local Web 2.0 Club to share experiences, information and business opportunities. For instance, we cooperate with Internet Firm 22 in Hangzhou by posting reciprocal links and bundling products. The general idea is that it is beneficial for all to cooperate, create a ‘brand store’ and enlarge the market. The Web 2.0 club brainstorms every time we meet and I apply this new knowledge to the operation of my firm. This network has only one purpose: to exchange information and jointly improve our products.”

solve management problems.” Firms Shidao, Yihe (search engine), Combei, Mygod, Bronze and Boshi suggest that they use networks for knowledge accumulation with other firms in the industry and do not necessarily rely on university or R&D institute research. More importantly, there appears to be little connections between the entrepreneurs and (local) government officials and bureaus. Yihe, Combei and Boshi are in the so-called Web 2.0 club of CEOs where they exchange ideas and solutions to technical problems.

Thirteen strategies provide firms access to technology, financial resources, and knowledge. First, the interviews suggest the following strategies for mobilizing technology resources outside the firm’s boundaries: research cooperation with universities, commercializing university research, benchmarking other firms’ operations and technology, imitation of foreign technology, acquiring firms for technology, coordination of technologies within the industry. Second, the following strategies are mentioned for mobilizing financial resources: venture capital investment, financial commitment of private investors, government subsidies. Lastly, the interviews suggest the following strategies for mobilizing knowledge: founders’ personal contacts sharing business information, communication with experts outside the firm, cooperation with customers for innovation, coordination of business within the local industry.

The informal, personalized relationships tend to be used for a wide variety of goals: advice and suggestions (e.g. Beicom, search engine), low-cost access to R&D (e.g. Mygod, podcasting), government support (e.g. Kezhong, statistics), access to finance (e.g. Infostore, data storage) and access to markets (e.g. Beicom, Tomasia, Allsoft). Furthermore, the more formal types of relationships are important for the collaboration between enterprise software firms, the university and industry peers (e.g. Unisoft, financial services). Cooperation with Zhejiang University or

industry peers for technology development appears to be crucial for the enterprise software firms that we have interviewed. Unisoft relies on a formal cooperation on which it bases the development of its core technology. In another example, the firm combines academic research with professional knowledge from other firms. Some firms are spin-offs of university research and commercialize academic research results. In sum, we distinguish three drivers of resource mobilization for innovation that build on entrepreneurial networks outside the firm’s boundaries: outside-in technology development, external capital mobilization and external knowledge transfer.

The interviews suggest the essential importance of the entrepreneur’s reputation. The human and social capital of the founder is very important. Social relationships surrounding the founders and the key managers appear to play diverse roles. The example given by the CEO and co-founder of Beicom illustrates the role of his social network: “I am in charge of public relations, so I deal with personal relationships quite often. I majored in law, and therefore many of my friends are in industries like law, media, and banking. Last year, we relied on a friend to get over a problem in the founding process. (...) He is working in a well-known law firm in Hangzhou and helped us find measures to avoid risks after we told him about our situation. We do not hire him and make him part of our firm, we need to keep our flexibility and lower risk. For both of us, we know there is this implicit expectation of ‘returning the favour’ even though this never is made explicit. My partner has a group of friends with a technical background that frequently helps us with technical problems”. Another example of the importance of an entrepreneur’s reputation is given by the owner of Meiri, who has built relations on the basis of his strong affiliation with Zhejiang University. On one hand, he collaborates with Zhejiang University. For instance, in the

past 4 years, the founder has had discussions, interactions and knowledge sharing with over 50 professors. On the other hand, he has good relations with business partners that were introduced by the same group of university professors. For the CEO of Boshi, his personal connections built up in past jobs were crucial for creating a market for his new product. He explains: “I employ my personal customer networks developed during my work at the large “3721” Internet Company as a sales territory manager for creating a market”. These entrepreneurs see their local personal connections as a critical part to the success of the firm. All in all, our study shows that local entrepreneurial networks do not directly influence the entrepreneurs’ innovative activities; however, the networks allow the entrepreneurs to mobilize certain local resources, such as capital and knowledge, which enables them to pursue innovative activities.

The patterns in the data suggest four strategies for reputation creation: organizational reputation, strong technology reputation, attracting new employees (reputation), membership of industry association. The founder and CEO Yihe proudly told us about the various awards and recognitions his firm received from industry associations and the local Science and Technology Bureau that enabled the firm to start new collaborations. Likewise, our informant from Tianxin (telecom service) explained how the status of its investors enhanced the reputation and standing of the firm: “we are highly dependent on the reputation of our main investors and stakeholders (foreign firms, large domestic firm and a university”. Firms such as Unisoft (a financial service software developer) and Tianxin, rely on the financial commitment of large domestic firms. In some cases, legitimacy creation is the basis for a strong customer base: “we are building cooperative relationships with large state-owned enterprises to expand our reach and of course our customer base“ Mingrui, home security). The CEO of Yige has an even stronger personal

connection with Zhejiang University to increase legitimacy of her entrepreneurial venture: “we were mobilizing Zhejiang University support for buying a local firm and by attracting the University Science Park director as chairman of the board we could gain enough credibility as a strong technology partner”. These reputational assets provide firms with a potential competitive advantage in successfully developing and commercializing new products and services. Legitimacy creation is a response to a relatively low legitimacy for private software entrepreneurs in local labor - and financial markets. Legitimacy creation lowers these constraints as it enables firms to pursue innovative goals by developing and subsequently employing reputation in the market.

A lack of reputation will pose certain constraints on attracting a stable installed base due to unfamiliarity and low switching costs and serious constraints on attracting talented employees. It is hard to locate good employees and it is hard to attract them, either due to the presence of more attractive foreign firms or the lack of reputation. In particular, the middleware market in China is newly emerging, with a lot of unfamiliar and inexperienced customers that will constrain the creation of legitimacy. For example, legitimacy in new markets depends on the reputation of the firm to establish viable relations with suppliers and customers. As a complementary effect, reputation mitigates uncertainty and market imperfectness in the whole local business community. In summary, our fourth driver of resource mobilization for innovation is organizational reputation.

Lastly, the patterns in our data show the importance of flexibility. A flexible strategy to exploit opportunities in the market as soon as they arise. For instance, our interviews with Gengdai and Allsoft, in financial management software and mobile games respectively, suggest
strong market-driven innovation. Sometimes strategic redirection involves extending to other locations to be closer to the market and benefit from government relationships. Furthermore, the firms pursue a first-to-market strategy to have first-mover advantages. Experimentation and managerial opportunism are widespread in this sector, as indicated in interviews with Combei (search engine), Bronze (search engine), Shidao (telecom services), Meiri (mobile application), Meiya (wireless internet), and Boshi (business communication). Managers of these firms are risk-takers and appear tolerant of ambiguity. Such risk-taking behaviour is accompanied by pioneering strategies, first-mover-advantages, and rapidly changing strategic directions. Shidao’s Mobile Enterprise Gateway, Mygod’s podcasting software, and Hexinso’s negotiable securities online business are examples of pioneering products that benefit from being first-movers.

The founder’s experience in the market, in-house training (absorptive capacity), organizational learning and the founder’s financial capital commitment provide the firms with flexibility of resource usage that gives the potential competitive advantage in successfully developing and commercializing new products and services. In the words of the entrepreneurs, coordination flexibility can mean different things: “spotting and following opportunities” (Fangxin), “taking any good resource” (Dangka) and “searching opportunities in current policy” (ZJUATL). This is especially the case for the middleware firms that benefit from strategies that allow them to lead the exploration of new markets. The interviews indicated first-to-market strategies with their products and opened up niches within the online search market. As one respondent told us (Yisheng, search), “it is important to catch the attention of a relatively large group of customers in the beginning and once there is a customer base they tend to be quite loyal”. Middleware firms have the most entrepreneurial orientation (Zhou & Li, 2007), as

compared to the more customer-oriented enterprise software firms (Gao, Zhou, & Yim, 2007). Standard software firms have a technology orientation, which means that they are more R&D focused and proactive in finding new technical solutions that are assumed to be valued by the customer (Gao et al., 2007). In sum, different strategic orientations have different consequences for innovative potential.

Coordination flexibility is a response to institutional arrangements that fail to coordinate an emerging sector that is characterized by ambiguous rules and regulations and fast technical and market changes. Examples include a lack of established business practices, changing policies, weak protection of investments in skill development. Coordination flexibility lowers these constraints as it allows firms to change strategic directions to adapt to changing economic and institutional conditions. The qualitative findings suggest that coordination flexibility enables entrepreneurs to quickly respond to opportunities while developing a customer base and learning new technologies. This is especially crucial for new and small private firms because China’s business environment creates not only opportunities that firms need to recognize, but also restraints that firms need to overcome. In summary, our fifth driver of resource mobilization for innovation is strategic flexibility.

5. Discussion

Prior research on inter-organizational networks has shown that linkages and collaboration networks are crucial for a firm in order to innovate. The reliance on external sources of knowledge is often considerable in newly emerging industries. The differences amongst the types of partners, the extent of knowledge sharing and the extent of integration of information.
from diverse sources, affect how relationships are managed and what types of innovations they generate. This literature has detailed the various aspects of networks: structure and content (Adler and Kwon, 2002), governance, goals and intentions, and scope (Grabher, 2004). The findings in our study suggest that Chinese private firms in the context of the newly emerging software industry develop entrepreneurial networks particularly for mobilizing resources. In contrast to studies on Chinese firms that emphasized the role of political connections, we find that local entrepreneurial networks give access to technological, financial and knowledge resources outside the firm’s boundaries. In contrast to the general literature on the role of guanxi (literally: relationships), our study highlights the function of networks to mobilize particular resources.

Prior research on the strategic management of innovation has shown that innovative or entrepreneurial prominence of firms can have several antecedents. On the one hand, reputation arises from the identification of the value of the firm’s previous efforts by a reputation building activities such as advertising and sponsorships (Fombrun, 1996). Furthermore, reputation is related to the firm’s position in the social structure. Our findings confirm that reputation is mostly related to the position of the firm - as a collection of individuals - in the wider business community. It is important to note the difference between reputation of the firm as a collective entity and the reputation of the founder. Such importance makes sense as the firms are small and need to overcome legitimacy problems with suppliers and customers.

The qualitative findings suggest that strategic flexibility enables entrepreneurs to quickly respond to opportunities while developing a customer base and learning new technologies. This capability is crucial for young and small software firms especially because China’s business environment...
environment creates not only opportunities these firms need to recognize, but also restraints which they need to overcome. A key difference with existing literature on strategic flexibility is that it is also about organizational changes and not necessarily technical changes. Firms develop both organizational and/or technical innovations in response to a variety of constraints. Prior research has shown that firms in an environment with high competence destruction risk the need to be able to change direction very quickly and destroy their capabilities while searching for the dominant design (McKelvey, 1996). Firms typically innovate radically (Tushman and Anderson, 1986) and develop specialized complementary assets to mitigate the effects of competence destruction. Teece et al. (1997) consider strategic reorientation as a choice among and commitment to long-term partners for trajectories of cumulative capability development. In contrast, strategic reorientation can also refer to radical strategic shifts from one technology to another or from one market to another, depending on the level of firm’s commitment to its employees and external partners, as well as the specialized skills present within technical fields or sectors. In the former, training and customer-specific knowledge enhance firm-specific knowledge, leading the firm to less radical strategic shifts; whereas as in the latter, hiring staff with new skills or acquiring firms with different technical specializations may involve radical changes in the firm’s capabilities.

Our findings in comparison to the literature suggest that our sample firms seems to develop local resource ecosystems by outside-in technology development, external capital mobilization, and external knowledge transfer. Moreover, next to getting access to technological, financial and knowledge resources outside the firm boundary, firms develop organizational reputation and strategic flexibility as important drivers of resource mobilization for innovation.

Our findings seem to suggest that the local resource ecosystem is not only a necessity due to institutional constraints, but also a condition which enables our entrepreneurial software firms to develop organizational reputation and allow strategic flexibility. In the end, their strong external orientation provides enough resource slack for firms to opportunistically explore opportunities. However, our study does not provide conclusive evidence of such causal or conditional relationship. Future research may further explore and test such relationships with larger data set.

6. Conclusion

Emerging countries are becoming increasingly innovative and in particular China draws the attention. These developments are surprising from an institutional or resource perspective on innovation. In this paper we combine the resource and institutional perspective and unravel the processes by which entrepreneurial firms in China mobilize resources for innovation while acknowledging institutions as a source of uncertainty. Based on qualitative comparative analysis of 45 Chinese entrepreneurial software firms, we have distilled five important drivers of resource mobilization for innovation: outside-in technology development, external capital mobilization, external knowledge transfer, organizational reputation, and strategic flexibility.

The findings show that Chinese entrepreneurs do not only innovate incrementally, making small modifications, but also develop radical innovations. The findings suggest that local entrepreneurial networks seem to create a resource system in response to China’s locally diverse and changing resource environment as influenced by institutional uncertainty. Furthermore, our interviews suggest that next to getting access to technological, financial and knowledge resources outside the firm boundary, firms develop reputation and flexibility as important drivers.

of resource mobilization for innovation. We conclude that future research should test our qualitative findings and further explore the possible relationship between building an external ecosystem (i.e. three of our five drivers) and the development of organizational reputation and strategic flexibility.

References


TABLE 1

Drivers of resource mobilization for innovation of 45 Chinese entrepreneurial software firms

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<td>organizational learning</td>
</tr>
<tr>
<td></td>
<td>founder financial capital commitment</td>
</tr>
</tbody>
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