

**Institutional Entrepreneurship in Building Technology Entrepreneurs - Friendly  
Environment in the Peripheral Region of China: a Process-Driven Perspective Based on  
Path Dependence**

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**Abstract**

Wuxi, a second-tier city is becoming a national leader to promote technology entrepreneurship in China. Many technology entrepreneurs flock there to start their ventures. How can this city build a technology entrepreneurship-friendly environment? What are the mechanisms of the institutional change? These are our central research questions. Based on in-depth qualitative analysis and historical event sequencing methods, we depict how a peripheral region in China became a technology entrepreneurship-friendly environment in less than a decade. Drawn from theoretical lenses of institutional theory and path dependence, we illustrate the explanatory power of the integrative approach. Our contributions are threefold: firstly, we extend the three-phase path dependence model by integrating institutional theory; secondly, given the government role in China, the developmental sequence of three institutional pillars differs from the model developed in western economies, namely the regulatory pillar coming first, followed by the normative and cognitive pillars; thirdly, we provide evidence to explain the underlying mechanisms of path dependence on the institutional level by investigating a peripheral region in China, which is largely neglected by scholars. We hope to shed some light to policy makers from both emerging economies and developed economies when institutional changes are needed. The implications and discussions conclude this paper.

**Key words:** institutional entrepreneurship, path dependence, China, institutional work, historical event sequencing

“The Wuxi government... should look like: babysitters at the creation of the firms, mentors in the development phase, and bodyguards after the success of the firms.”

— Yang Weize, general secretary of Wuxi city, 2008

## 1. Introduction

Emerging economies, such as China, undergo profound institutional transformations and provide exciting research places for management science research (Wan, 2005). The transformations of institutions have enormous impact on entrepreneurship in China (Bruton, et al, 2008; Yang & Li, 2008). In the Mao era, private entrepreneurship was a political taboo (Guiheux, 2006; Peng, 2004). Recently, China earned a reputation as one of the world’s most entrepreneur-friendly countries (Kschetri, 2007).

How did the institutional arrangements change with regard to entrepreneurship in China is the question that triggered this research study. Moreover, how can China build the institutional pillars, namely cognitive, regulative, normative (Scott, 2001), to support the institutional change in building entrepreneurship-friendly environment? Who are the institutional entrepreneurs? What are their roles in institutional change?

We allocate our arguments within the context of China, one of the largest emerging economies, and more specifically in the case of Wuxi, which promoted technology entrepreneurship and cultivated the entrepreneurship-friendly environment in recent years. We choose Wuxi as the subject of our analysis for several reasons. First, Wuxi cultivated the largest Chinese solar energy company, Suntech Power, which was listed in NYSE 2005 and became one of the largest solar energy companies worldwide. In addition, Suntech Power ignited the creation of the solar industry in China. Second, Wuxi government set up the 530 Plan in 2006 which merely attracts the overseas Chinese technology entrepreneurs. In less than 5 years from 2006 to 2010, over 700 PhDs arrived in Wuxi to start their technology ventures. Third, Wuxi is a typical peripheral region in contrast to Shanghai or Beijing. It has a population of approximate 4.5 million, and was ranked in the top 40 among Chinese 120 cities competitiveness (World Bank, 2006). Scholars paid relatively little attention to the peripheral region, especially in the context of the emerging economies. We argue that the decisions and outcomes are the result of the ‘institutional work’ originated, conducted, and delegated by local governments together with entrepreneurs over the decade (Lawrence & Suddaby, 2006). We account the institutional work as the multiple practices / actions which are shaped, selected and filtered along the path dependence process, which led to the creation of an entrepreneurship-friendly institutional environment. A historical event sequencing approach (Thornton, et al, 2005) is used to examine the institutional evolution of Wuxi over time.

We believe that our paper contributes to the literature on institutional entrepreneurship and path dependence in several ways. First, we extend the three-phase path dependence model (Sydow, et al., 2009) by integrating institutional theory and institutional work. Departing from the three phase model, we emphasize the institutional work carried by different actors, influencing the emergence of critical juncture and lock-in of institutions. We hope to advance our understandings in opening the black box of path dependence on the institutional level.

Second, we juxtapose the different roles played by institutional entrepreneurs, as the government delegates some institutional work to technology entrepreneurs, while conducts some institutional work itself. This echoes the argument in a recent study which profiles state as the institutional entrepreneur in building specialized free zones in Dubai to create and enable international entrepreneurship (Nasra & Dacin, 2010). Based on our analysis, we suggest that institutional building, due to context-specific factors, across different regions does not follow the same path of de-institutionalization and re-institutionalization as observed in the western world (Barley & Tolbert, 1997; Greenwood & Suddaby, 2006). We distinguish the developmental sequence of three institutional pillars in China, namely the regulatory pillar coming first, followed by the normative and cognitive pillars, differing from the model developed in western settings,

Third, we provide evidence to explain the underlying mechanisms of path dependence on the institutional level by investigating a Chinese peripheral region. It is argued (Saxenian, 2008) that the brain circulation from Silicon Valley to periphery helps the periphery become successful technology center, such as Israel. Entrepreneurs and their international networks play a vital role in the technology industries' global expansion, and make an increasingly important contribution to economic growth and development. As a metaphor to the ancient Greek Jason and the Argonauts, who searched for the Golden Fleece, the new Argonauts mobilized the technological know-how, experiences and international network to create value for the "peripheral" economy. It is these "Chinese Argonauts" who join the institutional change process and undertake institutional work to create the technology entrepreneurship-friendly environment.

This article is structured as follows: we first take a theoretical review of literatures and develop the research questions individually along different theoretical perspectives. Then, an integrative conceptual model of path dependence is proposed to understand the institutional entrepreneurship. Secondly, sample, data collection and research methodologies are described, followed by the findings and some propositions. A discussion on policy and theoretical implications and future research directions conclude this paper.

## **2. Theoretical background**

### **2.1 Institutional entrepreneurship**

The burgeoning literature on institutional entrepreneurship (Battilana, et. al, 2009, for review) emphasizes the "paradox of embedded agency" (Holm, 1995; Seo & Creed, 2002). However, the role of actors and their action in the creation, diffusion, and stabilization of institutions remained unclear, when the change was attempted to be explained (Dacin, et. al, 2002). DiMaggio (1988) argued that "new institutions arise when organized actors with sufficient resources see in them an opportunity to realize interests that they value highly". Institutional entrepreneurship refers to the "activities of actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones" (Hardy & Maguire, 2008).

Scott (2001) suggested three fundamental institutional pillars, namely regulative, normative, and cognitive. A regulative system is established by the promulgation of laws, regulations and state policies with which organizations must comply. A normative system comes into existence through

the development of rules-of-thumb, standard operating procedures, occupational standards, routines, conventions, training programs and education curricula (Garud et al, 2002). These modes of professionalization and socialization encourage organizations to accept moral obligations and codes of conduct. A cognitive system embodies cultural elements and symbols that set the rules that constitute the nature of reality and the frameworks through which meaning is made (Scott, 2001).

An empirical study investigated the legitimacy-building strategies used by private firms in China, following the three fundamental pillars approach (Ahlstrom, et al., 2008). However, little is known on how the Chinese society builds up the entrepreneurship-friendly environment, especially in the peripheral regions. This leads to the research question:

*RQ1: How are the three institutional pillars for an entrepreneurship-friendly environment established?*

Extant literature identifies a variety of institutional entrepreneurs who have initiated and contributed to the institutional change. They come from various organizations, communities, and sectors. For instance, Greenwood et al. (2002) note the importance of regulatory agencies, such as the Securities and Exchange Commission, and professional associations, in transforming accounting as an institutionalized field. Issues and the way these issues are defined determine the boundary of a field. As the definition of issue evolves over time, with the progress of field formation, the composition and role of field members may change accordingly.

It is worth distinguishing the role of different actors. We refer to the account of institutional work to illustrate that various institutional works are practiced by different actors. Institutional work is defined as “purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions” (Lawrence & Suddaby, 2006: 215). Different forms of institutional work can be broadly categorized into rule-based institutional work, normative work and cognitive work. The rule-based institutional work, such as advocacy and defining, reflects political work in which actors reconstruct rules (Galvin, 2002), and property rights (Russo, 2001). The normative work emphasizes actions in which actors’ belief systems are reconfigured, such as constructing normative networks (Lawrence, et al, 2002). The cognitive work involves actions designed to alter the meaning systems, such as educating of actors in skills and knowledge necessary to support the new institution (Woywode, 2002).

The institutional work can be utilized to explain the different roles of institutional entrepreneurs. While some actors take the initiative in defining the issues and facilitating the emergence of institutional work, others might be in the position of following the rules and adopting new practices. The former are institutional entrepreneurs and may be also called rule-makers. This term shares similar meaning with, ‘strategic actors’, ‘powerful agents’ or ‘institutional designers’ (Hoffman, 1999; Scott, 2001; Streeck and Thelen, 2005). The role of rule-makers differs from other members who can be called rule-takers because the rule-takers are required to comply with emergent rules. We raise two further research questions:

*RQ2: Who are institutional entrepreneurs? What roles do the institutional entrepreneurs play over time?*

*RQ3: How is institutional work originated and delegated among institutional entrepreneurs?*

The process of institutional change has been a central focus for institutional scholars. Greenwood and colleagues profile a model of institutional change, whereas changes undergo a critical stage of theorization and legitimization by existing or new actors (Greenwood, et al, 2002). Pressures for deinstitutionalization cannot break the institutional norms automatically. The pressures, either functional, political or social, need to be interpreted and responded by actors within organizations. Amid process diffusion throughout an organization, new norms and practices can gain legitimacy and become institutionalized.

A model from the process perspective is proposed, that considers the process of institutional entrepreneurship from the emergence of institutional entrepreneurs to the implementation and possible institutionalization of the changes they initiate (Battilana, et. al, 2009). Two enabling conditions for institutional entrepreneurship are argued as the enabling role of field-level condition and the enabling role of actors' social position. Child and colleagues (Child, et. al, 2007) examine institutional entrepreneurship in the development of China's environmental protection systems over 30 years and propose the varying roles of institutional entrepreneurs, albeit the dominant roles are presumed by the government.

*RQ4: What is the critical event for building an entrepreneurship-friendly environment? How do the institutional entrepreneurs respond to the critical events? What are the conflicts and tensions among institutional entrepreneurs?*

The process-based perspective coincides nicely with the path dependence approach, which emphasizes that the 'history matters' in a broad sense. A brief review of the current development of path dependence is discussed in the next section, followed by an integrative conceptual model to explain institutional entrepreneurship.

## 2.2 Path dependence

Path dependence increasingly attracts attention from a wide range of scholarship inquiry. It has become an essential theoretical construct for many organization scholars (Sydow et al, 2009). The scalable characteristic of path dependence across different levels of analysis has been used by scholars from different research domains: on the macro-level, institutional scholars use path dependence to explain institutional persistence (Djelic and Quack, 2007; North, 1990; Pierson, 2000); on the meso-level, economic scholars resort to path dependence to elaborate suboptimal governance or technology outcomes (Arthur, 1989; David, 1985); on the micro-level, dynamic capabilities of the firm can be explained by path dependence via the positive impact on competitive advantage (Eisenhardt and Martin, 2000; Schreyögg and Kliesch-Eberl, 2007; Teece, 2007); also, path dependence might offer a dynamic framework in clarifying how organizations can lose their flexibility and become rigid (Schreyögg & Sydow, 2010).

A recent debate in *Journal of Management Studies* reported the reflections and latent development on path dependence. Vergne & Durand (Vergne & Durand, 2010) argues for the rigorous research design, such as simulation, experiment or counterfactual approach, when conducting path dependence research (Vergne & Durand, 2010). They analyzed both theoretical and methodological implications and emphasized the necessary conditions, namely contingency and self-reinforcement, and the lock-in as outcome of path dependence. By contrast, Garud and colleagues (Garud, et al, 2010) disagreed with the above arguments. They endorse path creation by enabling the agency to

design and develop the path, given that contingency cannot be predicted at the starting point. Such debate helps to advance our understandings and push the development of theory further. Nevertheless, both groups share the common ground of path dependence on initial conditions, contingency, self-reinforcing mechanisms, and lock-in.

Inspired by the recent work of Sydow and colleagues (Sydow, et al., 2009), we extend the three-phase conceptual model of an organizational path to the institutional level. They propose “a framework that differentiates three developmental phases of path dependence, starting with (1) singular historical events, (2) which may, under certain conditions, transform themselves into self-reinforcing dynamics, and (3) possibly end up in organizational lock-in” (Sydow, et al., 2009: 690). Similarly, we follow this three-phase model, thereby, conceptualize preformation of institution (disruption of old institution), formation of institution, and lock-in. By mirroring the concept of institutional work, preformation of institution phase covers the disrupting institutions, the formation of institution phase emphasizes creating institutions, and the lock-in phase denotes the maintaining institutions.

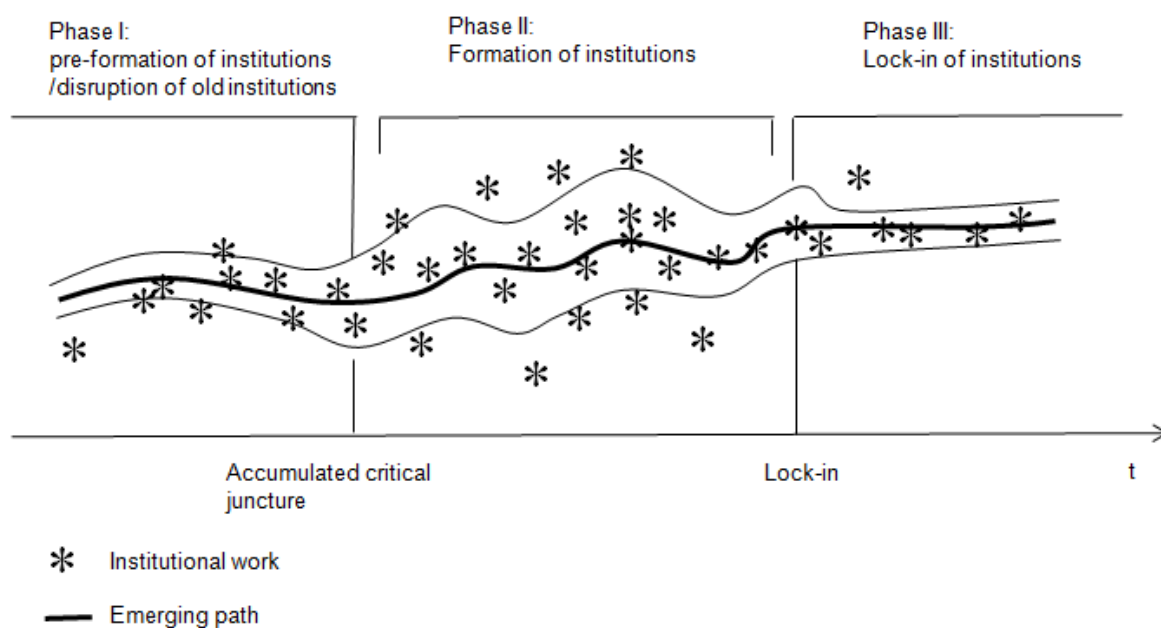


Figure 1. A conceptual framework on institutional entrepreneurship based on path dependence

As depicted in Figure 1, a conceptual framework of institutional entrepreneurship based on path dependence is proposed. Phase I can be characterized as initial conditions with existing institutions in place. Since the institutional work of actors differs, institutional entrepreneurs mobilize resources to disrupt the institutions. A variety of different forms of institutional work exists. When critical events/junctures arrive in the institutions, new institutional work can be triggered and delegated. It is a combination of external shock and internal searching that constitutes the initial conditions. Institutional entrepreneurs need to accumulate the institutional work to some extent before stepping into formation of the institutions. This mechanism differs from organizational path, whereas

the arrival of critical juncture indicates the entry to Phase II. Hereby, we subscribe the organizational path into the pre-formation of institution. It is a simplified attempt, given the complexities of organization and its influence towards institutions along the institutional formations. Nevertheless, we direct our attention to the institutional level in this study, and carry the hope of explaining the institutional entrepreneurship by integrating the theoretical lenses of path dependence and institutional theory. Phase II, i.e. the formation of institutions witnesses the institutional change. The three broad categories of institutional work, namely rule-based work, normative work and cognitive work, should be involved in the process. The contingency occurs in Phase II. The presence of success or failure of the institutional work can influence the development path of formation of institutions. Potentially, the self-reinforcement mechanism accumulates experience, and directs the positive feedback to formation of institutions. Given the increasing returns, the promising options are consolidated, which delete the possibility to choose alternative options. Along the path, Phase III lock-in appears, and institutional works are practiced to maintain the institutions.

### **3. Research methodologies**

#### 3.1 Historical case studies and event sequencing

It is acknowledged that historical case studies provide the opportunity to uncover the story behind the institutional evolution of many different phenomena (Nasra & Dacin, 2010). For instance, scholars analyzed the transformations in cultural industries by integrating institutional logics and historical event sequencing (Thornton et al, 2005), examined the emergence and diffusion of innovations (Hargadon & Douglas, 2001), and emphasized the “increasing returns” in political development (Pierson, 2000, 2004).

Scholars from various research streams share several concepts when using historical cases to conduct research. Path dependence represents one essential concept. Historical institutionalists observe social causation is path dependent in a way that an event that occurred at an earlier point in time will determine consequent events and outcomes (Hall & Taylor, 1996; Sewell, 1996). Political scientists emphasize the importance of seriously considering the temporal effect and sequencing of actions (Pierson, 2000, 2004). Furthermore, they stress the importance of the self-reinforcing and positive feedback processes involved in path dependence. Another shared concept is critical moments (Pierson, 2000 or critical junctures (Hall & Taylor, 1996). Progressive accumulation of these events supports understanding path dependency (Thornton et al., 2005). We track the historical development and use historical event sequencing to investigate the institutional entrepreneurship.

#### 3.2 Discourse analysis and interviews

In addition, we combine discourse analysis and in-depth interviews. The extant literature on institutional entrepreneurship mainly adopted the discourse analysis. In contrast to the western media, the timing of media report in China might lag behind. Moreover, the media would not necessarily report any news, especially sensible information, in the first place as most of the western media do. Although the media in China changes incrementally over time, especially for the economy-related media, such as *Cai Jing Magazine* which reports sensible issues and leads intensive debates,



most of the local media still bear many differences in comparison to western media. The accessibility and validity calls for in-depth interviews. Qualitative in-depth interviews can provide insightful information (Thornton & Ocasio, 1999).

In-depth interviews with key actors can provide further insights into the process of institutional entrepreneurship, which provide the richness beyond what can be extracted from the documentary data. Story-telling interviews offer another possibility to uncover hidden information. We can examine the role and usage of stories in the discursive dynamics of institutional entrepreneurship. An innovative approach was adopted in analyzing the institutional entrepreneurship of Israeli High-tech after the Bubble (Zilber, 2007). The three accounts of the 2000 High-tech fall reflected simultaneous efforts of both collaboration in maintaining the institutional order and contestation that could potentially disrupt it. The balance between these contradictory orientations was carried out by the skillful manipulation of explicit and implicit meanings by the virtue of using stories.

The combined use of intensive interviews, archival records, and participant observations may help scholars in studying institutional change (Dacin, et al, 2002). Zilber states the study of institutional change “would have gone unnoticed with analysis by approaches that focus on the macro level and on structures and practices alone” (Zilber, 2002). Hence, we combine both primary data and secondary data in our study.

### 3.3 Sample and data collection

As for primary data, data collection was done mainly via the contacts and networks of the author and through local High-tech parks administration officers. We conducted in-depth interviews with governmental officials, High-tech park managers, High-tech entrepreneurs, investment managers from governmental venture capital fund in Wuxi and Shanghai based on a semi-structured interview approach, since fine-grained case studies can provide insightful information (Eisenhardt, 1989; Yin, 2003). Each interview lasted for one to two hours. Fifteen in-depth qualitative interviews were conducted between August 2009 and September 2010 in Wuxi (Table 1). The interviews were tape recorded and transcribed. The interviews were structured and analyzed using software tool ATLAS.ti.

The secondary data is drawn from archives, such as newspapers, website content, brochures and promotional materials of the Wuxi government. We adopt a discourse analysis approach by referring to existing secondary sources. The discursive level stays with newspaper and research text. Data gathering was conducted by searching the local newspapers, websites, and research articles including case study. In Glynn and Lounsbury’s article (2005), discourse analysis is utilized to analyze the critical reviews of the Atlanta Symphony Orchestra from the time span of 1995 to 1998 with the 1996 musicians strike as the exogenous shock. We investigated the period of time from 2000 to 2009 with the set-up of the 530 Plan in 2006 as the institutional change event.

## 4. Findings

In this section, we first investigate who the institutional entrepreneurs are and what roles they possess, followed by the discussions of the development of Scott’s (2001) three institutional pillars.

Afterwards, we analyze one representative case, Suntech Power, by examining the temporal sequencing of events over time and the actions taken by institutional entrepreneurs accordingly.

#### 4.1 States as institutional entrepreneurs

Scholars have explored institutional entrepreneurship from multiple levels of analysis, such as individuals (e.g., Fligstein, 2001; Lawrence & Phillips, 2004), professions (e.g., Greenwood & Suddaby, 2006), and social movements (e.g., Rao, 1998). A relative few studies have also examined the role of the state in the creation of new organizational forms and instigating institutional change (e.g., Baron et al., 1986). Aligned with the recent research on Dubai (Nasra & Dacin, 2010), we argue that the institutional entrepreneurs in China are the states, to be specific the local governments. The political constellation offers the local governments the authority and autonomy to implement policy which may facilitate the local economic growth. It is argued that appointing political authorities centrally and delegating the rights for regional economic development decentrally propelled China's rapid economic development (Xu, 2009). The competitions between the regions can lead to efforts by officials to improve the regulatory framework for economy. In parallel, competitions put pressures on the local governments to seek the motors for local economic growth. For instance, as one of the mainly chosen location for Fortune 500 companies' headquarters in China, the regulatory framework in Shanghai is developed better than elsewhere in China. However, the priority of Shanghai government is attracting Fortune 500 companies. By contrast, the peripheral regions like Wuxi cannot follow the exact approach as Shanghai adopted, although attracting foreign direct investment (FDI) is one important task on many local governmental officials' agenda. The tension and pressure lay out the backdrop for institutional entrepreneurs to actively seek opportunities.

In the case of Wuxi, institutional entrepreneurs embedded in the institutional environment responded to the critical event/external shock, namely Dr. Shi's visit to Wuxi in 2001. Equipped with the knowledge and experience on solar technology gathered in Australia, Dr. Shi talked to Wuxi governmental officials with the hope of receiving governmental support, both financial and infrastructural support. At the initial phase, Wuxi governmental officials as institutional entrepreneurs delegated the institutional work to technology entrepreneurs, such as Suntech Power to found the company based on a trial and error approach. The initial investment of 6 million USD from Wuxi government to Sun tech Power and the former director of Wuxi Economy and Trade office involvement illustrated the government's hands-on approach. The tension among governmental officials manifests the functional and political pressures on the institutionalized norms and practices (Oliver, 1992).

On the one hand, the old industrial structure was not able to sustain the regional economic development, functional pressure led to urgent calls for industry upgrading; on the other hand, regional political leaders under the Chinese special constellation are responsible for regional economic development. In comparison to Shanghai, political leaders are strongly willed to find a suitable way for Wuxi economic development.

Initial actions by institutional entrepreneurs assisted Suntech Power to overcome the constraints of start-up phases. Benefiting from the favorable policies towards renewable energy in European countries, Suntech Power enjoyed a rapid growth by exporting most of its products to Europe. With the IPO at NYSE in December 2005 Suntech Power became a successful landmark for technology entrepreneurship.

In the similar timeframe of Suntech Power creation, another two overseas Chinese entrepreneurs entered Wuxi territory. Dr. Zhao, back from US, brought both the capital and experience from semiconductor industry and founded the Memsic Corporation in November 1999, and Mr. Lu from Japan brought the IT outsourcing experiences and founded Wuxi Huaxia Computer Technology in 2000. These two companies were regarded as FDI to Wuxi. Although they did not receive direct monetary support from Wuxi government, they benefited from the favorable policies towards FDI.

Hence, we posit the following:

*Proposition 1a: Regional economy differences stimulate institutional change and offset the institutional inertia*

*Proposition 1b: Governments as institutional entrepreneurs delegate the institutional work to other players (i.e. technology entrepreneurs) by responding to the critical event (i.e. Dr. Shi's visit to Wuxi)*

#### 4.2 Three institutional pillars and institutional work

##### *Regulatory pillar*

Rule-based institutional work privileges the role of the state, such as advocacy and defining. Advocacy, through direct techniques to mobilize the political and regulatory support, is a key element by which marginal actors initially acquire the legitimacy they need to effect new institutions (Suchman, 1995). Defining is the construction of rule systems that confer identities, define boundaries or create status hierarchies.

Alongside the success of Dr. Shi, Dr. Zhao, and Mr. Lu, institutional entrepreneurs created the 530 Plan which merely targeted at the overseas Chinese entrepreneurs to found their technology ventures in Wuxi. Institutional entrepreneurs recognized the potential value by attracting a special target group. The institutional work of advocacy was manifested by responding to the critical event, e.g. the three initial entrepreneurs in the early 2000s in Wuxi. After the success of the initial technology ventures, institutional entrepreneurs deploy the defining institutional work to construct the rule systems that confer status and define boundaries for overseas technology entrepreneurs via the vehicle of 530 Plan.

The 530 Plan was translated as within 5 years to attract 30 leading experts to Wuxi to found their technology ventures. Only those who gathered professional experiences are eligible to apply for 530 Plan. One criterion is that entrepreneurs should bring advanced technology or products with them to found companies. A branded policy is called "San Ge Yi Bai" policy (three times one hundred), namely 1 million RMB seed capital (100 Wan RMB in Chinese), 100 square meters team office space, and subsidies for a 100 square meters apartment. The establishment of the 530 Plan illustrates the regulatory pillar which was implemented by the Wuxi government.

##### *Normative pillar*

As for normative institutional work, constructing identities, constructing normative networks and changing normative associations are the practices investigated in the literature. The construction of identities is central to creating of institutions because identities indicate the relationship between an

actor and the field the actor operates (Bourdieu & Wacquant, 1992). Lounsbury found that the construction of professional identities was performed by the recyclers group themselves (Lounsbury, 2001). Normative networks are the inter-organizational connections through which practices become normatively sanctioned.

In our analysis, constructing identities and constructing normative networks has been observed in the formation of new institutions. Self-initiated associations by overseas entrepreneurs assisted Wuxi entrepreneurs to construct the identities and build normative networks. The Wuxi Overseas Chinese Investment Chamber of Commerce (WXOCICC) was established in Dec 2003. The first chairman was Dr. Shi from Suntech Power. The current chairman is Dr. Lu from Huayang Software. As a self-organized and independent organization, it provides overseas entrepreneurs a platform to acquire information, exchange business ideas, and absorb/digest tacit Chinese business practices. The current chairman Mr. Lu claims:

“We help the newcomer overseas entrepreneurs in Wuxi. As the first generation overseas technology entrepreneurs in Wuxi, we know the challenges and difficulties. We let the entrepreneurs feel comfortable, and we talk to governments what can be offered to make Wuxi as the attractive place for overseas entrepreneurs.”

It is worth notifying the normative networks enabled the overseas entrepreneurs to communicate with institutional entrepreneurs. WXOCICC obtained the government support and active involvement, such as the general secretary from Wuxi city, Mr. Yang Weize assumed the honorable chairman of WXOCICC.

Furthermore, the institutional work of changing normative associations was involved in the 530 Plan. The evaluation of 530 projects invites both national reputed scientists and experts and professionals, such as venture capitalists and bankers.

One park manager explains:

“There are two evaluation committees. The first round, we need technical experts, e.g. national 863 experts to conduct the technical evaluation. The second round, we have venture capitalists, bankers, and governmental agencies, e.g. Fai Gai Wei (Development and Reform Committee), let them evaluate the forecasts of the industry for our region.”

This practice is not meant to directly challenge the existing institutions, but is parallel or complementary to them. National experts are invited to spend one week to evaluate the business project proposal submitted by overseas entrepreneurs. These experts are exposed to the 530 Plan, and might carry the experience with them after the evaluation process. In addition, the involvement of bankers might lead to question the taken-for-granted lending policy which favors state owned enterprise. This awareness may implicitly smooth bank lending activities to overseas entrepreneurs when required.

#### *Cognitive pillar*

Cognitive work primarily focuses on the cognitive side of institutions by providing meaningful and understandable interaction patterns, such as educating. Woywode (2002) investigated the

introduction of working groups as a formal structural component in the European automobile industry and emphasized educating as an important form of cognitive work.

Cognitive pillar was constructed along with the follow-up of the 530 Plan, whereas the normal High-tech entrepreneurs spread the word of Wuxi entrepreneur-friendly environment. In addition, public media, such as newspapers, TV programs, and promotional materials report the success story and the 530 Plan. In the course of financial crisis in 2008, Wuxi government actively promoted the 530 Plan by visiting western prestigious universities. High-level commitment was shown by the high-profile governmental officials leading the delegation team. The general secretary of Wuxi, Mr. Yang explicitly talked to the audiences during overseas road show by claiming:

“The Wuxi government is eager to serve 530 firms. It should look like: babysitters at the creation of the firms, mentors in the development phase, and bodyguards after the success of the firms.”

Moreover, the High-tech entrepreneurs in Wuxi are actively participating in a local educational program for children at school. They are reported by media as the social responsible entrepreneurs who use technology helping children to cultivate creativity skills. These activities influence the people’s cognition and lead to positive attitudes towards overseas technology entrepreneurship. Although the cognitive pillar is on the individual level, the aggregated effects positively influence the creation of an entrepreneurship-friendly environment in Wuxi.

In summary, government and regulatory bodies have full control over introduction of laws, policies, and legal frameworks, hence they dominated in building the regulative pillar. In the case of creating entrepreneurship-friendly environment, the regulative pillar was established in the first place. The normative pillar needs more specific technical content and expert participation, such as technical experts for technological evaluation and venture capitalist, Development and Reform Committee for local economic growth. During the implementation phase, it required a wide consensus and response by the general public, so as to construct the cognitive pillar.

For simplicity reasons, we depict the regulative, normative, and cognitive pillars following sequential order. However, there should be an iterative approach which illustrates the mutual influence of the three pillars over time, especially for the normative and cognitive pillars.

The demand for economic structure change of Wuxi facilitates the institutional entrepreneurs to pursue institutional change, given the critical event triggers. In many emerging economies, institutional change is with high propensity characterized by top-down processes, described by Hayek as a ‘made order’ (Hayek 1973).

Dr. Shi, founder and CEO of Suntech Power, can be regarded as the critical event trigger. He first went to Shanghai with the hope to raise money from government and to obtain support to found his solar energy firm. However, the reluctance of Shanghai governmental officials dwarfed the entrepreneur’s morals. Dr. Shi turned to Wuxi City. On the contrary, Wuxi City decided to give a try by encouraging Dr. Shi to locate his firm in Wuxi with both financial and infrastructural support. As a successful entrepreneur, Dr. Shi created the solar energy industry for Wuxi City and its neighbor regions, and this led to the birth and development of the solar energy industry in China.

The initial success of the three technology entrepreneurs accumulated the momentum to help the institutional entrepreneurs to implement institutional change, i.e. the creation of 530 Plan. We argue the success is necessary for the institutional entrepreneurs to make the commitment. If technology ventures had not been successful, the institutional entrepreneurs might have sought other alternatives.

Amid Suntech Power rapid growth and the success IPO at NYSE in December 2005, the rapid development of the 530 Plan is manifested by the growing number of application teams from 47 (2006) to 1420 (2009). A dedicated website was created to promote the 530 Plan. By 2008, 271 projects have been financially supported with 547 million RMB. Our observations with High-tech entrepreneurs highlight the importance of legitimacy in institutional change. One CEO confirms:

“We chose Wuxi, because Suntech has set up a role model. We know what can happen. Actually, the whole 530 Plan is built around Suntech as example. This model works for the local government and it attracts us to come.”

Hence, we propose:

*Proposition II: Initial success stories are prerequisite to formally formulate new institutional arrangements (i.e. Suntech Power) and to establish the legitimacy for followers to support the institutional change*

We endorse the importance of 530 Plan during the formation of institutions phase. Circumventing the weakness of regulatory framework by using separate entity, e.g. the 530 Plan may facilitate High-tech entrepreneurship.

Hence, we propose:

*Proposition III: A separate entity (i.e. 530 Plan) outside the general institutional environment might protect the initial institutional change and facilitates the diffusion of new institutional arrangements*

#### 4.3 Path dependence and historical event sequencing

We carry the hope to uncover the underlying mechanisms of institutional change by taking path dependence perspective. It is recommended to track the historical event carefully and depict the consequences and outcomes by using historical event sequencing method. In this section, we refer to the proposed conceptual model of path dependence and identify the critical event and important institutional entrepreneurs.

Firstly, we report some evidence to explain the conceptual framework of path dependence on institutional level. We refer to the essential elements of path dependence, respectively:

- Initial condition: external shock combined with the internal searching (institutional work was delegated from governmental officials to high-tech entrepreneurs)
- Contingency: success or failure of initial technology ventures. If it soars, the technology entrepreneurship will not be highly promoted

- Self-reinforcement: establishment of the 530 Plan, more and more overseas technology entrepreneurs came to Wuxi, which leads to the isomorphism effect
- Lock-in: technology entrepreneurship became the local economic driver. Recently, “Thousand Talent Plan” as sequential plan was created in Wuxi and on the national level

Secondly, we adopt a narrative approach to explain the historical event sequences surrounding one particular case, Suntech Power. Our decision to choose Suntech Power story contains several reasons: 1) Suntech Power becomes the role model of the technology entrepreneurs who apply for 530 Plan. It is the manifestation of the idea that overseas technology entrepreneurs need government active support which was legitimized in the 530 Plan; 2) As a successful entrepreneur, Dr. Shi, CEO of Suntech Power, created the solar energy industry for Wuxi City and its neighborhood regions, and this led to the birth and development of the solar energy industry in China; 3) Dr. Shi is one major actor which interacted with institutional entrepreneurs during the institutional change process.

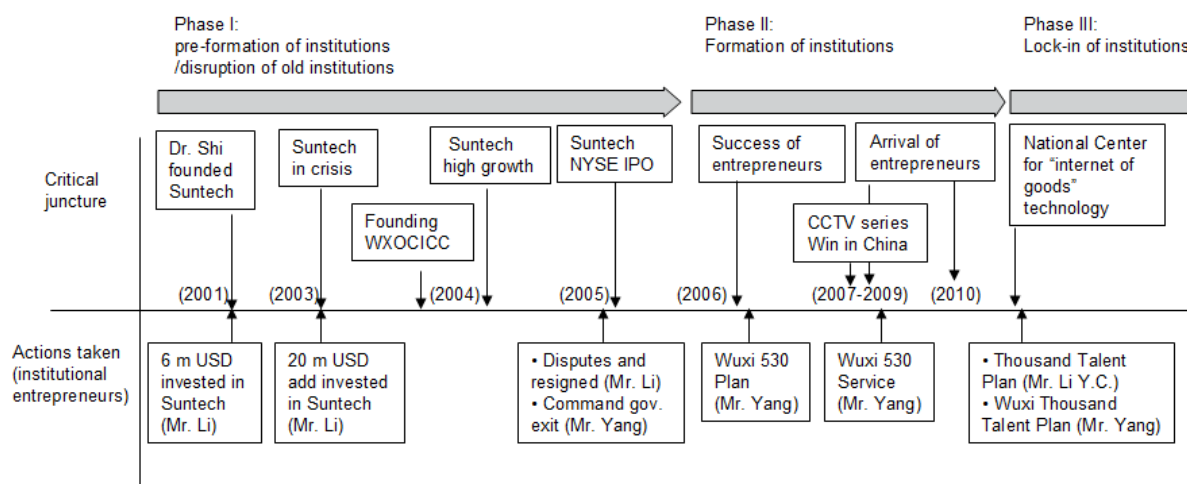


Figure 2. Historical event sequence: critical juncture and actions taken by institutional entrepreneurs

As depicted in Figure 2, the journey started from Dr. Shi's visit to Wuxi in 2001. Carried with know-how and experience in the solar energy technology, he aimed at founding his own technology venture in China. After several visits to different regions, he did not obtain much support. When Dr. Shi visited Wuxi, his idea inspired Mr. Li, former Director of Foreign Economics and Trade in Wuxi. After due diligence on Dr. Shi in Australia, Mr. Li was able to assemble 6 m USD from State Owned Enterprises (SOE), e.g. little swan, to co-invest with him in the Suntech case. It was not a formal investment vehicle but rather an informal investment led by Mr. Li. As an institutional entrepreneur, Mr. Li recognized and exploited opportunities (Shane & Venkataraman, 2000) that were presented during historical critical junctures (Hall & Taylor, 1996). However, Suntech underwent critical crisis and stocked many inventories due to the delay of market demand in 2003. At the brick of crisis, Mr. Li determined to add another 20 m USD investment to enable Suntech go through the crisis. Until 2004, due to renewable energy laws in Europe, Suntech was able to take off and seized the high

rapid market growth mainly driven by Germany and Spain. The success led to the next development phase of the firm, going IPO. The critical juncture was the IPO of Suntech.

Realizing the returns from initial investments would be what Mr. Li aimed for. However, it was the issue whether the government should stay in the company and benefit from the IPO, or should exit before the IPO. Mr. Li did not want to exit before IPO and argued for the investment on behalf of several State Owned Enterprises. The tensions and pressures within the institutions called for the critical decision to make. Mr. Yang, the general secretary of Wuxi city (ultimate decision maker in Wuxi) opted for the entrepreneurs and decided to exit the government investment before IPO. As institutional entrepreneur, Mr. Yang took the action intentionally to build a successful model for potential upcoming technology entrepreneurs in Wuxi. The disputes resulted in Mr. Li's resignation. The pre-formation of institutions also includes the founding of WXOCICC by Dr. Shi and other overseas entrepreneurs in Wuxi. After seeing the success of Suntech IPO in NESE Dec 2005 and the recommendations from overseas entrepreneurs including Dr. Shi, Dr. Zhao, and Dr. Lu, Wuxi government decided to establish the 530 Plan to attract overseas technology entrepreneurs. The establishment of 530 Plan witnessed the formation of institutions. From 2006 to 2010, other surrounding services were offered to overseas entrepreneurs to help them overcome constraints and difficulties in the beginning phase, such as family care, setting connections to local Chinese business partners. The arrival of many a follow-up overseas entrepreneurs manifested the formation process of institutions. On the national level, entrepreneurship was also encouraged to the public, such as the TV competition series of "Win in China" which were live broadcasted in the CCTV (China Central TV). "Win in China" invited entrepreneurs to pitch their business ideas in front of a group of investors, such as IDG Global Venture, and Chinese indigenous successful entrepreneurs, and Jack Ma from Alibaba. The media effect facilitated the practices of cognitive institutional work.

In 2010, Wuxi was awarded by the Chinese Premier Wen Jiabao and central government to hold the national center for "Internet of Goods" technology center in recognition of the achievement of attracting overseas technology entrepreneurs. The lock-in of institutions was observed by the follow-up program of Thousand Talent Plan, both in Wuxi and on the national level. The Thousand Talent Plan functions similar to the 530 Plan, with the enlargement of inviting overseas leading experts to join State Owned Enterprise (SOE) or governmental agencies. Another institutional entrepreneur Mr. Li YC, the former general secretary of Jiangsu Province to which Wuxi city belongs, now assumed the position as central government committee member. He urged every province should have own Thousand Talent Plan.

By integrating the story-telling approach into the historical event sequencing method, we hope to uncover the underlying mechanisms of institutional change by resorting to institutional work. In the pre-formation of institutions, institutional entrepreneurs delegated the institutional work to entrepreneurs. During our analysis we notify there was no obvious de-institutionalization process as observed by other studies typically in Western contexts (Greenwood & Suddaby, 2006; Tolbert & Zucker, 1996), there were the separated institutional arrangements, i.e. the 530 Plan, rather than de-institutionalization. We argue that the maintenance of extant institutions and the creation of a parallel institutional environment proceed and exist jointly, as confirmed by the study on Dubai (Nasra & Dacin, 2010).



## 5. Discussions

### Policy & theoretical Implications

The change process of institutional entrepreneurship might be applicable to other regional economic development. Moreover, we offer a better understanding towards the Chinese characteristics of institutional entrepreneurship in promoting technology entrepreneurship in a peripheral region. The rule-based institutional work is a prerequisite for institutional change, which is mainly practiced by institutional entrepreneurs and delegated to other actors, such as technology entrepreneurs.

It is acknowledged that the institutional environments in emerging economies differ greatly from those of established economies. Puffer and his colleagues (Puffer, et. al., 2010) argue that informal institutions, such as Blat/Guanxi and trust, play important roles in filling institutional voids, such as missing property rights protection and enforcement. They emphasize that in the foreseeable future the institutional environments in China will not end up in the form as existed in today's western world, due to the deep social and cultural roots. It is crossvergence rather than convergence that is apt to occur.

Referring to the debate on path creation or path dependence, we believe that these two schemes should interact with each other, and the adopted scheme depends on the context under analysis. Path creation might explain the entrepreneurship phenomena better, but we argue it should be a mixture of both path creation and path dependence. And the degree of path creation or path dependence depends on the context.

### Limitation & future research directions

Arguably, institutional entrepreneurship has been studied from two streams of inquiries, namely new institutional economics perspective and institutional theory perspective (Pacheco, et al, 2010). And these two streams of research hardly interacted with each other. Although this paper tries to bridge entrepreneurship research and institutional research, we mainly stay in the realm of the institutional theory perspective.

The lock-in phase represents the institutions maintenance. The recent study on the Cambridge dining emphasizes the importance of institutional work ritual in maintaining institutions (Dacin, et al, 2010). Due to the timeframe, we are not able to analyze the institutional work for maintenance under this study. It deserves further research attention.

## 6. Conclusion

In this study, we adopt the institutional theory and path dependence to analyze the institutional entrepreneurship in building technology entrepreneurs-friendly environment in the context of the peripheral region of China, Wuxi. Based on in-depth qualitative research and historical event sequencing methods, we provide evidence to support the proposed conceptual framework of path dependence on the institutional level. Furthermore, by leveraging the institutional work concept, we

conclude the institutional work can fulfill the promise to uncover the underlying mechanisms of institutional change process in the emerging economies context.

But we argue that institutional entrepreneurship in China might present a unique case. The regulative system comes first, followed by the normative and cognitive system. It is possible that China presents a contrast to developed economies while remaining fairly typical for the larger emerging economies with which it shares a number of structural characteristics. This argumentation deserves further investigation, since the process looks different from the situations where the main institutional entrepreneurs are independent of the state. Thus, the states are the primary institutional entrepreneurs. In addition, the institutional change process in China differs from the studies conducted in the western settings. It calls for further research to validate our propositions under different contexts. As noted, differences in entrepreneurship that have been found between international contexts have been attributed to cultural and institutional factors (Bruton et al, 2008). Nevertheless, the fundamental concepts such as institutional pillars and path dependence can be appropriately leveraged to study the context.

We hope to shed some light on the characteristics of institutional entrepreneurship in China, and foster the discussion on path dependence and institutional change by enlarging the geographical scope of scholarship inquiry. It may contribute to advancing theory development by studying the emerging economies.

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## APPENDIX

Table 1: fifteen qualitative interviews conducted between August 2009 and September 2010 in Wuxi

Interviewee	Company industry / occupation	Date (dd/mm/yy)	Venue	Length (hours)
CEO Dr.-Ing	ICT: wireless sensor design house in Wuxi	28/08/2009	CEO home in Shanghai (530 firm)	2
CEO, MD, MBA	Biotech: outside test products provider in Wuxi	09/09/2009	CEO office at Wuxi Bio-pharmaceutical R&D Outsourcing Service Park, Wuxi	2
CEO, Dr.-Ing	ICT: financial service software developer in Wuxi	09/09/2009	CEO office at Wuxi (National) Industrial Design Park, Wuxi	1
CEO, Ph.D	ICT application for robot automation	11/12/2009	CEO office at Wuxi (National) Industrial Design Park, Wuxi	1
CEO, Dr.-Ing	ICT: wireless sensor application and creativity lab for kids	11/12/2009	CEO office at Wuxi (National) Industrial Design Park, Wuxi	1
CEO, Dr.-Ing	ICT: communication solution for optimizing building energy consumption	21/12/2009	CEO office at Wuxi iPark	1

High- tech Park manager	Wuxi (National) Industrial Design Park	11/12/2009	Wuxi (National) Industrial Design Park	1
Director, 530 entrepreneur service office	Governmental agency	16/08/2010	Wuxi 530 office	1.5
Government official from economic department	Governmental agency	17/08/2010	Wuxi, Liyuan 530 Building	1.5
CEO, Prof. Dr.	Biotech: new Pharma developer	17/08/2010	CEO office at Wuxi (National) Industrial Design Park, Wuxi	1
CEO, MBA	ICT: wireless application for mobile internet	01/09/2010	CEO office at Wuxi (National) Industrial Design Park, Wuxi	1.5
Chairman of WXOCICC, MBA	Wuxi Overseas Chinese Investment Chamber of Commerce (WXOCICC)	02/09/2010	WXOCICC office	1
Deputy director, Ph.D	Wuxi Bio-pharmaceutical R&D Outsourcing Service Park	03/09/2010	Director office at Wuxi Bio-pharmaceutical R&D Outsourcing Service Park, Wuxi	1
CEO, Ph.D	Biotech: provider of materials for biotech production	03/09/2010	CEO office at Wuxi Bio-pharmaceutical R&D Outsourcing Service Park, Wuxi	1.5
CEO, M.Sc.	Biotech: provider of testing products	03/09/2010	CEO office at Wuxi Bio-pharmaceutical R&D Outsourcing Service Park, Wuxi	1