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# AN INVESTIGATION OF BUSINESS PLANNING AND INFORMATION SYSTEMS PLANNING INTEGRATION WITHIN CHINESE COMPANIES

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## Abstract

*This paper presents findings of an empirical study that investigated the status of business planning-information systems planning (BP-ISP) integration with a sample of 33 Chinese companies. Using Teo and King's (1997) model which describes four distinct levels of BP-ISP integration, the study examined the BP-ISP integration status in China. The study identified 15 factors that were important in forming/driving their current level of BP-ISP integration and 12 factors that impeded Chinese companies' attempts to pursue more advanced forms of BP-ISP integration. This study provides insights into the status of BP-ISP integration and associated factors within companies in one developed Chinese province. It provides a foundation for future research and action for Chinese companies with respect to BP-ISP integration.*

**Keywords:** Business planning, IS planning, BP-ISP integration

## Introduction

Chinese firms have realized that the use of information systems (IS) can help them achieve strategic advantages and eventual business success (Dologite, et al 1998). According to Lederer (1992), ISP is defined as "the process of establishing objectives for organizational computing and identifying potential applications that the organization should implement." ISP has become increasingly important as organizations attempt to leverage IS applications to improve efficiency, reengineer business processes, gain competitive advantage, and compete more effectively (Teo and King 2001). IS literature indicated that one of the key factors for successful ISP is the alignment of IS strategy and business strategy (Kunnathur and Zhengzhong 2001; Chan et al. 1997; Teo and King 1997; Henderson and Venkatraman 1993; Segars and Grover 1998). The integration between business planning (BP) and ISP can be categorized into four types: administrative, sequential, reciprocal, and full integration (Teo and King 1997; Synnott 1987; Goldsmith 1991).

BP-ISP integration issues have attracted research interests in the context of Chinese companies (Dorothy et.al. 1998; He et al. 1998). However, few studies have explicitly investigated BP-ISP integration status in China. A gap exists between the knowledge of BP-ISP integration and China's unique business context. To fill in the gap, we conducted this study to explore the status of BP-ISP integration in 33 Chinese companies. We attempted to identify factors associated with the formation of the current BP-ISP integration and obstacles for moving to more advanced BP-ISP integration.

## Literature Review

BP-ISP integration has been ranked among the top issues facing IS executives. Several empirical studies proposed conceptual models of BP-ISP integration (Brancheau and Wetherbe 1987). Das, Zahra, and Warkentin (1991) cited an A.T. Kearney study

showing that organizations that integrated business plans with IS plans generally outperform those that do not. IS strategic alignment has been consistently related to various dimensions of IS effectiveness (Chan and Huff 1993). Segars and Grover (1998) include alignment or the linkage of the IS strategy and business strategy as one of their four key factors of strategic ISP. According to Bowman et al. (1983), such alignment “helps facilitate acquisition and development of information technology that is congruent with the organizational competitive needs rather than existing patterns of usage within the organization (Segars and Grover 1998).” Goldsmith (1991) argued that “Information strategies need to be developed in the same process and at the same time as the business strategy, if competitive advantage is to be secured from IT systems.” A conceptual model developed by Teo and King (1997) suggests four types of BP-ISP integration: (1) administrative integration, (2) sequential integration, (3) reciprocal integration, and (4) full integration. This paper employs this model to categorize BP-ISP integration.

## Methodology

A questionnaire was designed to collect data on four topics. The first and second parts of the questionnaire measure the characteristics of the respondents and their organizations. The third part assesses the status of BP-ISP integration in the organizations by asking respondents to select from the four types of BP-ISP integration proposed by Teo and King’s (1997) model. The last part of the questionnaire uses open-ended questions to elicit factors associated with formation of the current levels of BP-ISP integration and obstacles for moving to more advanced forms of BP-ISP integration. The questionnaire was first designed in English. It was then translated into Chinese by a bilingual author who knows both English and Chinese. This Chinese version was then translated back into English by another bilingual author. The two English versions of the questionnaire were compared and no significant differences were found.

The respondents are 50 MBA students in Nanjing University’s part-time MBA program. The study was conducted with help from a MBA student who instructed the respondents on how to fill out the questionnaires. Respondents who do not have management positions were asked to acquire information from their companies to fill out the questionnaire. Thirty-three completed questionnaires were returned, showing a 66% response rate.

## Results

Among the 33 respondents, seven were reported to work in top management, 10 in middle management, and 16 in professional positions. On average, respondents indicated an average of 3.69 (SD=2.93) years experience in their current positions and 5.00 (SD=2.57) years experience in their companies. Characteristics of the respondent companies are shown in Table 1, 2, and 3.

**Table 1. Industry Distribution of Respondent Companies**

Industry	Frequency	Percent (%)
Banking	4	12.1
Education	1	3.0
Energy	1	3.0
Finance	3	9.1
Government	2	6.1
Healthcare	1	3.0
Manufacture	7	21.2
Public services	3	9.1
Realty	2	6.1
Retail	3	9.1
Telecommunications	3	9.1
Transportation	3	9.1
Total	33	100.0

**Table 2. Annual Gross Revenues**

<b>Amount (hundred thousand RMB)</b>	<b>Frequency</b>	<b>Percent (%)</b>
< ¥5	2	6.1
> ¥5 and < ¥25	2	6.1
> ¥25 and < ¥100	11	33.3
> ¥100 and < ¥500	4	12.1
> ¥500	13	39.4
Missing	1	3.0
Total	33	100.0

**Table 3. IS/IT Department Operating Budget**

<b>Amount (hundred thousand RMB)</b>	<b>Frequency</b>	<b>Percent (%)</b>
< ¥1	6	18.2
> ¥1 and < ¥2.5	5	15.2
> ¥2.5 and < ¥10	10	30.3
> ¥10 and < ¥50	1	3.0
> ¥50	8	24.2
Missing	3	9.1
Total	33	100.0

Two thirds (N=22) of the respondents reported their companies as having Type 1 or an administrative type of BP-ISP integration, which implies that there is little significant effort in using IT to support business planning. Four respondents (12.1%) reported their companies as having sequential integration, five respondents (15.2%) reported reciprocal integration, and only two respondents (6.1%) reported full integration. Table 4 shows these results.

**Table 4. Type of BP-ISP Integration**

<b>Type of Integration</b>	<b>Frequency</b>	<b>Percent (%)</b>
Administrative Integration	22	66.7
Sequential Integration	4	12.1
Reciprocal Integration	5	15.2
Full Integration	2	6.1
Total	33	100.0

Table 5 shows a listing of the general factors and the number of respondents who indicated the factor(s) was important in forming or driving their companies' current level of BP-ISP integration. Table 6 lists the inhibiting factors and shows the frequency each was reported as an obstacle for moving to advanced BP-ISP integration.

**Table 5. Facilitating Factors for Current Types of BP-ISP Integration**

The factors		Frequency (number) of responses				Totals
		A	S	R	F	
External	1. Government advocacy	20	3	3	2	28
	2. Industry requirement	5	1	2	0	8
	3. Economics reform	12	4	4	2	22
	4. Globalization	7	2	3	2	14
	5. Development of a national IT infrastructure	13	4	1	0	18
	6. Market competition	4	2	3	1	10
	7. China joining the WTO	6	2	4	2	14
	8. To improve efficiency	3	4	5	2	14
Internal	9. To enhance information sharing	0	2	3	2	7
	10. Top management support	0	4	3	2	9
	11. To improve productivity	1	1	2	1	5
	12. To reduce costs	0	3	4	2	9
	13. To help decision making	2	3	5	2	12
	14. To maintain competitive advantages	1	1	4	1	7
	15. Realization of IT importance	2	2	5	0	9

Remark: A = Administrative BP-ISP integration; S = Sequential BP-ISP integration; R = Reciprocal BP-ISP integration; F = Full BP-ISP integration.

**Table 6. Obstacles for Moving to Advanced Types of BP-ISP Integration**

The obstacles		Frequency (number) of responses			Totals
		A	S	R	
Human	1. Inadequate top management support	21	3	0	24
	2. Human resistance to change	10	2	3	15
	3. Lack of IT leadership	17	2	1	20
	4. Lack of IT personnel	20	1	2	23
	5. Lack of urgency to use IT	14	0	0	14
Budgetary	6. Lack of IS budget	15	3	1	18
Technical	7. Difficult to integrate different IS	9	4	5	17
	8. Difficulty to integrate IS into business planning	8	1	3	12
	9. Inadequate system performance	0	3	3	6
Cultural	10. IS incompatible with managerial style	7	4	0	11
	11. Fear of information sharing	2	3	5	10
	12. Inability to measure the effectiveness of IS	12	2	3	17

Remark: A = Administrative BP-ISP integration; S = Sequential BP-ISP integration; R = Reciprocal BP-ISP integration

## Discussion

We grouped the factors associated with forming the current level of BP-ISP integration into two categories: external factors and internal factors (see Table 5). The internal factors imply a company's awareness of the importance of BP-ISP integration and appear to relate to a company's intrinsic motivations. Companies could address many internal factors by taking appropriate initiatives. External factors are pertaining to social, economic, and policy environment and beyond a company's immediate control.

It is possible for companies to evolve or jump to a more advanced type of integration from their current type of integration. The evolution is, however, very difficult in China due to several obstacles. As Table 6 shows, the most frequently reported obstacle to evolution is inadequate top management support. The management in Chinese companies has been heavily influenced by China's planned economy and is not responsive to external changes. The top managers in a company do not appear to realize the importance of using ISP to improve BP. Twenty-four respondents reported that their companies are prevented from moving to the next level of ISP-BP integration because of inadequate top management support. Without Another big problem facing Chinese companies is the lack of IT personnel. The majority of the companies in our study have a small IT department. According to the State Economic and Trade Commission's estimation, the average number of IT personnel among every 100 employees in Chinese companies is less than one. China needs more experts who have experience in both specific business processes and information technology. The lack of IT leadership is plaguing Chinese companies. Only a few IT-savvy companies have a CIO, who should have an important role in BP-ISP integration. Because of inadequate top management support, to create a CIO position or to ask a member of the top management to take the IT leadership is unrealistic. These human obstacles may slow down the BP-ISP integration in Chinese companies.

In addition to human barriers, the lack of IT funding/budgets is a huge obstacle. Although Chinese companies are increasingly investing on IT, the total amount of IT budgets is relatively low. Table 3 shows that 30.3% of the investigated companies' IS/IT department operating budgets are between 250 thousand and one million RMB Yuan. With such small budgets, it is difficult to initialize fundamental IS planning. China's companies do have implemented some individual information systems to meet short-term needs. The decisions of purchasing are usually made at departmental level, lacking an enterprise-wide vision. Consequently each department has a standalone system that may not communicate with systems in other departments. Data silos were created and information sharing cannot be achieved, posing a big hurdle to BP-ISP integration.

Cultural issues may pose impediments to BP-ISP integration. Chinese managers usually consider the information they possess as a measure of their power. They are unwilling to share the information within the company. Seventeen respondents in our study mentioned this as an obstacle that is preventing their companies from moving to the next level of BP-ISP integration. In addition, China's managers are fearful that their "unique" business tactics might be revealed once an information system is implemented. Improving the use of IT in China's companies is complicated by these culture issues. In addition, due to the inability to measure the effectiveness of IT, Chinese managers doubt the benefits of IT.

A limitation of this research is the limited external validity. Since the sample size is small, the participants are from one province in China, and the ownership of the companies is mostly state owned enterprise, the generalizability of the results is limited. A larger scale study involving more companies with various ownerships is needed.

## Conclusions

This paper examines the status of BP-ISP integration in China with a sample of 33 Chinese companies. We identified and discussed external and internal factors that promote the current types of BP-ISP integration and three general categories of obstacles including human, budgetary, and cultural obstacles. This study is beneficial for both researchers and practitioners. Researchers can use the factors and obstacles identified as a guide to conduct future research on China's BP-ISP integration. Practitioners would be able to understand the dynamics of the BP-ISP integration evolution and use the findings to prescribe corrective actions for improving BP-ISP integration in the future.

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