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From IT deployment capabilities to competitive advantage: An exploratory study in China

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Abstract As more and more companies are deploying, or plan to deploy, information systems, the organizational capabilities to effectively deploy information technologies to support and shape businesses become increasingly important. While many studies have focused on how to acquire state-of-the-art information technologies and on how to effectively utilize implemented information technologies, more studies are still needed to investigate how a company can successfully deploy acquired information technologies to support and shape businesses strategies and value chain activities. IT deployment capabilities are defined as the organizational capabilities to configure and reconfigure a company's information system by adding new IT components or by adapting the existing information systems in order to make the whole information system available to support and shape businesses. This study identifies and investigates the three building blocks of IT deployment capabilities: strategic IT flexibility, business–IT partnership, and business–IT alignment. Using the resource-based view, we propose a framework to explain the relationship between IT deployment capabilities and competitive advantage. The research model is tested on data collected in China. Results show that strategic IT flexibility and business–IT partnership have direct impacts on competitive advantage, while business–IT alignment has an indirect impact on competitive advantage. The effect of business–IT alignment on competitive advantage is fully mediated by strategic IT flexibility and business–IT partnership. The results provide support for the relationship between IT deployment capabilities and competitive advantage. The study presents implications for how to develop IT deployment capabilities and how to generate business value from IT investment.

Keywords Information systems · Resource-based view · IT deployment capabilities · Competitive advantage · Strategic IT flexibility · Business–IT partnership · Business–IT alignment

1 Introduction

According to a report by China Computer World, China's market for business software reached annual sales of RMB 20.675 billion in 2006.[1] In 2007, the market size increased by 20.2% to 24.851 billion.[2]

Although a large number of companies have invested a great deal of money in business software, the reported deployment results are far from satisfactory. Martinsons (2004), who conducts in-depth case studies in eight companies that use the same SAP suit, found that their

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[1] Source: http://www.ccwresearch.com.cn/store/article_content.asp?articleId=20113&Columnid=394&view=# (Accessed on April 8, 2009)

[2] Source: http://hy.gztax.gov.cn/k//2008-7/750538.html; http://www.ccw.com.cn/work2/news/pinglun/htm2008/20080723_470192.htm (Accessed on April 8, 2009)

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implementation results are considerably different. The investigation shows that some companies achieve the desired results, while others consider the investment a failure. For many companies, the phenomena of elusive business value with expensive investment in ERP implementations are proved to be still at large (Ross and Vitale 2000).

As more and more companies deploy, or plan to deploy, software to support business management in China, there is a growing awareness of information systems related issues, such as the information technology (IT) productivity paradox, IT business value, and IT-enabled competitive advantage (Quan et al. 2005). Carr (2003) maintained that, because IT is increasingly becoming commoditized, no company will gain competitive advantage through utilizing IT. However, some scholars do not think so. As Varian (2009) pointed out, if one resource becomes ubiquitous, its complementary resources will become considerably valuable. Accordingly, we hypothesize that, when information technologies become commoditized and when more and more companies plan to deploy information technologies, the organizational capabilities to manage IT deployment will become increasingly important.

Though a wide variety of studies have investigated business value of information technologies (e.g., see Melville et al. 2004 for a thorough review), relatively few studies pay specific attention to a company's capabilities to deploy information systems, especially in the emerging markets. Therefore, we address the following research questions in this article:

1. What constitutes a company's IT deployment capabilities?
2. How and why IT deployment capabilities contribute to a company's competitive advantage?

The rest of this article is organized as follows. After a brief introduction of the analytical framework of resource-based view, we discuss its application in previous IT capabilities research. Using the resource-based view, we identify the building blocks of IT deployment capabilities and discuss the conceptual model of the research. After articulating the relationship between IT deployment capabilities and competitive advantage, we introduce the research methodology, including instrument design, sampling plan, and instrument validation. Finally, results are presented and analyzed, and then implications and future research directions are discussed.

2 Resource-based view and IT capabilities research

Building on the seminal work of Penrose (1959), Wernerfelt (1984) proposes the resource-based view (RBV) of the firm in his classic article in 1984. This theory has since been applied to many aspects of business research. If a company possessed resources that are valuable, rare, inimitable, and non-substitutable (VRIN), it would have the potential to gain sustainable competitive advantage from utilizing such resources (Barney 1991).

2.1 Resource-based view: A brief introduction

Achieving and sustaining competitive advantage is a fundamental issue in strategic management (Teece et al. 1997). Competitive advantage is generally used to describe the relative performance of a company in a given market (Peteraf and Barney 2003): (1) if a company creates more economic value than marginal competitors who can just break even, the company achieves competitive advantage in the given market; (2) economic value refers to the difference between consumer benefits and economic costs.

Barney (1991) and Bingham and Eisenhardt (2008) pointed out, competitive advantages can arise from resource heterogeneity and immobility if the following resource characteristics are fulfilled: (1) valuable: valuable resources help the focal company achieve, at least, competitive parity; (2) rare: a company with rare, valuable resources has the potential to gain temporary competitive advantage; (3) imperfectly imitable: if resources are valuable, rare, and inimitable, the company has the potential to achieve long-term competitive advantage; (4) imperfectly substitutable: if competitors are able to find substitutable resources to support their competitive strategies, the incumbent company's competitive advantage depends upon the relative costs and benefits of alternative resources.

Though "value, rarity, and non-substitutability are important, inimitability of resources is at the heart of competitive advantage because it limits the effects of competition over some time horizon" (Bingham and Eisenhardt 2008: 243). Bingham and Eisenhardt (2008) pointed out, inimitability can arise: (1) if a company has property rights to resources that cannot be legally obtained by competitors; (2) if resource accumulation involves path dependencies and time compression diseconomies; or (3) if the linkages between resources and firm performance are causally ambiguous.

2.2 Previous IT capabilities literature

The resource-based view began to be applied to information systems research in the mid-1990s. Many scholars (e.g., Bharadwaj et al. 1999; Bharadwaj 2000; Mata et al. 1995; Ross et al. 1996) have tried to identify and define what, after all, constitutes IT capabilities. Wade and Hulland (2004) state that IT capabilities refer to repeated patterns used to capitalize on a company's IT assets. Ravichandran

and Lertwongsatien (2005) then describe information systems capabilities as the quality and sophistication of information systems processes. Consistent with previous studies (Pavlou and El Sawy 2006; Bingham et al. 2007), we define IT capabilities as high performing organizational processes pertaining to the acquirement, deployment, and leverage of IT assets (i.e., technical assets and human assets).

According to previous studies (e.g. Carr 2003; Mata et al. 1995), imitable IT assets, especially hardware and software, can hardly bring any competitive advantage to companies. The reasons are as follows. First, since competitors can easily acquire similar software and hardware, such imitable resources can seldom become sources of competitive advantage. Furthermore, even though imitable IT assets sometimes may contribute to competitive advantage, such advantages tend to be short-lived (Mata et al. 1995; Wade and Hulland 2004).

Because Carr (2003) simply focuses on imitable IT assets, Carr's conclusion that IT does not matter is subject to questioning. Actually, when software and hardware become ubiquitous, their complementarities (i.e., IT capabilities) will become even more important (Varian 2009). If imitable IT assets can complement with inimitable IT capabilities, IT does still matter for a company's competitive advantage.

Pavlou and El Sawy (2006) pointed out that IT capabilities are about acquiring, deploying, and leveraging IT resources to support and shape a company's businesses. Because many articles have discussed IT acquirement capability and IT leveraging capability, this article focuses exclusively on IT deploying capabilities. For example, many articles have discussed the acquirement of IT resources through outsourcing (e.g., Aubert et al. 2008; Wüllenweber et al. 2008; Goo 2009) or through systems development (e.g., Patnayakuni et al. 2007; Patnayakuni and Ruppel 2009), while many others have discussed the leverage of IT resources (e.g., Pavlou and El Sawy 2006; Pavlou and El Sawy 2009; Ettlie and Pavlou 2006). Hence, the focus of this article becomes IT deployment capabilities, which we define as the organizational capabilities to configure and reconfigure a company's IT infrastructure, by adding new IT components or by adapting existing information systems, in order to make the whole collection of information system available to support and shape businesses.

Another reason for our choice of focus is that IT business value is generally generated through deploying IT resources to support and shape business activities (Melville et al. 2004). From the resource-based perspective, competitive advantage depends on the deployment of resources or combinations of resources that are valuable, rare, inimitable, and non-substitutable (Bingham and Eisenhardt 2008).

3 IT deployment capabilities and competitive advantage

This section explores the relationships between IT deployment capabilities and competitive advantage. As Goodhue and Thompson (1995) point out, it is more appropriate for exploratory research to employ multivariate regression to test the model, because advanced techniques (e.g., structural equation modeling) require precise theory and well-established measures. Accordingly, we do not treat IT deployment capabilities as a second order construct, whose testing involves advanced techniques. After presenting the three building blocks of IT deployment capabilities, we discuss the relationships between each building block and competitive advantage.

3.1 IT deployment capabilities

We define IT deployment capabilities as the organizational capabilities to configure and reconfigure a company's information system, by adding new IT components or by adapting existing ones, to make the whole collection of information system available to support and shape businesses.

As Fig. 1 shows, IT deployment capabilities are comprised of three components: strategic IT flexibility, business–IT partnership, and business–IT alignment. First, strategic IT flexibility is the organizational capability that facilitates the adaptation of the information systems to environmental changes by integrating new IT components into the existing information technology infrastructure or by changing the configuration of the existing information systems. Second, though business–IT partnership may be regarded as organizational social capital (Leana and Van Buren 1999) that help smooth the whole IT deployment process, we treat partnership as organizational capability because partnering involves repeated sets of actions that are established to unify the efforts between IT units and business units in order to deploy IT to support and shape businesses. At the individual level, Chen et al. (2009) argue that individual social competence contributes to the breadth of a person's social networks, and thus increases the person's social capital. Similarly, organizational capability intended to foster cross-functional cooperation will help the organization build its organizational social capital. Finally,

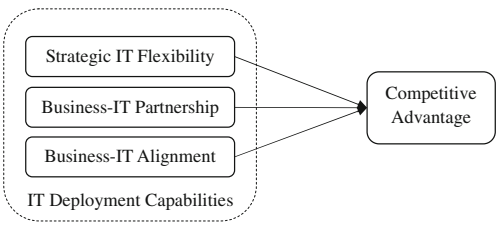

Fig. 1 The conceptual model

business–IT alignment is the organizational capability to allocate (or reallocate) resources and configure (or reconfigure) strategies to achieve and sustain alignment between the IT and business in order to make IT available to support and shape businesses.

Lai and Mahapatra (1997) viewed deployment as "an attempt to install and deliver IT in the adopter's organization." In order to successfully install new information technologies, a company with flexible information infrastructure can better accommodate emerging cutting-edge technologies. In addition, to satisfy changing user needs, companies with flexible information infrastructure can quickly respond to user demands and deliver corresponding IT services. Therefore, we suggest the construct: strategic IT flexibility, which refers to a company's capability to respond to various IT demands from dynamic competitive environments. This construct is based on a strategic term: strategic flexibility, which "has been widely used by strategy researchers to denote firm abilities to respond to various demands from dynamic competitive environments" (Sanchez 1995).

From the perspective of technology diffusion, Cooper and Zmud (1990) defined IT deployment as the organization effort intended to facilitate the diffusion of information technology within a user community. Viewing deployment from this perspective, we can easily justify that business–IT partnership is a crucial factor for successful IT deployment, because such partnership can facilitate IT adoption and diffusion. Actually, many previous studies (e.g., Feeny and Willcocks 1998; Bharadwaj et al. 1999; Ross et al. 1996) have identified tight partnership as a key feature of successful IT implementation.

Finally, a successful IT deployment is characterized by implementing appropriate information technologies to support and shape businesses strategies and value chain activities. Tallon (2008a) approached this issue by conceptualizing alignment at the process level: "translating formal strategic plans into business activities and ways for IT to support the business." However, we believe that alignment should be a bidirectional process rather than a unidirectional process: business–IT alignment not only means that IT should support businesses, but also means that business should capitalize on strategic potentials of IT. In addition, viewing alignment from the organizational level is more compatible with other organization-level constructs in this study. Therefore, we adopt the definition by Reich and Benbasat (1996): alignment is "the degree to which the information technology mission, objectives, and plans support and are supported by the business mission, objectives, and plans."

So far we have defined IT deployment capabilities and briefly described the three building blocks of IT deployment capabilities. We will not treat IT deployment capabilities as a second order construct that encompasses all the three constructs, but treat them as three separate ingredients, which we will describe in more detail in the following sections.

3.2 Strategic IT flexibility and competitive advantage

Strategic IT flexibility refers to company's capability to respond to various IT demands from dynamic competitive environments. Strategy IT flexibility measures a company's degree of easiness and speed to perform IT related activities to adapt to changes in business, technologies, competitive environment. This definition is based on two previous related definitions: (1) Sanchez (1995) defined strategic flexibility as "firm ability to respond to various demands from dynamic competitive environments"; and (2) Golden and Powell (2000) regarded flexibility as the adaptability to changes.

Viewing from the resource-based view, some scholars argue that IT assets, such as hardware and networking devices, do not bring competitive advantage to companies (Mata et al. 1995). However, if a company has the organizational capabilities to make all the IT components highly integrated and highly modularized, such integrated and modularized information systems have the potential to contribute to the organizational flexibility and eventually to the competitive advantage of the company (Byrd and Turner 2001). Therefore, when hardware and software become ubiquitously commoditized, the organizational capability to develop, maintain, and support flexible information systems will become increasingly valuable.

Since flexible information systems can make full use of reusable data and applications, such systems considerably reduce the workload of developers and shorten the lead time of new systems releases. In addition, the more flexible the systems are, the easier new systems can be integrated into the existing system. Consequently, flexibility enables companies to quickly and cost-effectively apply cutting-edge technologies to support and shape ever changing businesses (Ravichandran and Lertwongsatien 2005).

Strategic IT flexibility can be viewed as real options for a company. As Bowman and Hurry (1993: 762) notes, "The option lens provides a view of an organization's resources—its capabilities and assets—as a bundle of options for future strategic choice...Options come into existence when existing resources and capabilities allow preferential access to future opportunities." A small commitment of resources in building strategic IT flexibility gives companies learning opportunities and an entry point into emerging opportunities (Fichman et al. 2005). As Kogut and Kulatilaka (2001) point out, because environment changes more rapidly than organizations do, investing in organizational capability that give companies the flexibility to respond to uncertainty is considerably valuable.

In terms of empirical evidence, Watkins (1998) investigates a large number of financial service companies in United Kingdom and finds that many companies are locked-in by their inflexible IT infrastructures and can not swiftly switch to new systems. Moreover, employees in these companies also lack flexibility. They incline to maintain the status quo and resist changes. Due to lack of flexibility in technical platforms and IT personnel, IT resources that once provided companies with competitive advantage become competitive disadvantage for these firms.

Since strategic IT flexibility can only be achieved by the synergy among company's physical capital (e.g., IT infrastructure), human capital (e.g., flexible IT personnel), and organizational capital (e.g., organizational culture and structure emphasizing flexibility), it is highly probable that competitors cannot easily replicate a company's strategic IT flexibility.

In conclusion, information system flexibility is an important ingredient of a company's IT deployment capabilities. Strategic IT flexibility allows the company's information systems to quickly adapt to changes in technology and market and thus to support and shape the company's strategic choices and business activities. Information systems that lack flexibility may become obstacles for organizational changes, while flexibility will facilitate organizational adaptability to changes. Therefore, we propose the following hypothesis:

H1: Strategic IT flexibility is positively associated with competitive advantage.

3.3 Business–IT partnership and competitive advantage

Business–IT partnership refers to the organizational capability to unify cross functional efforts in deploying information systems to support and shape businesses (Song and Parry 1997). As Bassellier et al. (2001) note, the extent to which a company can effectively utilize IT resources largely depends on the relationship between information system department and business departments within a company. In order to effectively utilize information systems, IT department must be willing to meet business demands (Bhatt and Grover 2005). In addition, the business people should be willing to work with IT personnel to figure out how to utilize state-of-the-art information technologies to sense and seize emerging business opportunities.

It is unlikely that every company can achieve good partnerships between information systems unit and business units. Peppard and Ward (1999) conduct survey and interviews in three organizations. Within the distribution company, the IT organization was somewhat disconnected with the rest of the business; the role and function of the IT unit was not clearly defined and shared. Within the manufacturing firm, the IT organization felt that it was undervalued, and that it got neither business commitment nor involvement. However, in the financial company, the IT organization saw itself as a true value-added partner in the business, a view that was also shared by the business. Therefore, empirical evidence shows that good relationships between information system department and business departments are not equally distributed among firms.

McAllister (1995) points out that trust is the foundation for intra-organizational cooperation. Trust partnership enables partners to explore and exploit opportunities that are not available to others (Barney and Hansen 1994). The organizational attributes and processes that make tight business–IT partnership possible (e.g., mutual understanding, trust, cross-functional involvement, and conflict handing behaviors) reflect a company's unique historical path (e.g., founder effects, and impacts of transformational leaders) and are socially complex (Barney and Hansen 1994). As Barney (1991) suggests, these types of organizational attributes and processes are usually inimitable and thus can become sources of competitive advantage. Therefore, we propose the following hypothesis:

H2: Business–IT partnership is positively associated with competitive advantage.

3.4 Business–IT alignment and competitive advantage

Business–IT alignment is, and probably will always be, in the focus of both academia and industry. The issue of business–IT alignment has captured people's attention since late 1970s (Luftman 2000). As the SIM survey 2008[3] points out, business–IT alignment still tops the list of top 10 IT management concerns. Similarly, according to 2008 CIO survey conducted by the CEOCIO.com.cn,[4] business–IT alignment is also among the top concerns of Chinese executives.

Definitions of business–IT alignment diverge: either treating alignment as an outcome or defining it as a process. Some researchers (e.g., Reich and Benbasat 1996, 2000) regard business–IT alignment as an outcome. For example, Reich and Benbasat (1996) defined alignment as "the degree to which the information technology mission, objectives, and plans support and are supported by the business mission, objectives, and plans." On the other hand, many researchers view alignment as a process. For example, Luftman and Brier (1999: 115) had defined alignment as a six-step process: set the goals and establish a

[3] Source: http://blogs.zdnet.com/BTL/?p=10844 (Accessed on April 8, 2009)

[4] Source: http://www.ceocio.com.cn/12/93/318/434/34777.html (Accessed on April 8, 2009)

team; understand the business–IT linkage; analyze and prioritize gaps; specify the actions; choose and evaluate success criteria; sustain alignment. In this article, we consider business–IT alignment as an outcome that is achieved by the alignment process. A mature alignment process will lead to the alignment between business strategies and IT strategies.

Empirical evidence reveals that alignment is rarely achieved. Luftman (2000) designs a model to measure the maturity of the business–IT alignment process. He finds that in a 5-level model, 80% of the companies in the survey achieved only Level-2 maturity with some characteristics of Level-3. When the alignment processes are premature in many companies, it is very likely that the alignment outcome is hard to obtain in those companies.

Business–IT alignment can be viewed as the outcomes of the formal and informal planning processes between businesses and IT units. According to Barney (1991), such planning processes can be regarded as organizational capital resources. Such organizational capital resources are less transparent to rivals who seek to imitate a company's successful strategy, and thus have the potentials to generate values for focal firm.

If a company's IT plans reflect its business plans, it is more likely for the focal firm to deploy IT to achieve and sustain competitive advantage. If a company's business plans refer to its IT plans, it is more likely for the firm to use cutting-edge information technologies to initiate and shape company's strategic choices to seize emerging market opportunities. Therefore, we propose the following hypothesis:

H3: Business–IT alignment is positively associated with competitive advantage.

4 Research methodology

We conduct a survey of Chinese firms to collect data to test the proposed hypotheses. This section describes the design of the questionnaire, the design of the sampling plan, and the validation of the research instrument.

4.1 Questionnaire design

As Farh et al. (2006) suggest, there are four approaches to develop scale for Chinese management research: translation, adaptation, de-contextualization, and contextualization. Because the translation method maintains a high level of equivalence and allows for international comparison (Farh et al. 2006), we select the translation approach to develop our Chinese scale whenever there are existing valid and reliable measurement scales for the research constructs. All constructs are measured with multiple-item scales. Each survey question requires a response based on a 7-point Likert scale ranging from 1 to 7. The survey questions used for this study are attached in the Appendix.

Competitive advantage (Cronbach's alpha=0.894). The measurement items for competitive advantage are similar to the ones in Kearns and Lederer (2003). Using IT-enabled competitive advantages rather than financial measures as the dependent variable can isolate other confounding factors that may affect the dependent variable (Kearns and Lederer 2003). The scale uses five items to measure the degree to which information systems have been used to: provide product differentiation advantage; enhance customer loyalties; create electronic link with customers; build entry barriers; lower buyers' switching intentions.

Strategic IT flexibility (Cronbach's alpha=0.947). Based on the concept of strategy flexibility (Sanchez 1995), the measurement scales of capability flexibility (Li et al. 2008; Liu et al. 2009), and the measures for agility (Tallon 2008b), the measurement scale for strategic IT flexibility is developed for this study. This scale uses eight items to measure the extent to which a company's information system can easily and quickly adapt to changes in businesses, technologies, and competitive environment. The commonly used scale developed by Byrd and Turner (2001) is not adopted because this study involved informants from both business and IT functions and because business people cannot easily understand the technical details in Byrd and Turner's scale.

Business–IT partnership (Cronbach's alpha=0.899). The measures for business–IT partnership are adapted from Ravichandran and Lertwongsatien (2005). Besides directly measuring the organizational processes dedicated to fostering cross-functional partnership, the scale also measures the level of trust and mutual understandings achieved by these processes. This scale uses four items to measure cross-functional partnership: mutual understandings; mutual trusts; mutual involvements; and conflict resolutions.

Business–IT alignment (Cronbach's alpha=0.907). The measures for this construct are adapted from Kearns and Lederer (2000, 2003). The scale measures the degree of alignment between business strategy and IT strategy. Though it may be appropriate to directly measure alignment from the process-level (Tallon 2008a), it is more suitable for this study to measure alignment at the organizational level since we must maintain the consistency of the level of analysis.

The Chinese version questionnaire is prepared by the forward-translation and back-translation procedure (Brislin 1980). The English version of the questionnaire was first

developed and then translated into Chinese by a scholar in China. The Chinese version was then translated back into English by another scholar. This translated English version was then checked against the original English version for accuracy. When inconsistencies occurred, discussions and revisions followed.

We followed the method recommended by Petter et al. (2007) and Song and Parry (1997) to refine our survey instrument. The questionnaire was administrated to a couple of students and practitioners. They asked questions when there were ambiguities or other problems. Based on the feedback received, we revised the questionnaire to make it more understandable and more relevant to the practices in China.

4.2 Data collection

In the data collection process, we first received a list of companies from a leading management school in China. The list contains around one thousand companies that have previous contact with the school. Due to the budget constraint, we randomly selected 300 companies for this study. Following the total design method for survey research (Dillman 1978), we sent these firms personalized invitation emails, which explained the study's purpose, requested participation, and assured the confidentialities of their responses. The respondents were asked to click on the URL link provided in the e-mail message that linked to an online instrument, which was powered by Google Docs.[5] This free web-based form directly collects responses into a web-based spreadsheet and thus totally eliminated potential errors in manual data entry.

To increase the response rate, we used a great deal of personal contacts and networking efforts. In addition, we provided our respondents with numerous incentives (e.g., a customized report that summarized the study's results). Eventually, we received 92 completed questionnaires. The response rate was 30.7% (92/300). The sample profile is reported in Table 1.

4.3 Instrument validation

Following the recommendations of Straub (1989) and Boudreau et al. (2001), we add the instrument validation section, because valid instruments are the foundations of quantitative research.

[5] Source: http://spreadsheets.google.com/viewform?key=pM7LeHdSlp-RDll305frhXg (Accessed on April 8, 2009)

Table 1 Sample profile (N=92)

	Count	Percent
Industry type of the firm		
Manufacturing	32	34.8%
Service	60	65.2%
Ownership structure of the firm		
State-owned enterprise	40	43.5%
Non state-owned enterprise	52	56.5%
Number of employees of the firm		
Less than 100	30	32.6%
101–500	22	23.9%
501–5,000	23	25.0%
5,001 or more	17	18.5%
Annual sales (RMB) of the firm		
100 million or less	41	44.6%
100m–1 billion	19	20.7%
1–5 billion	13	14.1%
5 billion or more	19	20.6%
Position of the respondent		
Chairman, President, or CEO	16	17.4%
Vice President	7	7.6%
Director, or Chief Engineer	5	5.4%
Senior Manager, or Senior Engineer	16	17.4%
Manager, or Engineer	30	32.6%
Staff, or Junior Engineer	18	19.6%

4.3.1 Unidimensionality and reliability

Unidimensionality and reliability are distinct concepts: "the dimensionality of a scale can be evaluated by examining the patterning of its component indicator correlations, whereas the reliability of a scale is determined by the number of items that define the scale and the reliabilities of those items."(Gerbing and Anderson 1988: 190). Therefore, we employ a two-step method to test construct reliability. The exploratory factor analysis (EFA) is used to establish unidimensionality in the first step, while Cronbach's alpha is employed to evaluate scale reliability in the second step.

The EFA is performed at the cross-factor level to determine the main constructs and their related measurement items. Principal component analysis is chosen for all measurement items, while Varimax rotation with Kaiser normalization is used to clarify the factors (Loehlin 1998). If an item loaded on more than one factor and the difference between factor loadings was less than 0.10 across factors, the item should be considered as cross-loaded (Jambulingam et al. 2005; Kathuria 2000). As shown in Table 2, each item is well loaded on a single construct (i.e. no item was cross-loaded).

Table 2 Exploratory factor analysis

Items	Factor loadings			
	Strategic IT flexibility	Business–IT alignment	Competitive advantage	Business–IT partnership
Flex1	**0.761**	0.069	0.357	0.213
Flex2	**0.829**	0.065	0.289	0.203
Flex3	**0.898**	0.168	0.141	0.059
Flex4	**0.786**	0.079	0.326	0.074
Flex5	**0.816**	0.106	0.172	0.176
Flex6	**0.838**	0.105	0.152	0.200
Flex7	**0.748**	0.308	0.148	0.238
Flex8	**0.675**	0.202	0.132	0.239
Align1	0.131	**0.860**	0.084	0.182
Align2	0.133	**0.743**	0.013	0.301
Align3	0.252	**0.811**	−0.023	0.174
Align4	−0.042	**0.762**	0.238	0.053
Align5	0.205	**0.790**	0.126	0.046
Align6	0.118	**0.768**	0.237	0.301
CA1	0.381	0.026	**0.649**	0.307
CA2	0.135	0.156	**0.842**	0.230
CA3	0.209	0.149	**0.793**	0.172
CA4	0.470	0.094	**0.681**	0.063
CA5	0.338	0.216	**0.769**	0.060
Partner1	0.277	0.101	0.186	**0.797**
Partner2	0.206	0.256	0.291	**0.804**
Partner3	0.245	0.284	0.135	**0.788**
Partner4	0.189	0.335	0.121	**0.739**
Eigenvalue	5.988	4.318	3.531	3.162
Cumulative %	26.037	44.809	60.162	73.911

Extraction method: principal component. Rotation: Varimax with Kaiser normalization

In order to demonstrate scale reliability, the Cronbach's coefficient alpha should be above the recommended level, 0.7 (Hair et al. 1998; Peter 1979). As reported in Table 3, all scales achieve a level higher than 0.8 and thus demonstrate good reliabilities.

4.3.2 Validity

In order to establish the validity of the instrument, a confirmatory factor analysis (CFA) is performed to obtain all factor loadings, error variances, and construct correlations. Following the method of Fornell and Larcker (1981) and the heuristics of Gefen et al. (2000), we claim that all constructs achieve convergent validity when the average variance extracted (AVE) of the construct is higher than 0.5. As Table 4 shows, all constructs achieve an AVE larger than 0.6. Therefore, it is reasonable to believe that all constructs have achieved good convergent validity.

To achieve discriminant validity, each construct AVE should be larger than its squared correlation with other constructs. As Table 4 shows, all AVE values observe this rule. It is reasonable to believe that all constructs have achieved good discriminant validity.

Table 3 Reliability analysis

Construct	Number of questions	Cronbach's alpha
Competitive advantage	5	0.894
Strategic IT flexibility	8	0.947
Business–IT partnership	4	0.899
Business–IT alignment	6	0.907

4.4 Control variables

Because the dependent variables in this study may be influenced by other factors outside this model, three additional variables of less interest are incorporated. These

Table 4 AVE and squared correlation among constructs

AVE/Corr^2	CA	Flexibility	Partnership	Alignment
Competitive Advantage	**0.74**			
Strategic IT Flexibility	0.45	**0.69**		
Business–IT Partnership	0.31	0.29	**0.70**	
Business–IT Alignment	0.16	0.15	0.31	**0.63**

three variables are industry type, ownership structure, and firm size.

Industry type Business sector is measured by a dummy variable: 1 for manufacturing (32 firms) and 0 for service (60 firms). According to industrial organization literature, firm performance depends, to some extent, on industry structure (Park and Luo 2001). In recent studies, Peng and Luo (2000) and Park and Luo (2001) provide empirical evidence to support the argument that industry structure had substantial impacts on firm performance in China.

Ownership structure Ownership structure is also defined by a dummy variable: 1 for state-owned enterprises (SOEs) (40 firms) and 0 for non-SOEs (52 firms). As Peng and Luo (2000) point out, a key feature of transition economies is the coexistence of state-owned and non-state-owned enterprises. According to Peng and Luo (2000), most top managers in state-owned enterprises are appointed by the government and face soft budget constraints; since the incentive structure of this executive is not directly linked with firm performance, it is very likely that SOE mangers are less motivated to seek strong performances through efficiently and effectively deploying IT to support and shape businesses. On the other hand, non-SOE managers face hard budgets, which discipline them to search for better performance; since their incentive structures tend to align with performance, non-SOE managers may be strongly motivated to use IT to improve performance (Peng and Luo 2000). In recent studies, Peng and Luo (2000) and Park and Luo (2001) provide empirical evidence to support the argument that ownership structure has considerable impacts on firm performance in China.

Firm size Firm size is defined by the natural logarithm of the employee number. Firm size is an indicator of past performance and thus may affect current performance (Ravichandran and Lertwongsatien 2005). Ravichandran and Lertwongsatien (2005) and Powell and Dent-Micallef (1997) also use the natural logarithm of the number of employees to control for firm size effects.

5 Results

5.1 Hypotheses testing

Results of the regressions are shown in Table 5. Model 1 includes only the three control variables. Of the three control variables (i.e., industry type, ownership structure, and firm size), only industry type is significant (β=−0.405, P<0.01) in predicting competitive advantage, while the overall model is significant (p<0.01).

Model 2 presents a full model with all control and hypothesized variables. The regression results lend support to H1 and H2, but do not support H3. In order to diagnose the problem of collinearity, we obtain the variance inflation factors (VIF) for all independent variables. The result shows that collinearity is not a significant issue in Model 2, since the values of VIF are between 1.130 and 1.704. All these values are much less than 5.0, the recommended cutoff value when collinearity becomes a significant problem (Katila et al. 2008).

First, just as Hypothesis 1 predicted, strategic IT flexibility (H1) has a significant impact on competitive advantage (β=0.452, P<0.01). Second, business IT partnership (H2) has a significant influence on competitive advantage (β=0.225, P<0.05). Third, the regression results do not support the predicted direct relationship between business–IT alignment and competitive advantage. There is no significant relationship between business–IT alignment (H3) and competitive advantage (β=0.039, n.s.).

Since we use a single informant to answer all questions, potential common method bias should be checked. We employed Harman's one-factor test of common method bias. As reported in Table 2, Harman's one-factor test of

Table 5 Standardized multivariate regression results (N=92)

	Competitive advantage	
	Model 1	Model 2
Control variable		
Industry	**−0.405*** **	**−0.238*** **
Ownership	−0.069	−0.091
Firm size	0.119	−0.009
Independent variable		
Strategic IT flexibility		**0.452*** **
Business–IT partnership		**0.225** **
Business–IT alignment		0.039
Model F	**5.045*** **	**14.225*** **
R^2	0.147	0.501
Adjusted R^2	0.118	0.466

Notes: * = p<0.1; ** = p<0.05; *** = p<0.01

common method bias (Podsakoff et al. 2003) finds several distinct factors for the variables. Such results suggest that common method variance bias is not a significant problem in our study.

5.2 Further investigation: Mediating effects

Contrary to our prediction and the results of many previous studies such as Teo and King (1996) and Kearns and Lederer (2003), the direct relationship between business–IT alignment and competitive advantage is not supported. Some other studies also find insignificant relationship between alignment and competitive advantage. For example, Palmer and Markus (2000) find that the linkage between strategic alignment and firm performance is not supported. In another study, Sabherwal and Chan (2001: 11) show that alignment affected business performance but only in some organizations. Using business strategies classification of Defender, Analyzer, and Prospector, they argue that "alignment seems to influence overall business success in Prospectors and Analyzers but not in Defenders." It seems that the relationship between alignment and firm performance is not universally justified. There are reasons to expect a direct positive relationship, but there are also explanations for the absence of a direct effect. Therefore, the question becomes why the direct effect is absent in this study.

Since the correlation between business–IT alignment and competitive advantage is significant[6] ($P<0.01$) while the regression coefficient is insignificant, we posit that the effect of business–IT alignment on firm performance is fully mediated by strategic IT flexibility and business–IT partnership. The theoretical justifications are as follows.

First, in this study, business–IT alignment is theorized as the fit between business strategy and IT strategy. When strategies are carried out, both technical assets and human assets will play their roles in the execution process. Without the involvements of these assets, even the most aligned strategy can hardly contribute to a company's competitive advantage. Therefore, it is reasonable that, though alignment is related to competitive advantage, alignment does not directly lead to competitive advantage. The impacts of alignment on competitive advantage are fully mediated by strategic IT flexibility and business–IT partnership.

Second, business–IT alignment is conducive to strategic IT flexibility. Strategic IT flexibility can be viewed as a kind of dynamic capabilities, which help a company sense and seize opportunities (Harreld et al. 2007). The formal and informal planning processes, which are used by companies to achieve and to sustain business–IT alignment, require both business and IT executives and employees to meet regularly to examine current state of affairs and to explore and exploit IT-enabled business opportunities. Therefore, business–IT alignment is associated with strategic IT flexibility because the processes to support alignment provide companies with mechanisms to continually monitor and assess changes in technologies, market, and competitive environment. In addition, such processes can help companies make timely decisions to allocate resources to support IT flexibility in order to seize IT-enabled business opportunities.

Third, business–IT alignment increases business–IT partnership because strategic alignment lowers potential goal incongruity, and facilitates internal cooperation. Peppard and Ward (1999) point out that business–IT alignment is a necessary starting point for integrating the IT unit with other business units. Business–IT alignment reduces goal incongruity and thus increases the cooperative intention. According to Song et al. (2000), goal incongruity may lead to cross functional conflicts and thus lower the intention to cooperate. Furthermore, Song et al. (1997) provide theoretical justifications and empirical supports for the argument that internal facilitators (e.g., management expectations of business–IT alignment) have strong, direct effects on cross-functional cooperation. Accordingly, we expect that business–IT alignment is such an internal facilitator that fosters business–IT partnership.

After pointing out the theoretical foundations for the mediation effect, we perform the three-step regressions suggested by Baron and Kenny (1986) and Iacobucci (2008) to test whether business–IT alignment is mediated by strategic IT flexibility and business–IT partnership.

In all the regressions, the three control variables (industry type, ownership structure, and firm size) are all included. In the first step, competitive advantage is regressed on business–IT alignment. In the second step, three regressions are performed: one with strategic IT flexibility and business–IT partnership as independent variables, and competitive advantage as dependent variable; the others with business–IT alignment as independent variable, and strategic IT flexibility and business–IT partnership as dependent variables, respectively. In the third step, we enter all variables simultaneously as predictors of competitive advantage.

Table 6 reports the results of the mediating analysis. The results reveal the following findings:

(1) As step 1 shows, business–IT alignment has a significant effect on competitive advantage ($\beta=0.306$, $P<0.01$).

[6] We use two methods to compute this correlation. First, we treat the two variables as observed variables and use the summated scale which is comprised of all measurement items (Grapentine 2000). In this case, the correlation is 0.366 ($P<0.01$). Second, we treat the two variables as latent variables and use CFA in LISREL to compute the correlation. In this case, the correlation is 0.40 ($P<0.01$). Both methods show that the correlation is significant at the 0.01 level.

Table 6 Mediation analysis: standardized regression results (N=92)

	Competitive advantage			Flexibility	Partnership
	Step 1	Step 2.1	Step 3	Step 2.2.1	Step 2.2.2
Control					
Industry	**−0.344*** **	**−0.242** **	**−0.238*** **	**−0.202***	−0.063
Ownership	−0.063	−0.094	−0.091	−0.012	0.147
Firm size	0.094	−0.009	−0.009	**0.201***	0.053
Independent					
Flexibility		**0.457*** **	**0.452*** **		
Partnership		**0.242*** **	**0.225** **		
Alignment	**0.306*** **		0.039	**0.340*** **	**0.505*** **
Model F	**6.762*** **	**17.198*** **	**14.225*** **	**5.155*** **	**9.102*** **
R^2	0.237	0.500	0.501	0.192	0.295
Adjusted R^2	0.202	0.471	0.466	0.154	0.263

Notes: * = p<0.1; ** = p<0.05; *** = p<0.01

(2) In step 2.1, both strategic IT flexibility (β=0.457, P< 0.01) and business–IT partnership (β=0.242, P<0.01) are significant in predicting competitive advantage. In step 2.2.1, business–IT alignment is a significant predictor of strategic IT flexibility (β=0.340, P< 0.01). In step 2.2.2, business–IT alignment is a significant predictor of business–IT partnership (β= 0.505, P<0.01),

(3) We find that the effect of business–IT alignment on competitive advantage becomes insignificant (β= 0.039, n.s.) once strategic IT flexibility and business–IT partnership are entered into the model simultaneously. However, the effects of both strategic IT flexibility (β=0.452, P<0.01) and business–IT partnership (β=0.225, P<0.05) remain significant.

These results suggest that the relationship between business–IT alignment and competitive advantage is fully mediated simultaneously by strategic IT flexibility and business–IT partnership.

6 Discussion

6.1 Key findings

This study has a few key findings. First, this study conceptualizes, operationalizes, and measures the construct of IT deployment capabilities as three sub-constructs. As Varian (2009) points out, when one resource becomes ubiquitous, its complementary resources will become increasingly valuable. Accordingly, when more and more companies are deploying, or plan to deploy, information technologies, which are regarded as commodities by Carr (2003), the organizational capabilities to successfully deploy information systems to support and shape businesses will become increasingly important. This study is an attempt to theorize IT deployment capabilities. Building on this study and more future research, we will then accumulate knowledge regarding how to effectively manage IT deployment.

Second, this study shows that IT deployment capabilities do create competitive advantage for the investigated firms. We theorized IT deployment capabilities as three components. Survey results show that strategic IT flexibility and business–IT partnership have significant impacts on competitive advantage. According to the standardized coefficients, flexibility is the most important predicator of competitive advantage. As Li and Atuahene-Gima (2001) point out, China's underdeveloped legal and financial systems contribute to its environmental turbulence. As Davis et al. (2007) notes, "flexibility becomes more valuable than efficiency as market dynamism increases because of the more pressing need to adjust to environmental change." Since strategic IT flexibility acts as the real options for focal firms, the higher the environmental turbulence, the more valuable are these options (Sambamurthy et al. 2003). Hence, it is reasonable to believe that, in developed countries such as U.S. or Canada, strategic IT flexibility may not be as important as in China.

Third, the study shows that business–IT alignment has an indirect effect on a company's competitive advantage. The relationship between business–IT alignment and competitive advantage is fully mediated by the other two components. In a previous study, Sabherwal and Chan (2001: 25) point out that "the significance of the association between alignment and business success depends on the business strategy." Our study contributes to the knowledge about the complex links between alignment and performance by pointing out mediators of alignment and competitive advantage: the effect of strategic alignment is

fully mediated by flexibility and partnership. Though previous studies have shown the importance of business–IT alignment, this study helps figure out the mechanism through which alignment contributes to a company's competitive advantage.

Business–IT alignment has a direct impact on strategic IT flexibility, because the alignment process helps the company sense changes in both businesses and technologies and seize IT-enabled opportunities within environmental changes by reallocating resources and reconfiguring strategies to support the adaptability of information systems to changes. Also, business–IT alignment increases business–IT partnership because strategic alignment lowers potential cross functional goal incongruity and facilitates cross functional cooperation.

Fourth, we design a scale to measure the flexibility of information systems from the strategic level. This scale is different from previous ones, such as the scale developed by Byrd and Turner (2001), whose scale focuses more on the operating aspect of information systems flexibility. When conducting research using the scale of Byrd and Turner (2001), researcher should choose informants who are familiar with the detailed operations of information systems. Based on strategic flexibility, our scale uses eight items to capture flexibility from a higher level of abstraction. Therefore, we can choose informants who are more concerned about business rather than information technology to answer our survey questions. Therefore, new insights into the antecedents and consequents of flexibility can be generated.

Finally, our study shows that industry type is associated with competitive advantage. As Ravichandran and Lertwongsatien (2005) pointed out, the payoff of IT utilization varies across industries, because information intensity of the industry is different. Our results show that, in China, it may be easier for service organizations to generate IT-enabled competitive advantage than for manufacturing organizations.

6.2 Theoretical implications

Our study contributes to information systems strategy in several ways. "Recent years have witnessed a surge of interest in the notion of capabilities as an important source of competitive advantage" (Ethiraj et al. 2005). By conceptualizing and empirically verifying the role of IT deployment capabilities as direct enablers of IT-enabled competitive advantage, this study confirms that IT capabilities are major sources of IT-enabled competitive advantage.

Specially, we show that strategic IT flexibility is the most important IT capability for companies in dynamic environments, such as the Chinese markets, to adapt to environmental changes and thus achieve and sustain competitive advantages. As Peng points out, in China, "the government has continued to behave unpredictably. In 1998, it banned direct marketing without any public consultation...In 1999, the government in a similar manner announced a ban on all foreign investment in Chinese Internet-content providers" (2001: 102). According to Davis et al. (2007: 36), "as environmental unpredictability increases, it becomes increasingly difficult to predict the characteristics of the opportunities that will appear, and so the optimal amount of structure decreases as flexibility becomes more critical than efficiency for responding to these increasingly unforeseen opportunities." Therefore, compared with business–IT alignment, strategic IT flexibility may be more important for companies to achieve competitive advantage in unpredictable market like China.

At a broader level, this study empirically validates the theoretical logic underpinning the strategic logic of opportunity (Bingham and Eisenhardt 2008; Sambamurthy et al. 2003). Though the Chinese market is characterized by unpredictability, the Chinese economy also promises "to offer tremendous business opportunities to its neighbors and rest of the world" (Abeysinghe and Lu 2003: 178). By investing in strategic IT flexibility, companies in such a turbulent market have the potential to effectively capture opportunities, and thus achieve and sustain IT-enabled competitive advantages. We confirm the strategic logic of opportunity by showing that competitive advantage in dynamic markets (e.g., China) "comes from choosing one or a few key organizational processes that put the firm in abundant and attractive opportunity flows" (Bingham et al. 2007: 42). According to our study, strategic IT flexibility is such an important organizational capability for companies operating in dynamic markets to capture emerging IT-enabled opportunities.

6.3 Managerial implications

According to this study, companies can leverage its IT deployment capability to create competitive advantage. The results of this study provide some guidelines for companies to develop their IT deployment capabilities and to achieve competitive advantage through effectively utilizing information technologies.

First, firms can improve their IT deployment capabilities through developing strategic IT flexibility. The organizational capability implied by strategic IT flexibility allows a company's information systems to quickly respond to ever changing technological and business demands by configuring and reconfiguring information systems to sense and seize IT-enabled opportunities. Such organizational capability enables the focal firms to quickly install needed information technologies and make IT available to support and shape businesses within the whole organization. Therefore, strategic IT flexibility allows companies to

quickly sense and seize emerging opportunities and thus achieve IT-enabled competitive advantage.

Second, a tight business–IT partnership is an important ingredient of a company's IT deployment capabilities. Business software, especially enterprise software, generally requires the tight cooperation between technical professionals and business people in order to make information systems available to support and shape the company's strategic choices and value chain activities. Therefore, a tight partnership enables companies to unify cross-functional efforts to deploy IT to achieve and sustain IT-enabled competitive advantage.

Finally, the alignment between business strategies and IT strategies is an important antecedent of strategic IT flexibility and business–IT partnership. Accordingly, to increase a firm's IT deployment capabilities, the focal firm should first strive to make business and IT strategies aligned. Strategic alignment contributes directly to flexibility and partnership, and thus enables companies to effectively and efficiently deploy IT to achieve and sustain IT-enabled competitive advantage.

6.4 Limitation and future research

One of the limitations of this study is that the sample is relatively small. To a certain extent, the analysis methods are constrained by the sample size. The article cannot utilize advanced techniques, such as structural equation modeling, to analyze the proposed model. One advantage of structural equation modeling is that it can "model errors in measurements for observed variables" (Chin 1998). Given this sample size, we use multivariate regression to test a relatively simple model. In this study, the value of a construct is obtained by averaging all the measures of a construct (Grapentine 2000). Since this study is an exploratory research with relatively few statistics, the sample size seemed to be reasonable.

Another limitation is that we collect all the data from a single source. This common method bias can be resolved by collecting data from multiple informants or using secondary data as supplements. Though some common method biases may exist in this study, the test result shows that the biases are not a significant issue in this study.

According to the findings of this study, there emerge many directions for future research. First, the empirical results show that, when controlled for flexibility and partnership, alignment does not directly affect competitive advantage. Though we have employed the mediation test to show that the effect of business–IT alignment on competitive advantage is actually fully mediated by flexibility and partnership, we still posit that if further studies view alignment as an organization process, the direct impacts are possible to be found.

Second, since this study is an exploratory study in nature, more studies are needed to clarify what, after all, constitutes IT deployment capabilities and how such capabilities will affect firm performance. More research can be conducted to uncover the antecedents of IT deployment capabilities. Since more and more companies are deploying, or will deploy, information systems to support and shape business, how to cultivate IT deployment capabilities will become an increasingly important issue.

Third, it is generally believed that personal ties (*guanxi*) are important ingredients of Chinese businesses. In this study, we focus on general cross-functional relationship. It may be more interesting to delve into how personal relationship may affect IT deployment and IT-enabled competitive advantage in Chinese companies and in transition markets. Moreover, it may be even more interesting to adopt a dynamic view of *guanxi* to investigate how personal coworker relationship between business units and IT units changes as a function of interpersonal incidents (Chen and Peng 2008) and how such changes would affect IT deployment and firm performance.

Finally, adopting the ambidexterity view to investigate the relationship between IT flexibility and IT stability is another promising research direction. In this study, we have shown that strategic IT flexibility is a crucial antecedent of IT-enabled competitive advantage. As revealed by a case study of the China Merchants Bank (McFarlan and Chen 2009), IT stability is a crucial contributor to the bank's strategy and its performance. Therefore, further studies are needed to understand the relationship between IT stability and IT flexibility: whether they are complementary or supplementary capabilities.

7 Conclusions

Companies are increasingly engaged in deploying information systems to support and shape a company's strategic choices and value chain activities. This trend means that the issue of how to successfully manage IT deployment will continue to capture the attention of IT and business managers in the 21st century. In the study, we have shown that IT deployment capabilities are significant predicators of a company's IT-enabled competitive advantage. The main conclusions from the study are that strategic IT flexibility and business–IT partnership have direct impacts on a company's competitive advantages, while business–IT alignment has an indirect impact on competitive advantage. The relationship between business–IT alignment and competitive advantage is fully mediated by strategic IT flexibility and business–IT partnership. The results provide support for the relationship between IT deployment capabilities and a company's competitive advantages. The study presents implications for how to develop IT deploy-

ment capabilities as well as how to generate business value from IT investments. Based on this study and ongoing future research, we hope that we are able to contribute to the global knowledge base in how to effectively generate business value from the acquirement, deployment, and utilization of IT resources.

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Appendix

See Table 7.

Table 7 Survey questions and descriptive statistics

	Mean	SD
Competitive advantage (α=0.894)	4.4500	1.35407
With respect to our company's core products or services and major customers and suppliers, information systems have been used to		
CA1 Provide product differentiation advantage	4.64	1.587
CA2 Enhance our customers' loyalties	4.78	1.554
CA3 Create electronic link with our customer	4.61	1.690
CA4 Build entry barriers for potential competitors	3.96	1.696
CA5 Lower buyers' decision to switch to our competitors' products	4.26	1.547
Strategic IT flexibility (α=0.947)	4.3383	1.37463
To what extent do you agree that your corporation's information systems can easily and quickly perform the following business actions?		
Flex1 Respond to changes in businesses	4.58	1.542
Flex2 Customize an application to suit a specific business	4.53	1.725
Flex3 React to new applications launched by competitors	4.17	1.531
Flex4 Introduce new applications in response to changes in competitors' businesses	4.13	1.563
Flex5 Expand into new regional or international markets	4.17	1.694
Flex6 Change (i.e., expand or reduce) the variety of available applications	4.22	1.602
Flex7 Adopt new technologies to produce better, faster and cheaper information services	4.62	1.596
Flex8 Switch to new IT suppliers to enjoy lower costs, better quality or improved delivery times	4.28	1.619
Business–IT partnerships (α=0.899)	4.7962	1.29184
Partner1 Our IS department and business units understand the working environments of each other very well	4.62	1.561
Partner2 There is a high degree of trust between our IS department and business units	4.82	1.452
Partner3 The goals and plans for IT projects are jointly developed by both the IS department and business units	4.73	1.498
Partner4 Conflicts between IS departments and business units are always resolved through dialogue and mutual adjustment	5.02	1.383
Business–IT alignment (α=0.907)	4.8895	1.17183
Align1 IS plans reflect the business plan goals	4.93	1.405
Align2 IS plans support the business strategies	5.22	1.325
Align3 IS plans recognize external business environment forces	4.96	1.342
Align4 Business plans refer to IS Plans	4.64	1.531
Align5 Business plans refer to specific information technologies	4.47	1.522
Align6 Business plans have reasonable expectations of IS	5.12	1.366

Please indicate the degree to which you agree or disagree with the following statements: [1 = strongly disagree, 7 = strongly agree]

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