Chinese Entrepreneurial Technology Firms and Business Model Innovation: Strategies and Sources of Value

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Abstract: The aim of this paper is to explore business model innovation by Chinese entrepreneurial firms. Based on an in-depth investigation of entrepreneurial software firms, the findings suggest that Chinese entrepreneurial firms use a combination of experimentation and effectuation strategies to facilitate business model innovation, while mitigating the challenges of China’s business environment. Based on this first qualitative empirical evidence in an emerging economy, we suggest that these two strategies warrant further investigation and confirmation. These two strategies focus on creating a value network that offers five potential sources of value: novelty, lock-in, efficiency, complementarity and legitimacy.

Keywords: competitive strategy; entrepreneurship; innovation; institutional theory; China

Introduction

China’s leading e-commerce company, Alibaba Group, attributes most of its success to the business ecosystem it created in response to an uncertain and changing business environment. It founded several companies to cross-sell and cross-market services and offer packaged deals. It formed a network of suppliers, partners and customers to fully exploit and serve the market. Chinese companies like Alibaba Group, tower their success to their innovative business models. Similar to entrepreneurial technology firms

such as Xerox, Dell and Apple, these Chinese companies have developed novel ways of adapting the organizational framework to create and capture superior value from technology and new ideas (Chesbrough & Rosenbloom, 2002).

However, the creation and implementation of new business models might vary for organizations in different business contexts. Research is mostly limited to entrepreneurial technology firms from the US and Western Europe and has not yet adequately considered the emergence of increasingly competitive new technology industries in China’s emerging economy. The managerial challenges for entrepreneurial technology firms in China are rather different from those in Europe or the USA and therefore we may expect different processes of business model innovation (Zhuang, Ritchie & Zhang, 1998; Tylecote & Visitin, 2008; Redding & Witt, 2009).

Chinese entrepreneurial technology firms face uncertainty that arises from the newness of the emerging knowledge-intensive sectors but also from the private enterprise sector (Krug & Polos, 2004). Issues such as general resource poverty, limited legitimacy and weak ties to external actors like banks and foreign firms, increase the uncertainty. Furthermore, a lack of mature standards and the nature of an emerging market with many newcomers make it difficult to assess the value of a company’s investment in technology and the likelihood of acceptance by customers. At the same time, China’s institutional conditions do not strongly enforce intellectual property rights protection, thereby increasing the risks of imitation and reducing the possibilities of appropriability of innovation rent (OECD, 2007; Meyer & Peng, 2005). The aim of this paper is to explore how Chinese entrepreneurial technology firms develop business model innovation and, in particular, to examine the strategies and sources of value.

We conduct an empirical study of three software firms in Zhejiang province, China, and find empirical evidence for two strategies for business model innovation.
The first strategy is experimentation, whereby calculated divergences of existing business models are tried out simultaneously. The second is effectuation, whereby firms do not analyse market needs for a new product or service upfront but focus on revising and amending their strategy after feedback from the market. We find that these strategies mitigate and exploit the relatively high levels of uncertainty for innovation in the business environment. Moreover, our qualitative investigation leads us to pose that these two strategies in particular function as a way to create a value network that offers five potential sources of value creation: novelty, lock-in, efficiency, complementarity and legitimacy. We contribute to the emerging literature on business model innovation by identifying the diverging strategies and sources of value for business model innovation in the context of an emerging economy.

**Theoretical Background**
A business model is a structural template that influences how a firm transacts with all of its external constituents, such as customers, suppliers partners, and other stakeholders (Amit & Zott, 2001, 2007). In particular, a business model is the value proposition to a customer and a mechanism to capture value. It has been argued that the increased cost of creating, developing and distributing new technologies, and the shortening of many technology lifecycles requires a renewal of business models (Doz & Kosenen, 2010). In that case, the improved business model forms a new type of innovation (business model innovation) that combines product, process, value chain and market innovation. By drawing on a wider variety of sources of ideas, the company can create processes for making innovation and improvements (Mitchel & Coles, 2003). It often gives firms a competitive advantage that is difficult to imitate due to the fact that 1) required capabilities, organizational processes and resources are hard to replicate; 2) there is...
uncertainty of what element of the business model innovation is a source of value creation or what element allows value capture; 3) incumbents have limited incentives to cannibalize on their existing capabilities, business and customer relationships.

Scholars that study business model innovation argue that value is not created inside a company alone. Rather, it is derived from the value that is added through a network of organizations that deliver the value to the client, i.e., a value network (Allee, 2002). Value creation is higher in value networks than at the firm level only. A value network with partners to market technology will shape the role of suppliers, customers and other parties in influencing value creation and capture from commercialization (Chesbrough & Rosenbloom, 2002). Then, value is created by reconfiguring the roles and relationships among actors in the value network (Ramírez & Wallin, 2000).

Previous research has shown that business model innovation is challenging for at least four reasons: the dominant logic trap (Chesbrough, 2003), the identity trap (Bouchikhi & Kimberly, 2003), managerial cognitive barriers (Chesbrough, 2010) and the complexity of underlying assets configuration (Chesbrough, 2010). The dominant logic and identity traps constrain firms from coping effectively with a changing environment due to a filter on managerial information resulting from dominant decision making logic or a strong organizational identity that is uneasy with conflicting changes (Zott, Massa, & Amit, 2011). Therefore, there are substantial managerial risks for entrepreneurial technology firms. These include inertia due to the complexity of reconfiguring the business model, and cognitive barriers that impede managers from recognizing the potential value of technologies and ideas beyond the current business model. In sum, managers either know what

the right business model is but cannot implement it, or they are unable to recognize the right business model in their business environment.

Despite these challenges to business model innovation, many managers successfully renew their business model. Previous academic research has analyzed various ways, such as the construction of maps of business models (Osterwalder, 2004), experimentation through discovery-driven planning, the development of meta-capabilities that allow and facilitate organizational agility (Doz & Kosenen, 2010) and effectuation (Sarasvathy, 2008; Zott, Massa, & Amit, 2011). In a process of effectuation, entrepreneurial technology firms do not seek to analyze the environment in great detail to identify opportunities, but take actions that may create new information that helps them to identify opportunities. These ways provide several strategic options for business model innovation. However, there is no conclusive evidence on which strategies work best under what conditions.

The understanding of how the business context impacts business model innovation is relatively limited (Tankhiwale, 2009; Zott & Amit, 2008). China’s business environment is rather unique due to its transition process and the subsequent co-existence of state socialist – planned – and market transaction institutions (Qian, 2000). The business environment for entrepreneurial technology firms is therefore more uncertain and complex than the relatively stable and developed market economies of the US and Europe (Peng, 2003; Motohashi & Yun, 2007; Hu & Matthews, 2008).

China has weak economic institutions. The institutions are not weak because they have a socialist hue, which is traditionally unsupportive of private capitalists, but because there are institutions in place coming from the socialist era and institutions that are more market-oriented (Krug & Polos, 2004). Institutions are incomplete and unpredictable in the sense that they do not provide a stable institutional frame (Qian, Greeven, M. and Van de Kaa, G., 2017. Chinese Entrepreneurial Technology Firms and Business Model Innovation: Strategies and Sources of Value, working paper
2000), which would reduce the uncertainty emanating from innovation (Krug & Polos, 2004). On the contrary, such uncertainty allows greater variety of organizational responses to opportunities and restrictions. As a result, competence destruction risks are expected to increase because of more uncertainty regarding the technological trajectory taken and the market acceptance of innovation. There are two possible consequences for business model innovators: ambiguity about key stakeholders leading to high competence destruction risks and weak legal enforcement of intellectual property rights leading to high appropriability risks.

First, as a result of the dismantling of the socialist state economy, in China’s institutional regime, firms face considerable uncertainty regarding different stakeholders including local and central state agents, business associations (both formal and informal), and foreign investors (Zheng, 2007). It is unclear how these stakeholders operate and impose constraints. There are geographical and sectoral variations in the involvement of these key stakeholders and the constraints they set on innovation. Moreover, competing levels of government might lead to ambivalent rules, hybrid institutional arrangements and a lack of transparency (Van de Kaa et al. 2013, Tang, 2010, Van de Kaa and Greeven 2017, Van de Kaa and Greeven 2017); all of which increase the uncertainty in the innovation process. In sum, Chinese entrepreneurial technology firms face a considerable competence destruction risk.

Second, entrepreneurship is affected by formal institutions such as the quality of the commercial code and the strength of legal enforcement. Such institutions are mechanisms to reduce uncertainty caused by technology, competition or the market. Whereas such imitation and appropriability risks can generally be mitigated by patent and copyrights protection, China’s institutional environment

does not have formal mechanisms in place that efficiently protect knowledge and intellectual property. As a recent OECD report (2007) indicated, China has strong IPR laws but weak implementation and enforcement. This lack of effective IPR protection results in hesitant foreign tech transfer, slow R&D commercialization, a weak international reputation, and increases the risks of imitation. In such a business environment, it is a necessity for entrepreneurial technology firms to go beyond proprietary technologies. Enterprises generally try to create complex organizational structures and coordinate activities directly and strongly with customers to create complementarities that are not easily imitated (Lau, Lu, Makino, Chen & Yeh, 2002).

China has a newly emerging private sector (Krug & Polos, 2004). Newness is often seen as a liability referring to a new firm’s resource poverty, lack of legitimacy, and weak ties to external actors, resulting in reduced capacity when competing with established players (Aldrich & Fiol, 1994). Lack of knowledge in particular has significant effects on Chinese private firms. Due to the newness of private ventures but also the newness of the whole private sector, firms are left with a significant lack of knowledge. Krug & Polos (2004) identified four types of knowledge that are ‘missing’: business routine, benchmarks, market knowledge, and legitimacy.

First, lack of business routine makes it difficult to locate talented employees, and business agents such as potential partners and banks. On the one hand, the firm is unable to increase the level of management to ensure proper coordination and control from within the firm, which might hinder competence enhancement. On the other hand, the firm’s inability to accumulate and develop technical skills necessary for innovative competence development might prevent the firm from attracting a variety of knowledge for radical innovative activities. Such expertise can hardly be bought or learned through formal or informal education and training. Second, there is a lack of benchmarks. In a

business environment with few examples of successful firms or few firms in general that could serve as a benchmark, the only way to learn how to run a business is by trial and error, giving rise to risky decisions. Third, knowledge about the business environment is lacking. A lack of general knowledge about demand, prices, or income levels makes it difficult to do systematic research to calculate risks. In radically innovative sectors, where the risk of competence destruction is already considerable, this is less an issue than in incrementally innovating sectors where a lack of understanding of market dynamics and procedures to analyze such dynamics, gives rise to additional risks. Especially in a newly emerging industry, it is hard to predict which investments are worthwhile. Last, there is a lack of legitimacy. This refers to the lack of familiarity and credibility of new activities that constitute the fundamental basis of interaction (Ahlstrom, Bruton & Yeh, 2008). In an advanced economic setting, a lack of legitimacy can be interpreted in terms of not fully understanding the nature of the new venture and its conformity to established institutional rules. However, emerging economies usually lack such clearly established institutional rules. It is difficult for firms to create such familiarity and credibility in a setting in which it is hard to even predict the overall rules of the game. Especially the unfamiliarity of the market with the new venture and the lack of skills of the customer lead to higher uncertainty of market acceptance.

Method
Limited prior theorizing on business model innovation (Teece, 2010; Zott, Massa, & Amit, 2011) and the novel and uncertain research context of China makes an inductive comparative case study approach (Yin 2009; Eisenhardt 1989) an appropriate choice of
methodology. First of all, we would like to explore and identify what kind of strategies Chinese entrepreneurial technology firms develop. Current research does not provide enough analytical tools to develop a testable hypothesis and therefore we aim to explore the types of strategies in order to build on the existing theory. Second, we have outlined the additional managerial challenges that potentially impact business model innovation and the creation of new value. However, there has been no research to date that has explored possible sources of value in the context of an emerging economy. Given the additional challenges and non-trivial differences in economic organization, we cannot assume that the sources for value creation are similar to those in relatively developed and stable economies. To gain a better understanding of business model innovation in China, we conducted in-depth inquiries into the strategies for business model innovation of three entrepreneurial software firms in Zhejiang province, China.

We choose the software industry as our field of research. The software industry is relatively fragmented with a few major players and many small entrepreneurial ventures. The study of the software industry has an exceptional position in that it allows us to study both disruptive as well as continuous, accumulative processes of innovation. Considering the expected importance of sectoral variety and distinct market and technical risks, we decided to study the enterprise software, middleware and standard software sectors (Grimaldi & Torrisi, 2001; Casper & Whitley, 2004). China’s software industry is a dynamic and newly emerging industry that started to develop in the mid-1990s. The global Internet hype, an increasingly strong national economy and a supportive central and local government brought resources to the software industry and it expanded and reached an annual average growth of 30% in the last decade (Saxenian & Quan, 2005). Zhejiang is the location for our empirical study. At the forefront of
economic development, it offers one of the best business climates in China and is one of centers of China’s booming private sector (World Bank, 2006).

We used the following criteria to select firms for our case studies: (1) small or medium size (1-300 employees), (2) privately owned and no significant (in)direct government backing, (2) independent software developers, i.e., firms focused on software development rather than outsourcing or sales, (3) different organizational ages, but old enough to have experienced business model renewal, and (4) in one of the three distinct software sectors. Our cases are from three distinct sectors in China’s emerging software industry: high-end enterprise software, middleware and standard software. The three cases differ in innovative activities with varying market, technical and organizational risks.

The empirical study is based on firm-level in-depth interview data triangulated with background information, such as archival data, company websites, industry publications and materials provided by the informants. The specifics of this project, design and data can be requested from the authors. We did semi-structured interviews with the founders of the companies. The main data comes from in-depth interviews with the firms. In a society characterized by a large role for informal institutions, as opposed to formal rules and regulations, a semi-structured interview with considerable time to ‘dig-up’ the story is preferred. The interviews also allowed the respondents to express their understanding in their own terms which allows for unambiguous communication and establishes communicative validity. We asked open-ended questions focusing on background, innovation (strategy, processes, and outcomes), business environment (competition, customers, technology, policy, ‘newness’), significant challenges in the history of the firm, and social connections.

We examined how the firm was founded, analyzed its main products and services, and its market, and studied the development and implementation of the firm’s new business model. We focused on the value drivers (including, but not exclusively, novelty, complementarity, efficiency and lock-in (Amit & Zott, 2001)), value network creation (set of social and technical resources that create economic value through the relationships between the participants in the value network (Allee, 2002), and the business environment in terms of technical, market and institutional characteristics. The first case, RiskSuite, deals with the development of a new business model for financial risk management software. The second case, InfoStore, deals with the development of a new business model for data storage protection. The third case, E-Net, deals with the development of a new business model for a digital localization service. Upon request by the interviewees, the names of the companies and interviewees are fictional.

**Method**

*RiskSuite*

Financial risk management is a newly emerging industry in China. After the liberalization of the financial markets in 2005, firms started to offer financial risk management in addition to traditional accounting management software. RiskSuite responded to these institutional changes and the lack of specific bank products by investing in the development of risk management products. Most firms continued to focus on accounting management software, which gave RiskSuite a competitive advantage. RiskSuite was established by Mr. Gao in Hangzhou in 2004 and develops financial risk management software. The total initial investment of $200,000 was made by Mr. Gao and partners. They developed the first fast development platform for
financial risk management in China. This gave RiskSuite a first mover advantage in an emerging market. RiskSuite has ten large customers, including the Real Estate Group. The financial risk management software developed by RiskSuite is used by the China Investment Corporation, the national investment company to manage its investment funds. This high-profile government customer has increased the legitimacy of RiskSuite and its technology partners as a reliable partner in a new market.

China’s financial industry has potential challenges. As it still lags significantly behind in adhering to international standards, Mr. Gao expected many changes and increased uncertainty in the financial markets. To fight off such potential constraints, Mr. Gao developed and established RiskSuite’s products swiftly. This approach is one of controlled experimentation, in which Mr. Gao first focused on developing a strong core technology and then experimented with a new business model that goes beyond the dominant logic in the field (i.e., traditional accounting). The new business model was driven by institutional changes in the financial sector that created an institutional void, and provided an exploitable opportunity for an entrepreneur. The controlled experimentation of RiskSuite is a response to such an emerging opportunity.

RiskSuite has a variety of formal and informal business partners for each functional area in the company (i.e., product, technology, customers, marketing, and service). These partners played an important role in the tender bidding process for a project of Signal Company, a large investment firm with investments across the globe. Originally, SignalCompany wanted to award the project to Friend Software because of its financial strength and reputation and RiskSuite was perceived as a risk. RiskSuite campaigned to promote its specialization and its confidence in the project’s success. RiskSuite’s network of partner firms were supportive and recommended Signal

Company to award the project to RiskSuite. Without the local embeddedness of RiskSuite in a network of partner firms that together provide legitimacy to the firm, RiskSuite would not have been awarded the project.

RiskSuite’s also cooperates with Microsoft which plays a role in distributing their projects and technology. This cooperation shows elements of an effectuation strategy whereby both Microsoft and RiskSuite were committed partners and shared their resources and information. As one of Microsoft’s certified partners, RiskSuite reduced its liability of newness and created legitimacy and credibility in an emerging market. Figure 1 illustrates RiskSuite’s value network.

Insert figure 1 about here

InfoStore
InfoStore is a software firm which established in 2006 and develops data storage and protection technology but also sells hardware, such as disk drives and servers, in combination with software. The founder, Mr. Yang, went to the USA in 1995 where he set up a software firm, SoftCore, with four American partners. After 10 years, he returned to China in response to opportunities in China’s emerging electronics market. He used the blueprint for the technologies developed in SoftCore but modified the technology to meet local demands and to prevent violations of SoftCore’s property rights.

Even though InfoStore’s software is at the front-end and frequently copied, the firm is not afraid of its competitors. Sales range from $2,000 to $100,000 per license, so customers do not easily accept imitations but prefer to buy the original software. In the beginning, the firm was actually happy that others copied its software because this

meant that their products delivered value and, more importantly, that the market was learning about data storage software. By reaching out to a large installed base with SMEs, either directly (sales) or indirectly (licenses and imitations of their software), InfoStore was enlarging the market for data storage software.

InfoStore has developed several technological innovations over the past years. The original technology was developed for high-end customers by SoftCore. However, the approach for the SME market was different. SMEs generally have very limited resources for data storage technology. The high-end software was too sophisticated for the limited requirements and knowledge of SMEs. Basically InfoStore had to downgrade the technology. InfoStore clearly chose a business model that did not focus on the traditional installed base - large high-end customers – but experimented with a new model for the SME market. However, this was a controlled experiment as InfoStore continued to do business in the high-end market, for example, with customs departments of several provinces. Interestingly, InfoStore’s business model involved technology downgrading rather than technology upgrading. As opposed to accumulating and analyzing market intelligence, InfoStore downgraded its software to adapt to the market. This is a feature of an effectuation strategy.

At the same time, InfoStore was also working on other R&D projects such as Continuous Data Protection (CDP). The firm developed a new technology called ‘incremental snapshot’ which is an intelligent storage technology that keeps track of the changes made in the files instead of copying the whole system every backup. The firm first developed a high-end version and then adapted it to the low-end market, following a similar controlled experiment as with their initial product. The original technology cost about $10,000, but now they sell this product for laptops.
for $20. InfoStore received several awards and funds for their innovations. These awards and funds have created legitimacy and have attracted high technology talent. These examples - focus on SMEs and technology downgrading - suggest different aspects of an effectuation strategy. InfoStore took certain strategic actions with minimal risk and thereby increasingly opened up the market, learned while innovating, and continuously adjusted to new market requirements. The firm has pursued opportunities without investing more resources than minimally necessary.

InfoStore has formed partnerships with domestic firms, Zhejiang University and SoftCore. Its partnership with the Software College of Zhejiang University and SoftCore allows them to learn the state-of-the-art technologies, whereas local firms provide local market information. Other alliance partners, such as an IT (hardware) company, and a network optimization company, co-develop value added services. The role of the local government as a facilitator of innovation is also noteworthy. The active local government support for returnees, high-tech development zones and direct subsidies and funds for technologies facilitate innovation. As an element of an effectuation strategy, InfoStore shares its resources and information with Zhejiang University, with its alliance partners and with local government to find new opportunities to develop and commercialize its technology.

Several aspects of an effectuation strategy can be observed including pursuing opportunities while not investing more resources than minimally necessary, building a large (latent) installed base in a new (niche) market, downgrading technology, and sharing resources with committed partners for open innovation. Figure 2 illustrates InfoStore’s value network.(Figure 2).

*Insert figure 2 about here*

**E-Net**

Established by Mr. Zhang in 2000, E-Net is a software firm specialized in Internet and information technology. The firm operates a number of renowned Internet sites, including China’s retail industry portal, China’s only real estate search engine and a Chinese martial arts and culture portal. Mr. Zhang found that serving the retail industry was limited in terms of customers and revenues. E-Net acquired Hangzhou RenJia in 2003, and Aladdin in 2004 which had just one project called ‘E-City’. Hangzhou RenJia and the new E-City project merged to become the 3D-City project. As a result of the integration of technologies and knowledge between the two companies, the world’s first 3-D virtual city - E-City - was developed in 2004. The strategy of renewing the business model from a retail portal to a 3D digital search engine was driven by controlled experimentation. Mr. Zhang never really risked his existing business but expanded by diversifying first and then, after the new business line had been developed, included it in a new business model; a safe mode of experimentation.

Mr. Zhang indicated that there are basically two types of business networks that matter for the success of his firm. One is the firm’s relationship with the government which is promoting and subsidizing the development of hi-tech industries and informatization, and Mr. Zhang can take advantage of this governmental support. The other is the firm’s relationship with companies in the same industry. CEOs of firms in the same industry formed a local Web 2.0 club to share experience, information and business opportunities. For instance, they cooperated with Koubei in Hangzhou by posting reciprocal links and by bundling products. The general idea is that it is beneficial for all to cooperate, create a ‘brand store’ and enlarge the market. The main aim of this network is to exchange information and jointly solve management problems. The extensive use of external
partners is a response to a lack of resources such as market knowledge, experience, management knowledge, and standards in Hangzhou’s local business environment. These strategies of using business networks suggest an aspect of an effectuation strategy whereby entrepreneurs share their resources and information with committed partners to create and capture value from (latent) possibilities. Figure 3 illustrates E-Net’s value network. (Figure 3)

Insert figure 3 about here

Discussion
The three cases suggest that business model innovation explores and exploits the specific challenges of an emerging economy. In table 1 the three business models of each firm are compared.

Insert table 1 here

It appears that the three Chinese entrepreneurial software firms each employ a form of controlled experimentation and effectuation by resource sharing with committed partners. More specifically, the cases point at the importance of controlled experiments and the role of external partners for effective effectuation strategies. In each case, there is an open attitude towards external partners, and resources and capabilities are shared with committed players. In all three cases, this has a positive impact on business model innovation. We do not suggest that these strategies are exclusive for China. Following comparative institutional analysis, in particular Whitley (2002) that suggests the institutional structuring of innovation strategies, we claim that China’s context is
particularly suitable for and facilitative of these strategies for innovation. Below we discuss the two strategies in connection to the business environment.

*Experimentation* is an important strategy for business model innovation (Chesbrough, 2010). We show that this is also the case for the Chinese business context. A major advantage for firms in China’s emerging economy is that they are part of a large living laboratory (Tsui, Bian, & Cheng, 2006). Entrepreneurial technology firms can experiment with various business models in niches of China’s considerable and – in the case of most high-technology industries – unsaturated market without much economic penalty for failure. Although unexpected policy changes, new technologies, standards or ambiguous local policies may scare investors and may inhibit risk-taking, in certain new industries, policymakers often cannot keep up with the developments in technology, and technology might actually dictate policy. Due to their size, simple structure, agility and risk-tolerance, Chinese private entrepreneurial firms often exploit such institutional delays and ambiguity by moving around swiftly and filling niches, (Tan & Litschert, 1994). Several other studies show the importance of strategic swiftness and flexibility for entrepreneurial ventures (Meyer & Peng, 2005; Tan, 2005). Different strategic orientations have different consequences for innovative potential, and Chinese entrepreneurial ventures increasingly have an innovation orientation (Zhou & Li 2007).

*Effectuation* is another important strategy for business model innovation (Chesbrough, 2010) that has proven to be relevant in the Chinese business context. In a process of effectuation, entrepreneurial technology firms do not analyze the environment in great detail to identify opportunities, but take actions that may create new information that helps them to recognize opportunities. Following

Simon’s (1996) argument, such firms enact the market and exploit latent opportunities. Such a strategy might be useful in a business environment where insufficient data is available to analyze the market. China’s business environment poses this challenge to many entrepreneurial technology firms: a liability of newness of the private sector in combination with weak institutions. This leads to considerable process uncertainty due to the unavailability of the necessary and relevant information and the inability of firms and entrepreneurs to utilize the available information effectively. In such a business environment, a strategy of effectuation could prove highly useful as entrepreneurial technology firms would take action that creates information. For example, a firm may invest in a new technology and discover that there is a particular local government policy that financially supports the development of this new technology if jointly developed with a local university’s research center. Based on this new information, the firm can adjust its business model to incorporate a technology partner and open up the innovation process.

Additionally, it can be concluded based on table 1 that lock-in, complementarity, efficiency, novelty, and Legitimacy are important value drivers for the local firms value network. This is line with the research of Amit & Zott (2001) who identify the first four value drivers as drivers for business models in the e-business sector. Lock-in is created when customers, partners or suppliers are motivated to make repeated transactions. An increased willingness to pay by customers and lower opportunity costs for partners enhances the value potential of the business model. The lock-in can be created in multiple ways, such as loyalty programs and (online) community building (Amit & Zott, 2001). Complementarities arise whenever a bundle of goods and services provides more value than the value of separate goods and services. Transaction efficiency gains by, for instance, reducing information asymmetries between buyers and sellers will lower the
costs of a transaction and hence make it more valuable. Finally, novelty can increase the value potential of a business model by innovating the way a firm does business, i.e., structuring of transactions.

Amit & Zott (2001) do not mention legitimacy as a value driver but this appeared to be especially important in the Chinese situation. A lack of legitimacy poses constraints on attracting a stable installed base, due to unfamiliarity and low switching costs and constraints on attracting talented employees (Aldrich & Fiol, 1994). It is difficult to locate and attract good employees, either due to the presence of more attractive foreign firms or due to lack of reputation. In particular, the middleware market in China is extremely new, with many unfamiliar and inexperienced customers. This does not foster legitimacy. Private entrepreneurs gain legitimacy as innovators by building a strong company reputation in the local business community. Legitimacy in new markets depends on a firm’s reputation, for example, to establish viable relations with suppliers and customers. As a complementary effect, reputation mitigates uncertainty and market imperfectness in the whole local business community (cf. Lichtenthaler & Ernst, 2007).

Interestingly, the discovery of this value driver suggests that in addition to integrating strategic network theory and business models (Zott & Amit, 2001), we need to consider institutional theory to explain the sources of value in emerging economies, i.e., economies with weaker institutional frameworks.

We propose that business model innovation is dependent on the business environment. In particular, the business environment can constrain or facilitate the strategies for business model innovation. In our cases, these strategies of experimentation and effectuation facilitated the renewal of the firms’ value network. Figure 4 illustrates our model of business model innovation.

Our findings have managerial implications. First, managers need to adapt their business model to the business environment. They also need to consider this business context when renewing their business model. In China, two strategies for business model innovation stand out – experimentation and effectuation – suggesting that China’s context is particularly facilitative for these strategies. Following such logic, it is likely that similar strategies of experimentation and effectuation may be effective in other emerging economies, such as Brazil, India, and Russia. Managers in these emerging economies are also likely to face challenges from newness and uncertainty. Second, new sources of value creation are to be found in value networks rather than in individual firms. The renewal of value networks, in particular the governance of participating external constituencies is even more challenging than purely considering one’s own firm, and our case studies suggest that experimentation and effectuation strategies help to renew the value network to become a source of new value creation. Third, in an emerging economy, legitimacy is an important value driver. The value network may need to create legitimacy as a clear new value driver to secure the continued participation and involvement of external constituencies in the value creation process.

The paper contributes to the literature on business model innovation by examining business model innovation in China and providing insights into innovation in China’s newly emerging technology and knowledge-intensive industries. Future research could explore and test the relationship between business model innovation, which takes place within or across the boundaries of the firm, and the business environment, which shapes
the incentives and constraints for business model innovation. Future research on business model innovation in China could validate our findings in large samples, in different sectors and in different regions of China.

**Conclusion**

This paper has explored the extent to which Chinese entrepreneurial firms apply business model innovation by conducting an in depth investigation of three entrepreneurial software firms. The findings suggest that Chinese entrepreneurial technology firms use a combination of experimentation and effectuation strategies to facilitate business model innovation, while mitigating the challenges of China’s business environment. Based on this first qualitative empirical evidence in an emerging economy, we suggest that these two strategies warrant further investigation and confirmation. These two strategies are focused on creating a value network that offers five potential sources of value: novelty, lock-in, efficiency, complementarity and legitimacy. Legitimacy is an important value driver and suggests an additional potential source of value in an emerging economy like China’s.

**References:**


Table Caption:

Table 1: Business model innovation in three Chinese software firms

Figure Captions:

Figure 1: RiskSuite’s value network
Figure 2: InfoStore’s value network
Figure 3: E-Net’s value network
Figure 4: A model of business model innovation