Front. Bus. Res. China 2014, 8(2): 227–244
DOI 10.3868/s070-003-014-0011-1

RESEARCH ARTICLE

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Determinants of Successful IT-Enabled Business Innovation: A Case Study from the Perspective of Institutional Entrepreneurship Theory

Abstract As the role of information technology (IT) in business innovation becomes increasingly important, an increasing number of organizations have started to consider how to promote IT-enabled business innovation. Although extant studies have identified organization, environment, and innovation's characteristics as substantial determinants of IT innovation, they do not emphasize the accompanying innovation in processes, products or services, which distinguish IT-enabled business innovation from general IT innovation. Therefore, the reason why few companies succeed in realizing IT-enabled business innovation remains obscure. Anchored on the institutional entrepreneurship theory, this paper examines determinants of the success of IT-enabled business innovation in a fast-growing company using the case study approach. Our findings indicate that IT-business coordination competency, degree of institutionalization, participation of business managers, top management team's (TMT) attitude towards the innovation, and the innovation's relative strength, have significant impacts on the success of IT-enabled business innovation. Our findings also contribute to IT innovation research by identifying special determinants of IT-enabled business innovation and redirecting research ranging from innovation in IT itself to IT-enabled innovation in business processes, products or services.

Keywords IT-enabled business innovation, institutional entrepreneurship theory, case study

Received September 1, 2013

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1 Background

With the combination of IT and business, the role of information technology (IT) in business innovation becomes increasingly important (Bassellier and Benbasat, 2004; Tarafdar and Gordon, 2007). Generally speaking, IT could enable business innovation in three ways: by providing tools and support for development of new products and services, by fundamentally altering business processes and systems to pave the way for a range of new products and services, and by becoming an integral part of new products or services (Teo et al., 2007). Therefore, more business innovation relies on IT, and as a result IT has evolved from a mere efficiency tool into something enabling business innovation and providing strategic value (Saldanha and Krishnan, 2011). Simultaneously, how to utilize IT to promote business innovation has attracted attention of Chief Information Officers (CIOs). IT-enabled business innovation, i.e., new products, processes or services developed by a firm through the application of IT (Saldanha and Krishnan, 2011), has become a novel tool for CIOs to demonstrate the value of IT and improve the role of IT department. A survey conducted by the Center for CIO Leadership (2008) among 270 CIOs throughout the world indicated that 85% of CIOs are seeking for opportunities of IT-enabled business innovation.

Despite successful stories such as Amazon and Singapore YCH Corporation etc., organizations have historically experienced high failure rates in IT-enabled business innovation (Teo et al., 2007). In a recent Gartner study, over 80% of CIOs recognized the criticality of IT-enabled business innovation, but only 40% reported that their organizations had funded innovation projects or created roles accountable for innovation.[1] The high failure rate can be ascribed to the distinct nature of IT-enabled business innovation from general business innovation. The former is usually facilitated by CIOs and augmented with complementary organizational innovation including new forms of cognition, meaning, work process, business process, or organizational structure (Lyytinen and Rose, 2003). However, CIOs tend to lack necessary resources, capabilities, and power to independently implement such complementary organizational innovation. Therefore, realization of IT-enabled business innovation is likely to be hindered by obstacles from outsiders of IT department, such as unified attitude towards

[1] Tucci, L. The Road to Innovation is a Bumpy Ride, SearchCIO. Com (http://searchcio. techtarget.com/original Content/0, 289142, sid19_gci1227276,00. html), November 2, 2006.

innovation of business managers and low degree of support from top management team (TMT). As far as we are concerned, factors determining the success of IT-enabled business innovation remain unclear.

Scholars in IT innovation have been seeking answers to questions concerning whether, when, and how to innovate with IT (Swanson and Ramiller, 2004). Although current studies have identified a number of organization, environment, and innovation characteristics as the determinants of IT innovation, these studies have failed to solve the forementioned puzzle in IT-enabled business innovation due to the following two reasons: First, most studies define IT innovation simply as "an innovation in the organizational application of digital and communications technologies" (Swanson, 1994, p.1072). Little effort has been directed to the accompanying organizational innovations, including new forms of cognition, meaning, work process, business process, or organizational structure (Lyytinen and Rose, 2003). IT-enabled business innovation differs from the conventional definitions of 'IS innovation' used in ordinary IS research and can be mapped to and builds off the outcome of what Swanson (1994) defined as "Type III IS innovation" which are "inherent to or imbedded in a product ... or … incorporated within a service" or process (Swanson, 1994, p. 1078; Saldanha and Krishnan, 2011). Although some scholars have started to pay attention to IT-enabled business innovation (Teo et al., 2007; Saldanha and Krishnan, 2011; Ashurst et al., 2012), related research, especially empirical research on the determinants of such innovation is still scant.

Second, extant studies have been confined in a dominant paradigm wherein innovation is assumed to be beneficial, and organizations that have greater innovation-related needs and abilities are expected to exhibit a greater amount of innovative activity (Fichman, 2004). Under this paradigm, the ultimate outcomes or benefits of innovation with IT are rarely examined. Therefore, Fichman (2004) urged researchers to adopt a more innovative approach to the study of IT innovation, such as focusing on the outcomes of IT innovation.

This paper distinguishes IT-enabled business innovation from general IT/IS innovation and regards the former as a process of institutional entrepreneurship. Drawing upon the institutional entrepreneurship theory, we aim to investigate cases of successful IT-enabled business innovation in China. In doing so, we attempt to propose a conceptual framework with single case study on a fast-growing firm in China.

2 Literature Review and Theoretical Background

2.1 IT-Enabled Business Innovation

From the degree of the impact of IT innovation on business, IT innovation can be categorized into three types: IT base innovation, IT process innovation, and IT service innovation (Swanson, 1994; Lyytinen and Rose, 2003). In the extant literature, IT service innovation includes IT-enabled business innovation, innovative usage of IT, and net-enabled business innovation. For example, Saldanha and Krishnan (2011, p.2) defined IT-enabled business innovation as "new products, processes or services developed by a firm through the application of IT". The definition can be mapped to the outcome of what Swanson (1994, p.1078) defines as a "Type III IS innovation," namely innovation "inherent to or imbedded in a product ... or … incorporated within a service." We agree that IT-enabled business innovation is the third type of IT innovation that can be leveraged to facilitate innovation in business processes, products or services.

In this paper, IT-enabled business innovation is defined as the process of realization of new processes, products or services with the application of new IT, in which IT plays a critical role in business innovation. This definition differs from general IT innovation (i.e., innovation in the application of new information technologies) by emphasizing that IT-enabled business innovation should change the old products, processes or services to a substantial extent. In addition, IT-enabled business innovation should include the process from articulating new ideas to implementation due to the fact that only the realized new ideas can generate value. Lastly, IT should play a critical role in the process of innovating business.

2.2 Determinants of IT Innovation

As studies on IT-enabled business innovation (a type of IT innovation) are very scarce, we extend our literature review to the whole IT innovation area.

Jeyaraj, Rottman, and Lacity (2006) proposed a framework of conducting IT innovation research, based on a review of research on the adoption and diffusion of IT-based innovation. They categorized dependent variables of IT innovation research into quantity and speed of innovation adoption and diffusion. The

independent variables were grouped into characteristics of innovation, organization, and environment. Using this framework, we reviewed recent literature and identified factors influencing initiation, implementation, and routinization of IT innovation, as shown in Table 1.

Table 1 Determinants of IT innovation

IT innovation	Method	Theoretical Perspective	Determinants	Source
Commercial software packages	Survey	Knowledge perspective	Vendor support, know-how and business coordination	Swanson and Wang, 2005
IT-enabled business innovation	Case	-	Innovation mindset, relationship between IT managers, business leaders and external customers, risk mitigation policy	Teo et al., 2007
IT-enabled business innovation	Survey	Theory of boundary spanning leadership	CIO's involvement in business strategy, CIO-CEO reporting structure, CIO's interaction with the firm's customers, CIO's involvement in new product development	Saldanha and Krishnan, 2011
Users' innovative ideas	Survey	-	Innovation's relative strengthen, compatibility and change agents' promotion efforts	Gangi and Wasko, 2009
General IT innovation	Survey	-	CIO strategic leadership, TMT's attitude towards IT, climate	Leidner et al., 2010
e-service innovation	Survey	Resource dependence theory	Inter-firm codevelopment competency, knowledge integration mechanisms, technology integration mechanisms	Tsou and Chen, 2012
General IT innovation	Meta-analysis		Organizational readiness, size of IS department, IS architecture, TMT support, IT expertise, resources, formalization, centralization	Hameed et al., 2012
Innovative usage of IT	Survey	Upper echelon theory	CIO's age, tenure, educational level, openness, extraversion, conscientiousness	Li et al., 2006
Data warehouse	Survey	-	Organizational commitment, organizational absorptive capacity, size, scope, quality of existing organizational data environment, DW's relative advantage and complexity	Ramamurthy et al., 2008

Because prior research has mostly neglected the accompanying innovation in process, products or services of IT innovation and only focused on the quantity and speed of IT innovation adoption, the antecedents verified by them might not have any impacts on IT-enabled business innovation. For example, vender

support, identified by Swanson and Wang (2005) as a determinant of commercial software packages adoption, may not have any impact on IT-enabled business innovation, for the reason that outside resources are much less important in radical innovation in business processes, products and services. Besides, it is very likely that key determinants of IT-enabled business innovation are overlooked by extant researchers as they did not examine the process of augmented organizational innovation. A new theoretical perspective is needed to investigate the determining factors of the success of IT-enabled business innovation.

2.3 Institutional Entrepreneurship Theory

IT-enabled business innovation induces changes in processes, products or services by introducing new information systems. New IT often involves new actors and activities, mostly because existing institutional arrangements are not designed for incubating IT-based innovations (Wang and Swanson, 2007). Hence, IT-enabled business innovators (usually on the position of CIO) need to design, develop, and create new institutions to transform existing ones. This process is consistent with institutional entrepreneurship, which enlightens us to take the institutional entrepreneurship theory as our theoretical lens.

In institutional entrepreneurship theory, institutions are in effect "historical accretions of past practices and understandings that set conditions on action" (Barley and Tolbert, 1997, p.99); they constitute templates for actions. Those actions conforming to institutional rules will be considered appropriate, whereas those deviating from them will be sanctioned in some ways and thus are costly. Institutional entrepreneurship is defined as "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" (Maguire, Hardy, and Lawrence, 2004, p.657). Institutional entrepreneurship theory suggests that likelihood of successful institutional entrepreneurship is influenced by structure of organizational field, legitimation of new institutions, and external pressure (Fang and Sun, 2012).

First, institutional entrepreneurship research takes organizational field as basic analysis unit, and suggests that structure of organizational field and position of institutional entrepreneurs are able to influence institutional changes. Mature field has more stable structure and behavioral mode. While new field lacks

coordination mechanism and is more turbulent. Success of institutional entrepreneurship is more likely to happen in a new field. In addition, position of institutional entrepreneurs is very important. Agents with advantageous resources, knowledge, and core network position are able to utilize political power to create institutions that are beneficial to them and resist new institutions they dislike. In the context of IT-enabled business innovation, structure of organizational field includes IT-business coordination competency, degree of institutionalization of old information systems, and participation of business managers. IT-business coordination competency represents strengthen of social ties between IT and business. Degree of institutionalization denotes maturity of the old institution. Participation of business managers corresponds to distance between institutional entrepreneurs and core of organizational field.

Second, legitimation, a critical concept of institutional entrepreneurship theory, refers to "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within socially constructed systems of norms, values, beliefs, and definitions" (Suchman 1995, p.574). Institutional entrepreneurs can improve the rate of successful institutional entrepreneurship by verifying the legitimation of new institutional arrangements. Legitimation contains moral, pragmatic, and cognitive types. In the context of IT-enabled business innovation, the three types of legitimation correspond respectively to compatibility and relative strength of innovation and TMT's attitude towards innovation.

Third, external pressure includes coercive, mimetic, and normative pressure (DiMaggio and Powell, 1983). In our context, as IT-enabled business innovators can rarely impact on external pressure by subjective actions, we did not take it into consideration.

3 Research Methods

The case study method is well suited to the following three conditions: first, researchers aim to answer "how" and "why" questions (Eisenhardt, 1989; Eisenhardt and Graebner, 2007). Second, researchers have weak control over their phenomenon of investigation. Third, researchers aim to study a contemporary phenomenon in practice (Yin, 2003). We took the case study approach because we attempted to explore why some organizations are able to successfully realize the IT-enabled business innovation while others are not.

The criteria for case selection include: (1) the firm succeeds in realizing IT-enabled business innovation for the past three years; (2) the firm's story has important implications for the whole industry. We broadly searched available firms and selected firm W based on the above three criteria.

Interviews were used as the means to collect data, but at the same time we also tried to gather as much data as possible using different data sources to make use of the synergetic effects of triangulation (Jick, 1979; Yin, 2003). Based on the discussion in Section 2, we first searched related secondary information about firm W. And then a structured and open-ended questionnaire for conducting interviews was developed. We conducted 10 interviews to employees in W (interviewees mainly from the IT department and other functional areas), in which the "snowball" approach was adopted. In other words, an interviewee referred us to another interviewee. The interviews were conducted over a period of five months. Each interview lasted from 1 to 2.5 hours. Some interviewees were interviewed more than once, in instances where data analysis revealed a need for further clarification. Besides the interviews, we also used company reports, diagrams, meeting agendas and memos for data digging. External industry reports added further context to the data collected from internal sources. Lastly, we integrated all the secondary and first-hand data into a data pool. First-hand data amounted to over 100 thousand words and secondary data counted up to 50 thousand words.

Data analysis, performed in tandem with data collection, was carried out by moving back and forth between empirical data, relevant literature, and the emerging theory (Eisenhardt, 1989). A detailed case description (narrative as instance) (Pentland, 1999) of the entire innovation process was prepared. Next, relevant findings were organized into themes and analyzed with the theoretical lens to shape the emerging theory (Walsham, 1995). In order to reduce researcher bias, we invited another two colleagues to participate in data analysis. The merging theory was then compared to the existing literature until the state of theoretical saturation is reached (Eisenhardt, 1989).

4 Findings

4.1 Organizational Background

Firm W (W for short), a leading commercial real estate company in China, was

founded in 2002. Its core business includes investment and operation of commercial real estate such as supermarkets containing shopping mall, cinema and hotels. Since 2005, W has entered into a fast-growing period with China's urbanization. In order to grasp the fleeting opportunity for expansion, the top management team made the strategic decision to collaborate closely with local governments to intensely implement large real estate projects. Therefore, W must be capable of controlling precisely the schedule of large real estate projects from the auction of land to the opening of business plazas. As there are numerous unpredicted factors and the schedule is often very tight, W needs to manage real estate construction projects with an innovative approach.

W implemented the Modularity Management System (MMS) during 2011-2012 and realized the process innovation in real estate construction project lifecycle management enabled by MMS. The objective of the project was to enable the firm to manage real estate development projects throughout the country within a unified process system and support TMT members to control project scheduling and project cost more precisely and conveniently. After the success of MMS, W transformed from a manually managed process to standardized process based on information systems, which is more efficient, economic and apparent.

4.2 Initiation Stage

At the initiation stage, the CIO worked with business departments to figure out problems in the project management process. As inappropriateness might be found at any level from the bottom to the top, the CIO and his team systematically scanned the inappropriateness and analyzed their implications for innovation, thus identifying a list of opportunities for innovation. For instance, a vice president mentioned that the plan of real estate project was chaotic and responsibilities of each division were not clearly defined. The second step was to pick up a few reasonable innovation opportunities that would be focused on. The selection was based on three criteria, the extent of alignment with business strategy, extent of urgency, and the level of investment needed. Finally, in the middle of 2011, W decided to initiate the real estate project management process innovation aiming to solve a series of problems that had existed for a few years.

At this stage, three factors facilitated the innovation process. First, IT-business coordination competency facilitated the collaboration between IT and business, which expanded the opportunities identified to the most extent. Because when IT

utilized cross-functional interfaces to communicate with business and when employees were literally transferred between business and IT, the communication barriers between IT and business were largely eliminated. Second, participation of business managers also facilitated the process. Business managers participated in formulating a strategy for innovation, resulting in more specific criteria for the selection of opportunities. Third, TMT's attitude towards innovation contributed to the process by strengthening the critical role of IT in solving business problem (Table 2).

Table 2 Determining Factors at the Initiation Stage

IT-business coordination competency	
IT uses cross-functional interfaces to communicate with business.	"Some IT staff do not have much expertise in IT, but they have sufficient business experiences, especially the logic of business operation and process"—the CIO and president of IT department. "Every business unit has its own IT department with five to ten staff members, whose main task is to communicate with business staff or conduct promotion activities"—Vice president of IT department.
Employees are literally transfers between business and IT.	"Some IT staff were transferred from business departments; while some business staff were technical experts before and built their business skills and knowledge by participating in lots of projects"—Vice president of IT department.
Participation of business managers	
Business managers participate in formulating a strategy for the innovation.	"Managers made a plan together and cleared every department's responsibility. They also defined timetable and mile stones of the project and linked performance with the completion of tasks in defined time"—Vice president of IT department.
TMT's attitude towards innovation	
TMT has a favorable attitude toward IT.	"The leaders made decisions in a very simple way. Their principle was to realize the application of IT in wherever IT can be realized" —the CIO and president of IT department.

4.3 Implementation Stage

After the innovation initiation, the CIO and his team started to design an innovation solution enabled by IT. Core members of the innovation committee largely scanned existent IT solutions in the market by searching competitors' information, attending vendors' shows, and talking directly with mainstream vendors. However, they found none of them can satisfy the basic requirements. So they decided to develop a new information system on their own, namely MMS. Then it came to the most rebellious and important part. The CIO and

business executives collaborated to design accompanying new institutional arrangements to guarantee the successful implementation of information systems, such as new rewarding system and scheduling system. Next, the CIO tried to prove the legitimacy of the new IT-enabled process. Finally, developing team from IT department developed the new MMS and deployed it within the company. In this process, five determining factors facilitated the process through various mechanisms, such as by pushing the arrival of compromise or by preventing transferring to the new system (Table 3).

Table 3 Determining Factors at the Implementation Stage

IT-business coordination competency	
IT takes part in business's decision-making processes.	"IT and business figure out business problems together through discussions on corporate regular meetings"—An engineer of IT department. "IT staff provided a lot of support and assistance to business departments and proposed several suggestions"—Vice president of IT department.
IT combines with business's complementary, but scarce, resources or capabilities.	"IT staff persisted on taking part in all operational meetings, although they could not understand what business staff said"—An architect of IT department.
Degree of institutionalization	
If the old information systems suddenly disappear, its absence would be missed by the organization,	"Previous information system is the best. The current one is just OK, or a little bad"—A staff from business department.
The extent to which users feel attached to the old information systems.	"Any changes would cause chaos. Everyone was very anxious and fretful due to the change of work mode and platform" — A staff from business department.
The degree to which use of the old information systems is routinized, that is, used as part of the standard operating procedure of the organization.	"Performance measurement standard has changed. Project managers need to change his or her direction and keep on thinking on how to improve his or her performance"—Vice president of real estate planning department.
Participation of business managers	
Business managers participate in establishing goals and standards to monitor the innovation projects.	"Business managers had already discussed what the information system should be"—Vice president of IT department "Six to seven hundred managers throughout the country were convened at the headquarter to attend the training. After they returned to branches, they were tested on video meetings"—Vice president of real estate planning department.
Business managers participate in articulating a vision for the innovation.	"Business managers attached importance to the project. IT became a very important partner of business." "Supply chain director suggested that we should positively guide customers' demand to relieve sufferings of supply chain management."

(*To be continued*)

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TMT's attitude towards innovation	
TMT believes that IT initiatives can positively impact organizational outcomes.	"The chairman of the board positioned this project as the one that transformed the whole corporation"—Vice president of real estate planning department.
Relative strength of innovation	
It is more difficult for competitors to imitate.	"We found an excellent partner, a famous American expert in this field. It took a lot of money and effort to find him" — Vice president of IT department. "The information system was developed by ourselves, which improved IT's flexibility"—An engineer from IT department.
The innovation is more likely to equitably produce a profitable return compared with costs associated with implementing and marketing the innovation to stakeholders.	"Business staff said the implementation of this system did not burden them. In addition, the new system was very convenient"—Vice president of real estate planning department. "The system added a lot of value, such as making the operations more transparent and helping project managers complete key activities in defined time very easily" —Vice president of IT department.

4.4 Routinization Stage

After the new MMS was deployed, the CIO and his team promoted its implementation by leveraging the effects of new institutional arrangements designed at implementation stage. The CIO and his team also advertised positive effects of using MMS to complete certain tasks. After a period of usage, most users took it for granted to work on MMS. At this stage, IT-business coordination competency, TMT's attitude towards innovation and relative strength of innovation determined the degree of routinization (Table 4).

Table 4 Determining Factors at the Routinization Stage

IT-business coordination competency	
Lower IT-related transaction costs.	"The communication mechanism between IT and business department works very well"—Vice president of IT department. "From the beginning, our rights and responsibilities were defined very clearly, that is, business staff were responsible for presenting business logics and IT staff took charge of realizing what business staff presented" —Vice president of real estate planning department.
TMT's attitude towards innovation	
TMT supports the view that IT is critical to the success of the organization.	"We were looking forward to new technologies and combing IT with traditional industries together"—the CIO and president of IT department. "The chairman of the board regarded IT as a bottleneck on the way of the corporation's development. They thought IT was always very critical"—the CIO and president of IT department.

(*To be continued*)

(*Continued*)

Relative strength of innovation	
The innovation has greater potential to create organizational structures within the corporation's boundaries in which new processes can be developed.	"This innovation project changed our business processes and built up a new one"—Vice president of real estate planning department.

5 Discussion

By analyzing the case data, we found that five determinants, i.e., IT-business coordination competency, degree of institutionalization, participation of business managers, top management team's (TMT) attitude towards the innovation and the innovation's relative strength, have a significant impact on the success of IT-enabled business innovation. However, the effect of innovation's compatibility was not supported by our evidence. One possible reason is that W is a private-owned and fast-growing company, in which strategic goals are frequently adjusted according to the changing environment. Hence, there exists no shared understanding on "what is the right thing to do". New things are likely to be accepted.

IT-business coordination competency can significantly improve the likelihood of successful IT-enabled business innovation. It contains five aspects: IT uses cross-functional interfaces (e.g., liaison personnel, taskforce, and teams) to communicate with business, IT takes part in business's decision-making processes, employees are literally transfers between business and IT, IT combines with business's complementary, but scarce, resources or capabilities, and low transaction costs between and IT is very low. Higher level of IT-business coordination competency denotes a stronger linkage among agents in the organization network, which facilitates diffusion of information and eliminates obstacles for IT and business to understand other's core interests. For example, when firm W implemented the modularity management system, "*IT staff persisted on taking part in all monthly operational meetings. Although they could not understand what business staff said, they figured out how business staff were working and what they really cared about when they made assessment on project plans.*" Furthermore,

higher IT-business coordination competency represents that it is easier for IT and business to complement each other's resources and making decisions together, thus easier to adapt to the new institutional arrangements. Based on these interviews and conceptual abstraction, we propose Proposition 1 as follows:

Proposition 1: Higher level of IT-business coordination competency is positively associated with higher likelihood of successful IT-enabled business innovation.

The degree of institutionalization of the old information systems also significantly influences the likelihood of successful IT-enabled business innovation. It represents the degree of employees' reliance on fixed behavior rules and thinking mode embedded in old information systems, including three aspects: If an old information system suddenly disappear, it absence would be missed by an organization; the extent to which users feel attached to the old information system; the degree to which use of the old information systems is routinized. The higher degree of institutionalization, the more difficult a new institutional arrangement could be accepted, the higher the switching cost of the organization employees. Hence, this discussion is articulated in the following proposition:

Proposition 2: Higher degree of institutionalization of old information systems is negatively associated with higher likelihood of successful IT-enabled business innovation.

The degree of participation of business managers also has a significant impact. It represents the degree of innovation agents holding the dominant position in the organization network, occupying critical resources and possessing dominant power. There are three aspects of participation of business managers, namely, business managers participate in articulating an innovation; managers participate in formulating a strategy for the innovation; managers participate in establishing goals and standards to monitor the innovation projects. The higher the degree of participation of managers, the clearer, the more stabilized and the more acceptable of innovation goals are. As mentioned by a project manager, "*our president wished to exposure all problems in processes via a unified platform and then made all key items clear. From this perspective, the overall goals of all departments are consistent.*" What is more, if the degree of participation of business managers is higher,

then augmented resources and institutional arrangements needed in the implementation of innovation will be easier to be attained. Hence, we propose the following proposition:

Proposition 3: Higher degree of participation of managers is positively associated with higher likelihood of successful IT-enabled business innovation.

TMT's attitude towards innovation can significantly impact the likelihood of successful IT-enabled business innovation. It represents the degree of organizational cognitive legitimation of innovation, including three aspects: TMT has a favorable attitude toward IT; TMT believes that IT initiatives can positively impact organizational outcomes; TMT supports the view that IT is critical to the success of the organization. Positive attitude towards innovation of TMT members can induce higher importance of innovation in the whole organization field, thus the position of innovation is more likely to get access to the center. One manager mentioned "*the board chairman complained that IT had become a bottleneck of on the way of the corporation's development. He thought IT was always very critical. He was looking forward to new technologies and combing IT with traditional industries together*". Based on these findings, we articulate the following proposition:

Proposition 4: TMT's attitude towards innovation is positively associated with higher likelihood of successful IT-enabled business innovation.

Relative strength of innovation has significantly impact on the likelihood of successful IT-enabled business innovation. Relative strength corresponds to pragmatic legitimation of innovation, as innovation with relative strength is more competent in solving business problems and is more likely to benefit users. Relative strength of innovation contains three aspects: it is more difficult for competitors to imitate; the innovation is more likely to equitably produce a profitable return; the innovation has greater potential to create organizational structures. Innovation with relative strength has greater potential to benefit more users, which reduces hinders in the implementation. Therefore, we propose the last proposition:

Proposition 5: Relative strength of innovation is positively associated with higher likelihood of successful IT-enabled business innovation.

To sum up, we propose a conceptual framework of determinants of IT-enabled business innovation, as depicted in Fig. 1.

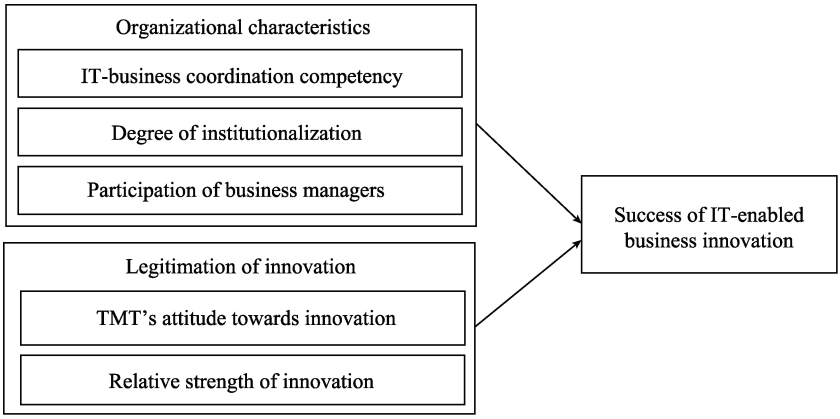

Fig. 1 Conceptual Framework

6 Conclusions and Implications

As more CIOs start to focus on how to successfully achieve IT-enabled business innovation, we investigate on the determinants of the success of IT-enabled business innovation in fast-growing companies from the perspective of institutional entrepreneurship theory. The results suggested that success of IT-enabled business innovation is significantly influenced by IT-business coordination competency, degree of institutionalization, participation of business managers, top management team's (TMT) attitude towards the innovation and the innovation's relative strength.

This paper has the following contributions: First, by adopting the lens of institutional entrepreneurship theory, we identified three determinants of IT-enabled business innovation, namely, IT-business coordination competency, degree of institutionalization, and participation of business managers. As realization of IT-enabled business innovation is likely to be hindered by obstacles from outside the IT department, our findings might help practitioners to overcome external obstacles. Second, in a sense, we shifted researching focus from innovation in IT itself to IT-enabled innovation in business processes, products or services. As innovation in IT itself does not create as much business value as IT-enabled business innovation, IT innovation research should pay more attention to IT-enabled business innovation (Ashurtst et al., 2012). Third, we extended the dominant paradigm that focuses on dependent variables related to

IT innovation adoption by selecting success of IT-enabled business innovation as our dependent variable. This approach overcomes the "pro-innovation" bias in the dominant paradigm (Fichman, 2004).

One important limitation of this article lies in the fact that the adoption of case study approach may weaken the generalizability of our research findings. Another limitation is the exclusion of potential determinants related to external environmental characteristics. Hence the impact of environmental factors on IT-enabled business innovation and even other potential critical antecedents may be overlooked. Future research should explore it further.

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