

Technology entrepreneurship in China

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Introduction

From a Western perspective, technology entrepreneurship in China is at once familiar and foreign. Technology entrepreneurship in China is familiar because it is spearheaded by individuals with largely grassroots origins, as it is in many Western economies. Indeed, the prototype of the Silicon Valley entrepreneur, i.e. the individual who starts an innovative tech venture out of his or her college dorm room, mirrors the experience of many Chinese tech entrepreneurs. At the same time, technology entrepreneurship in China is foreign because it originated from policy directives within a command economy and continues to be influenced by this same command economy (Li, 2010). Over the past 30 years, the increasing market-based reform (often known as marketization) of the Chinese economy has fostered technology entrepreneurship and contributed to the creation of successful high-tech firms like Baidu, Sohu, and Alibaba. Yet, China still lacks the regulatory and judiciary institutions that are needed to support a true market economy, and many sectors of the Chinese economy still operate in a patrimonial fashion. Technology entrepreneurship is at once a representation of China's attempt to become a modern economy and a reflection of the nation's struggle to do so thus far.

To survive and succeed in China's dual market-patrimonial economy, technology ventures must transform themselves into a unique breed of organizations. At their core, they must have the human capital, technological capabilities, and the strategic acumen necessary to transform raw supplies into competitive products. At the same time, they must build personal relationships with the economic elites of China, i.e. powerful bureaucrats and influential managers in state-owned enterprises, in order to protect their core operations and defend against opportunistic behavior. The nature of China's economic order makes the ability to operate ambidextrously in both market-like and patrimonial fashions a prerequisite for high performance. This ambidexterity is difficult to achieve and maintain. As such, the top-down, patrimonial economic order of China's economy is simultaneously the force that first enabled technology entrepreneurship to flourish and the barrier that prevents technology entrepreneurship in China from reaching its true potential.

The history of technology entrepreneurship in China

A discussion of technology entrepreneurship in China necessarily starts with an overview of its history. Many of the observations we make regarding Chinese high-tech firms are closely linked to how technology entrepreneurship in China began and developed. As the development of technology entrepreneurship in China happened in concert with the development of China's economy over the past 30 years, we begin our discussion of technology entrepreneurship in China with a short overview of China's economic reform.

China's economic reform

Formally, China's economic reform began during the Third Plenary Session of the Eleventh Central Committee of the Communist Party of China in 1978 (Li, 2010). Reform-minded policy-makers under the leadership of Deng Xiaoping consolidated their hold of the national government during this session and implemented a series of economic reforms. In aggregate, these reforms are known as China's "Reform and Opening Up."

"Reform and Opening Up" has three major themes. Each of these themes can be thought of in general as intending to spread resource allocation and investment decisions out from the top to a broader range of the population. The first is *decentralization*, which refers to the central government's efforts to stimulate local and regional economic development by delegating economic obligations to provincial and local governments (Boisot and Child, 1996). This delegation was typically done by having the provincial and local governments assume fiscal responsibility over their jurisdiction and was often coupled with a loosening of oversight from the central government (Li, 2010). Overall, this central-to-regional redistribution of responsibility and power successfully incentivized provincial and local governments to pursue economic development within their jurisdiction. The result was strong incentives for local government officials to make investments for local economic growth, with the trade-off of investment-led, rather than consumer-led, growth. To summarize, one of the consequences of "Reform and Opening Up" was that government bureaucrats at the regional and local levels gained power over the regulation of economic behavior and the execution of economic policies within their jurisdiction.

The second theme of "Reform and Opening Up" is *marketization*, which we define as the central government's efforts to stimulate economic development by making state-owned enterprises responsible for their own decisions and performance. One of the ways that the central government marketized state-owned enterprises is via privatization, where ownership of state-owned enterprises was transferred to private entities and individuals. The government may still hold a significant ownership stake post-privatization, but controlling shares are often held by private entities, many of which are composed of former managers of these state-owned enterprises (Walder, 2009). In privatizing state-owned enterprises, the central government forced the private owners of these enterprises to become responsible for the survival and performance of the enterprises. The process of marketization also occurred in state-owned enterprises that were not privatized. Since 1979, the managers of many state-owned enterprises in China were given discretion over production, inputs, outputs, organizational policies, and personnel decisions (Child, 1994). From 1981 onwards, many state-owned enterprises were also made to assume full financial responsibility (Li, 2010). Similar to what decentralization did for bureaucrats at the provincial and local level, privatization reflects a policy prerogative on the part of the central government to transfer decision-making power and economic responsibility to the private entities that control or manage state-owned enterprises.

The third theme of “Reform and Opening Up” is *modernization*, which refers to the central government’s attempt to stimulate economic development by increasing the scientific and technological capabilities of Chinese firms. The development of technology entrepreneurship in China—which we discuss in the following section—is one significant dimension of the modernization of the Chinese economy. Yet, modernization—as both an economic trend and as a policy prerogative—was not limited just to technology entrepreneurship in the private sector. The government invested very significant financial and human resources into modernizing the state-owned sector, mostly via technology transfer from foreign sources in the form of equipment import, intellectual property licensing, and technology consulting (Wang, 2011). From 1979 to 1991, the majority of technology transfer took place in the energy sector (28 percent), the manufacturing and telecommunications sector (24 percent), the petroleum and chemicals sector (20 percent), and the metallurgy sector (18 percent), all of which are dominated by large state-owned enterprises (Chen, 1997). This trend did not change after China joined the World Trade Organization (WTO) in 2005 (Wang, 2011). Thus, while technology entrepreneurship has contributed significantly to the overall modernization of China’s economy, the Chinese government invested far more resources in modernizing state-owned enterprises.

As significant as the three trends just mentioned is the fact that China’s economic “Reform and Opening Up” was not accompanied by political and legal reforms. Despite the Chinese government’s attempts to establish a capitalist market economy, the government has not established the necessary institutions that regulate firm behavior in a capitalist market (Boisot and Child, 1996). In many other cases, the laws do exist, but their implementation and enforcement are limited and under the influence of decisions by government officials. For example, although the central government adopted a patent law as early as 1984, the institutions necessary for the implementation of the law are still rudimentary (Baark, 2001). This has hampered the government’s ability to adjudicate cases involving patent infringement and intellectual property disputes (Fawlk, 1996). Similarly, China lacks well-developed contract laws and judiciary institutions, which inhibits the courts’ ability to adjudicate disputes arising from market transactions (Peng and Heath, 1996; Xin and Pearce, 1996). Overall, while policies since “Reform and Opening Up” have attempted to stimulate economic development by influencing firms to behave in a market-like manner, the Chinese government has either not established or not systematically implemented the formal institutions necessary to support a mature market economy.

As a result, “Reform and Opening Up,” rather than spreading economic decisions broadly across society, instead caused a large amount of economic and political power to fall into the hands of a select group of individuals. When the central government transferred decision-making power to lower-level bureaucrats and managers of state-owned enterprises without establishing institutions capable of regulating how these individuals used their new power, the central government effectively increased the degree to which these individuals at lower levels can act unilaterally within their jurisdiction. Unsurprisingly, these individuals often used their new and often unchecked power to transform their jurisdiction—be it a geographical region, a government bureau, or an enterprise—into patrimonial estates that they controlled with near absolute power and often exploited for personal benefit (Nee, 1992; Walder, 1995; Boisot and Child, 1996). This is not to say that these effectively patrimonial regions, bureaus, or enterprises are necessarily inefficient. Rather, what we do observe is that economic reform coupled with the lack of political and legal institutions has given a select group of individuals in China the power to make decisions pertaining to matters within their jurisdiction in accordance with their personal objectives.

Development of technology entrepreneurship in China

As a part of China's economic modernization effort, technology entrepreneurship in China began with policy initiatives from the central government (Baark, 2001). The political legitimization of technology entrepreneurship was quickly followed by explicit policy support, of which there are three types.

The first type of policy initiatives aimed to increase the quantity and quality of scientific and technological research being done in research institutions and stimulate the transfer of knowledge from these institutions to entrepreneurial ventures. One example of such a policy initiative is the Torch Program. Launched in 1988, the Torch Program aimed to increase the diffusion of technology from research institutions to entrepreneurial ventures (Baark, 2001). A second example is Project 973, which the government launched in 1997 in order to support scientific research in areas that are critical to China's economic modernization (Ministry of Science and Technology of the People's Republic of China, 2008). Overall, the first type of government policy initiative attempted to increase the quality and size of the body of knowledge from which entrepreneurs can draw on to create profitable innovations.

The second type of policy initiative aimed to improve the quality of individuals who could potentially become entrepreneurs or contribute to entrepreneurial ventures. Some policies of this type were direct attempts at influencing high-quality individuals to start new ventures. For example, China recently introduced a new policy that graduates from the top 100 universities must all take a class in entrepreneurship before graduating (Ministry of Education of the People's Republic of China, 2012). Other policies were broader initiatives that aimed to increase the quality of individuals who may not become entrepreneurs themselves but can nevertheless contribute to the growth of technology entrepreneurship in China. One such policy initiative is Project 985, which implemented a range of reforms to top universities in China so that these universities can develop the scientists, innovators, entrepreneurs, and financial investors who are necessary to support the ecosystem surrounding technology ventures (Ministry of Education of the People's Republic of China, 2005; Eesley *et al.*, 2013). Another example is the Outstanding Young Scientist Fund of the National Natural Science Foundation of China, which the central government established in 1994 in order to attract Chinese expatriate scientists from foreign institutions back to China (Ministry of Science and Technology, 2008). The government established this fund because, though these scientists may not themselves become entrepreneurs, their research and their experience of working in overseas institutions and firms are nevertheless valuable for the growth and success of technology entrepreneurship in China. Overall, the second type of policy initiative aimed to increase the quality of individuals that the entire ecosystem surrounding technology entrepreneurship in China relies on for support, innovation, and growth.

The third type of policy initiative attempted to establish fields within which high-tech entrepreneurial ventures can survive and grow. These policy initiatives include measures that directly established science parks specifically designed to aid the founding and growth of new technology ventures. One example of such a science park is Beijing's Zhongguancun Science Park, which was established in 1988 (Eesley and Yang, 2013). We differentiate science parks from other funding programs or reform policies because science parks—such as the Zhongguancun Science Park—provided far more than simple financial support or policy aid. The true function of the science park institution was to give new technology ventures both a physical space and a figurative playing field with conditions that are more favorable to their growth than those in the wider economy. As such, by establishing science parks, the Chinese government essentially provided a series of “cocoon institutions” within which entrepreneurs with little social and financial capital could still establish successful ventures (Eesley and Yang, 2013). In addition to

establishing “cocoon” with conditions favorable to technology ventures, the Chinese government also pursued policy initiatives that increased the favorability of existing industries or fields to technology entrepreneurship. For instance, Eesley (2012) showed that the Chinese government had successfully encouraged entrepreneurs to enter into industries that were traditionally dominated by state-owned enterprises by implementing policies that lowered the barriers to growth for these industries. Overall, the third type of policy initiatives aimed to foster technology entrepreneurship by making conditions more favorable to technology ventures in particular fields within the Chinese economy.

Interestingly, as technology ventures in China began to flourish, they became less patrimonial and more market-like than firms in other sectors of the Chinese economy. While bureaucrats and top managers often dominate industries such as metallurgy or petroleum in a patrimonial fashion, entrepreneurial ventures in sectors such as the internet industry often compete and innovate in ways that resemble their counterparts in mature Western economies (Eesley and Yang, 2013). This is not to say that technology ventures in China do not need to build *guanxi* or engage in particularistic behavior the way that other firms in China do. In fact, one of the major conclusions from the research on technology entrepreneurship in China is precisely that firms that engage in network building with powerful bureaucrats and top managers in state-owned enterprises generally perform better (Li and Zhang, 2007). What we do claim is that technology ventures in China are more similar to firms in mature market economies than other firms in China, and we attribute this similarity to three sources.

First, the grassroots origin of many Chinese technology entrepreneurs may have inhibited high-tech ventures from exerting patrimonial dominance over their industries, forcing them instead to rely on innovation and strategy in ways that are similar to the competitive behavior of technology ventures in Western economies. The bureaucrats and top managers who came to dominate the Chinese economy after “Reform and Opening Up” were generally already a part of China’s social and economic elite prior to the reforms. As such, these individuals already possessed significant human and social capital during the initial stages of the economic reforms, and they quickly took advantage of their resource superiority to dominate their respective sectors. In contrast, upstart high-tech sectors such as the internet industry did not exist before the economic reforms and consequentially did not contain “royalty” who could use their historical resource advantages to rise to the top of the Chinese economic order. Instead, entrepreneurs who entered China’s high-tech sectors were generally individuals from grassroots origins with little or no connections to China’s economic elite (Walder, 2009). To survive and grow, these technology entrepreneurs often had to rely on novel innovation and savvy competitive strategy to outmaneuver their competitors—just like their counterparts in Western economies. Thus, the grassroots origins of China’s technology entrepreneurs may have forced these entrepreneurs to operate and compete in “market-like” ways.

Second, the presence of Chinese expatriates in many technology ventures may have influenced these ventures to behave in ways that are similar to their counterparts in Western economies. These expatriates are often individuals who have received education from a Western university and have worked for an extended period of time in Western research institutions or corporations. Having studied and worked in Western society, the Chinese expatriates may have become accustomed to how technology ventures innovate, grow, and compete in the Western economy. When these expatriates return to Chinese research institutions or ventures at the calling of government programs, they are likely to bring with them Western managerial concepts of how technology firms should operate and compete. Given that a significant number of Chinese expatriates are present in the ecosystem surrounding technology ventures as researchers, entrepreneurs, and financiers, these expatriates may influence Chinese technology ventures to become more similar to their Western counterparts.

Third, certain features of high-tech fields influence these fields to become similar to mature market economies, which then cause the ventures that operate in these fields to behave in market-like ways. In some cases, the Chinese government intentionally incorporated particular features into certain high-tech fields with the intention of causing these fields to become more market-like. In the case of Beijing's Zhongguancun Science Park, the government granted all employees of technology firms within the park Beijing residency and reduced taxes on technology transfers, R&D expenditures, services, and consulting activities (Eesley and Yang, 2013). The government implemented these measures to lower the barrier to entry for the Zhongguancun Park and attract grassroots entrepreneurs so that the Zhongguancun Park could become a field in which technology ventures can compete in a market-like fashion. In other cases, certain attributes of the technology that form the basis of high-tech fields influence these fields—and the ventures within these fields—to become more market-like. An example of this is the internet industry. Firms operating in the petroleum or mining industries need financial resources to purchase the necessary equipment, access to the raw materials, and approval from government bureaus for their products and processes in order to even begin operation. As a result, elite individuals who have ties with equipment manufacturers, raw materials producers, and bureaucrats in the relevant regulatory agencies have a significant advantage over grassroots entrepreneurs—an advantage that these elites then leverage to out-compete rivals and dominate their industries. In contrast, firms operating in the internet industry face much lower entry barriers: they need only a computer with internet access and knowledge of how to build a website to create an internet start-up. As a result, large internet firms cannot squeeze out new internet start-ups the way state-owned corporations squeeze out private petroleum processing plants or steel mills in China. To summarize, technology ventures in China may be similar to their counterparts in the West because the fields they operate in are similar to those in mature market economies.

Technology entrepreneurship in China is a curious fusion of patrimonial control and market economy. As with many other sectors of the Chinese economy, the high-tech sector was created because of top-down government policy initiatives. Powerful bureaucrats within government agencies still hold significant power over technology ventures in China and may still engage with these ventures in the same patrimonial manner in the way they engage with firms in most other sectors of the Chinese economy (Peng, 2004; Walder, 2009). At the same time, the grassroots origins of China's technology entrepreneurs, the influence of expatriates returning from Western economies, and the characteristics of high-tech fields all influence technology ventures to innovate and compete in ways that are not dissimilar from their counterparts in the West.

How technology entrepreneurs succeed in China

Chinese technology entrepreneurs who possess network ties with powerful bureaucrats and influential managers of state enterprises gain significant competitive advantages. In the context of Chinese society, these network ties are usually personal relationships embedded in norms of reciprocity, trust, and long-term commitments (Granovetter, 2007). Given that a select order of bureaucrats and top managers at large enterprises dominate the Chinese economy, technology entrepreneurs who are tied to these economic elites and could gain favors from them would most certainly enjoy competitive advantages over rivals. As such, technology entrepreneurs who possess ties to the economic elite generally perform better than entrepreneurs who do not (Li and Zhang, 2007). More specifically, the technology entrepreneur who possesses ties to the economic elites of China gains three kinds of competitive advantages.

First, network ties with economic elites may act as a defense mechanism against patrimonial expropriation. Chinese economic elites often abuse their power and status to expropriate

organizations within their jurisdiction (Nee, 1992). By forming a personal relationship with select economic elites, the entrepreneur can utilize the norms of reciprocity and trust to deter expropriation. The existence of a personal relationship also enables the entrepreneur to lure the economic elites into incurring social debt with gifts and special services (Granovetter, 2007). Bonded by the norms of personal relationships and obligated to repay the social debt, the economic elites refrain from expropriating the entrepreneurs they are personally tied to (Park and Luo, 2001). The well-connected technology entrepreneur thus gains competitive advantage over his rivals by being more “immune” to the harmful effects of patrimonial expropriation.

Second, network ties with economic elites enable entrepreneurs to defend themselves against illegal competition from rival firms. The lack of well-developed regulatory and judiciary institutions in China increases the latitude for firms to behave opportunistically and engage in illegal competition (Peng and Heath, 1996; Xin and Pearce, 1996; Li and Atuahene-Gima, 2001). As a result, firms in China regularly break contracts, ignore patents, violate copyrights, and engage in other forms of unlawful behavior in order to gain competitive advantage (Li and Zhang, 2007). The economic elites of China, by the power they possess, do have the power to regulate economic activity (Nee, 1992; Walder, 1992). Technology entrepreneurs who are connected with the economic elites can thus utilize the power of these elites to ensure that their own contracts are protected, that their own patents are upheld, and that rivals who attempt to compete in an unlawful way are punished. The well-connected technology entrepreneurs thus gains competitive advantages because their ties to China’s economic elite makes them more immune to the harmful effects of rivals’ illegal competitive behavior.

Third, the possession of network ties with economic elites enables technology entrepreneurs to access the resources and information controlled by these elites. Economic elites in China possess the power to allocate resources and provide insider information in accordance with their personal preferences (Nee, 1992; Walder, 1995). Entrepreneurs who possess ties with these economic elites can use these ties to access government funding, acquire contracts from government agencies and state enterprises, and gain insider news on upcoming policy changes (Park and Luo, 2001; Acquaah, 2007). This is particularly true if the elites have incurred social debt towards the entrepreneurs, in which case the entrepreneurs could use this debt as social leverage to acquire resources and information from the elites. Given the transitional and turbulent nature of China’s economy, technology entrepreneurs who could gain preferential access to resources and anticipate upcoming policy changes would gain significant competitive advantages over less privileged rivals.

Although ties with economic elites may be a complement to high human capital, novel innovation, and savvy strategy, it is not a substitute. Technology entrepreneurs in China remain dependent on human capital, novel innovations, lucrative alliances, and sound competitive strategy for success. For instance, Li and Zhang (2007) find that the relevant functional experience of managers in entrepreneurial ventures is positively related to venture performance. Similarly, Eesley (2012) finds that entrepreneurs who possessed higher quality human capital are more likely to found high-performing ventures. Together, these finding suggests that the quality of human capital within Chinese tech ventures may be as critical for performance as ties with economic elites. Li and Atuahene-Gima (2002) find that technology ventures that possessed agency business relationships with foreign firms benefited from the foreign partner’s status and financial resources and were consequentially higher performing. This suggests that sound alliance partner selection and management are also critical to the success of technology ventures in China. Li and Atuahene-Gima (2001) find that pursuing a product innovation strategy is more likely to result in increases in firm performance in turbulent environments. Given the transitional and often unstable nature of China’s economy, this finding suggests that investing in innovation—especially

in nascent industries and ambiguous markets—may be a rewarding strategy for technology ventures in China. Finally, Eesley and Yang (2013) find that entrepreneurs who pursued strategies consistent with their institutional environments were more likely to achieve high performance. This finding suggests that firms operating in more market-like fields, e.g. science parks or high-tech industries, may actually perform better if they lessened the amount of resources devoted to networking and instead invested more resources in innovation, alliances, and human capital. Overall, research on technology entrepreneurship in China suggests that innovation, alliances, and human capital are just as critical to the success of technology ventures in China—and in some cases more so—as networking with economic elites.

Furthermore, the outcomes of networking with economic elites may not be entirely rosy. Building and maintaining relationships with members of the economic elite may be both time-consuming and costly, as entrepreneurs must repeatedly utilize a complex array of gift-giving gestures in order to curry favor with the elites and maintain relationships (Granovetter, 2007). If the benefits the entrepreneur gains from his ties with elites does not equal the time and money he expends to build and maintain these ties, then the possession of ties with elites may actually harm the venture's performance. Indeed, Park and Luo (2001) find that the utilization of political ties positively affects firm sales growth but has no significant effect on net profit growth, which suggests that the resources expended to build and maintain ties with elites may often offset any extra profit gained from these ties. Far from being a panacea, networking with economic elites is a strategy with its fair share of downsides.

Overall, the conclusion that emerges from our overview of the strategies of technology ventures in China is this: high-performing technology ventures in China are often ambidextrous organizations that are capable of profitably engaging with the patrimonial side of the Chinese economy while simultaneously implementing the strategies necessary to achieve high performance in the more market-like high-tech sectors. The patrimonial aspects of China's larger economic environment and the market-like characteristics of China's high-tech industries and science parks put two different and often conflicting sets of institutional pressures on China's technology entrepreneurs. The successful technology entrepreneurs in China are often the individuals who are able to navigate the patrimonial-market duality of China's economy and pull competitive advantages from both sides of this duality. Unfortunately, organizational ambidexterity is difficult to master, and many technology entrepreneurs place too much faith on the profit potential of their innovations while neglecting to engage the patrimonial side of the Chinese economy (Eesley *et al.*, 2013). As a result, while China has produced a select number of successes in the high-tech sector (e.g. Baidu, Alibaba), many of the highly-innovative technology ventures in China today are nevertheless likely to fail.

Technology entrepreneurship in China: directions for future research

Patrimonial-market duality and organizational ambidexterity

That technology ventures need to simultaneously engage with the patrimonial and market-like dimensions of the Chinese economy is evident from our discussion above. Yet, entrepreneurship and management scholars have not looked at how entrepreneurial ventures in China successfully respond to the institutional pressures from both the patrimonial and market-like dimensions of the Chinese economy. Successfully engaging both the patrimonial economy and the market-like sectors is difficult because the “rules of the game” of these two dimensions of China's economy are often conflicting. Transactions in a market economy are generally conducted in a hands-off and universalistic manner. Building close, personal ties with one's business partners is generally

considered unprofessional, while giving favorable deals selectively to one's friends or kin is seen as corrupt and illegal. In contrast, transactions in a patrimonial economy are generally conducted using personal relationships as a catalyst. Building close, personal ties with one's business partners is often a prerequisite for closing a deal, and giving favorable deals selectively to one's friends or kin is merely a normal part of business. In fact, under traditional Chinese norms of reciprocity and social justice (*yí*), *not* giving favorable deals selectively to one's friend or kin is considered to be a sign of weak moral character. Given that technology entrepreneurs must nevertheless engage both dimensions of China's economy in order to succeed, they must build organizational routines and structures that are capable of simultaneously engaging with the environment in a contradictory manner. Clearly, this is difficult.

The presence of successful technology ventures in China suggests that technology entrepreneurs *can* construct organizational routines and structures that are capable of engaging with contradictory institutional pressures from the environment. Prior research suggests that modularity may be one way that this is done: that is, technology ventures institute separate departments for engaging the market-like sector and for building particularistic networks with economic elites. Equally likely, however, is the possibility that technology firms utilize organizational structures or routines that do not exist in Western economies in order to meet this challenge. Overall, an understanding of how technology ventures in China successfully respond to institutional pressures from both the patrimonial and the market-like dimensions of the Chinese economy is likely to both advance scholarly understanding of entrepreneurship and organizations and contribute significantly to the performance of technology ventures in China and similar emerging economies.

Regional differences within China

A fruitful area of research would be to compare and contrast the development of technology entrepreneurship across different regions within China. So far, the majority of research on technology entrepreneurship in China has treated China as a single institutional and cultural bloc. Yet, different regions within China exhibit significant institutional and cultural differences. Overall, an examination of ventures in different regions of China is needed to gain a more granular understanding of technology entrepreneurship in the country.

Interestingly, cross-regional analysis of technology entrepreneurship in China may provide a way for researchers to separate the effects of institutions and culture. Given all regions of China are governed by the Chinese Communist Party and are subject to the same centralized governance, institutions may not vary much across regions within China. This may provide researchers the opportunity to examine technology entrepreneurship across institutionally similar but culturally different regions, with the aim of understanding how cultural norms, values, and ways-of-life affect the organizational behavior of technology ventures in China.

Entrepreneurship and institutional flexibility

An additional avenue for understanding how technology ventures in China survive and succeed is to examine how institutional flexibility impacts entrepreneurial firms. Yang and colleagues (2013) define flexible institutions as institutions that outline goals or objectives but do not specify how they are to be met. In the same paper, Yang and colleagues find that flexible institutions foster innovation and entrepreneurship by allowing greater freedom of choice and lessening the constraints to exploratory activities. Yet, while Yang and colleagues examined how flexible institutions impact firm founding rates, how flexible institutions influence entrepreneurial performance remains under-studied.

Flexible institutions may give individual firms the freedom to operate either in a patrimonial fashion or in a market-like manner, so long as these firms ultimately meet the objectives that the institutions set. Firms could choose to operate in a way that best suits their technology, their culture, and their industry norms. Overall, the concept of flexible institutions provides a novel avenue for examining how high-tech entrepreneurial ventures survive and succeed in China.

Conclusion

Technology entrepreneurship in China has come a long way since the “Reform and Opening Up” policy was first announced. Taking a longer historical view, China was a world leader in new technologies in ancient times (and had the world’s largest economy in 1800). Yet, only in recent history has it begun to make significant strides towards developing the institutions and expertise in commercializing those technological innovations via technology entrepreneurship. While great strides have been taken and a first generation of successful technology entrepreneurs are now investing in and mentoring the younger generation of entrepreneurs, more reforms and progress on institutional development are needed. Technology entrepreneurship in China is still hindered by a number of factors related to the lack of political and legal reforms relative to progress in economic reforms. Regulations and effective enforcement of existing regulations on intellectual property, the legal system for contract enforcement, entrepreneurial finance and fundraising, as well as bankruptcy and public financial market reforms need to occur for technology entrepreneurship in China to reach its full potential. In addition, the industrial policy balance between private entrepreneurs, state-owned enterprises, and foreign-invested firms needs to be balanced towards giving entrepreneurs a level playing field to compete on. China has made progress in its plans to transition to a science- and technology-driven economy, yet the challenges of moving up the value chain from a manufacturing and export-driven economy are significant. As wages continue to rise, the opportunity for greater domestic consumption-led growth must be balanced with the movement of more economic activity to the less-developed interior provinces. Further reforms along these lines alongside additional investment in developing the western, interior provinces should enable China to take advantage of prior groundwork of reforms. Whatever the future holds, these challenges will continue to provide organizational theorists and entrepreneurship scholars with plenty of research opportunities to further our understanding and to contribute to the development of technology entrepreneurship in China and beyond.

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Charles E. Eesley and Jian Bai “Jamber” Li

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