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ASSESSING IT-BUSINESS ALIGNMENT IN SERVICE-ORIENTED ENTERPRISES

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Abstract

Nowadays more and more enterprises transform into service orientation to sustain their competitive advantage. In order to ensure the underlying information technology (IT) can help the transformation effectively, we aim to develop an IT-business alignment framework to assess the quality of alignment in the context of service-oriented enterprises. Based upon past literature, we propose three components of IT-business alignment: strategic alignment, operational alignment, and social alignment and study their contribution to customer service quality under different service integration level. Our data is collected from web questionnaires. The total data set constitutes a representative sample of n=300. Among all returned questionnaires, 96 were found to be complete and usable; this represented a response rate of 32 percent. A multiple regression analysis is conducted and derives the following three research findings: (1) Strategic alignment plays the most significant role in improving customer service quality compared with other two alignment factors and it becomes particularly influential to customer service quality when the enterprise has weak service integration. (2) Operational alignment contributes to customer service quality for enterprises with strong service integration (3) Social alignment effectively helps enterprises improve customer service quality no matter their service integration is weak or strong.

Keywords: Customer service systems, IT-business alignment, Service-oriented enterprise, Service integration.

1 INTRODUCTION

Nowadays, Information Technology (IT)-Business alignment plays an important role in a company, because when IT aligns with business operations and strategies, IT can anticipate what the business requires in the future and lay out a trajectory to meet those upcoming needs (Hu and Huang 2007). IT-Business alignment now is ranked as the top ten of perennial business IT issues (Luftman 2003).

In the internet age, IT becomes a critical resource for a company to compete around the global market. When a company has a good IT infrastructure, IT can influence or drive the company's competitive strategy. Huang and Hu (2007) have pointed out the effectiveness of IT goes well beyond software and hardware; even the best IT cannot work efficaciously for a company unless it is properly used in the right context at the appropriate time. This statement is similar with Luftman et al. (2003) that in the global market, business success depends on the harmony of business strategy, IT strategy, organizational structure and processes, and IT infrastructure and processes.

However, aligning IT with business strategy is not an easy task. According to a survey by CFO magazine in November 2003, 48 percent of CFOs reported poor alignment between IT and business needs. The challenges are even higher when more and more enterprises transform to service-oriented enterprises (SOE). For these enterprises how to use IT to support service orientation and ensure the alignment with customer service needs becomes an important research issue, which is seldom discussed in the past literature. Therefore, the study aims to provide an answer to the following questions:

1. What are the important issues that should be considered in the perspective of IT-Business alignment?
2. How can we make IT-business alignment effective in the context of service-oriented enterprises?

2 LITERATURE REVIEW

2.1 IT-Business Alignment

The term "IT alignment" is generally defined in reference as the alignment of an organization's IT resources with the objectives of its business unit (Moody 2003). There are three major goals to the research of IT-business alignment. The first identifies the requirements and strategies for achieving the alignment. Earl, Rockart and Ross (1996) propose that IT management must be knowledgeable about the strategic and tactical thinking of senior management to ensure that investments in IT are targeted at strategic priorities. It is also crucial that the importance of IT-business alignment is recognized by all members in the company. Similarly, Reich and Benbasat (2000) have mentioned that a high level of shared domain knowledge has a positive impact on IT-business alignment. Weiss, Thorogood and Clark (2006) propose that there are no quick fixes or easy solutions to IT-business alignment. Enterprises must enhance the three constructions of technology resource, business enabler, and strategic weapon before achieving IT-business alignment.

The second identifies components of alignment that are required in enterprises. Chan (2002) proposes two different types of alignment: strategic alignment and structural alignment. Strategic alignment focuses on the fit between the priorities and activities of the IS function and those of the business unit. Structural alignment examines the degree of structural fit between IS and the business, specifically in the areas of IS decision-making rights, reporting relationships, (de)centralization of IS services and infrastructure, and the deployment of IS personnel. The research finds that IS strategic alignment is more important than formal IS structural alignment. The author also emphasize the importance of IS structure flexibility.

The third identifies methods, techniques, and tools that can enhance IT-business alignment. For example, Huang and Hu (2007) suggest that the balanced scorecard is an appropriate tool to ensure

that IT aligns with the whole company's strategic programs. They also point out numerous organizational, cultural, and political barriers that may inhibit alignment. Peak and Guynes (2003) suggest an IT alignment planning process to connect strategic and tactical business goals with IT strategies, resources, systems, and services.

In summary, alignment is not just a process, but a mindset of how IT can work for, and with, business all the time - in other words, a basic principle of interaction between IT and business. In doing so, alignment can aid stakeholders in developing a clearer understanding of the goals and objectives of the project at the outset and maximize the potential return on IT investment (Huang and Hu 2007).

2.2 Service Oriented Enterprises

The concept of 'service orientation' comes from market orientation in strategic management literature. According to Slater and Narver (1999), market orientation is an ideology that places the highest priority on the creation and maintenance of superior customer value, and that urges employees to develop and exploit market information. Market-driven enterprises are distinguished by a corporate ability to sense events and trends in their markets ahead of their competitors. They can anticipate more accurately the responses to actions designed to retain or attract customers, improve channel relations, or thwart competitors (Day 1994).

Therefore, we can expect service-oriented enterprise requires a flexible and robust IT infrastructure to model, assemble, integrate, and manage business processes and deliver cost-effective, modular and scalable service innovations that are customized to the enterprise's requirements, timetables and priorities. IBM has called such IT capability as service integration and defined a seven-level Service Integration Maturity Model (SIMM) based on the degree of service de-coupling and amount of flexibility achievable. The seven levels of SIMM are described below.

Level 1: *Data Integration*. The organization starts from proprietary and ad-hoc integration, rendering the architecture brittle in the face of change.

Level 2: *Application Integration*. The organization moves toward some form of EAI (Enterprise Application Integration), albeit with proprietary connections and integration points.

Level 3: *Functional Integration*. The organization componentizes and modularizes major or critical parts of its application portfolio, exposing functionality in a more modular fashion. The integration between components is done through the interfaces and contracts between them.

Level 4: *Process Integration*. The organization embarks on the early phases of SOA by defining and exposing services for consumption internally or externally by business partners.

Level 5: *Supply-Chain Integration*. The organization extends its influence into the value chain and service eco-system. Services form a contract among suppliers, consumers, and brokers who can build their own eco-system for on-demand interaction.

Level 6: *Virtual Infrastructure*. The organization now creates a virtualized infrastructure to run applications after decoupling the application, its services, components, and flows. The infrastructure externalizes its monitoring, management, and events (common event infrastructure).

Level 7: *Eco-System Integration*. The organization now has a dynamically re-configurable software architecture. It can compose services at run-time using externalized policy descriptions, management, and monitoring.

In this research, we treat enterprises with strongly-matured service integration as those that have great potential to transform into service-oriented enterprises (SOE).

2.3 IT-Business Alignment in Service-oriented Enterprises

Besides proposing SIMM, IBM in 2004 has further elaborated service science discipline and highlighted three focuses of IT-business alignment in service-oriented enterprise: (1) strategic focus, (2) process focus, and (3) workforce focus. We discuss each in detail in the following paragraphs.

The strategic focus in SOE encounters big changes. In the past, companies create customer benefits and values by creating strong brand images. Most strategies are implemented in a short-term philosophy in which organizations respond to customers' expressed wants (Slater and Narver 1999). In contrast, the strategy for SOE is committed to understand both the expressed and latent needs of their customers (Slater and Narver 1999). To align with such strategic changes, IT development should be driven by corporate overall service strategy (Menor and Roth 2007).

The processes in SOE need to facilitate market learning and market response behaviours. To support this goal, the underlying IT should transform from independent, functional, and short-term IT planning (Weill, Subramani and Broadbent 2002) to enable companies to speed up the introduction of new services and products as well as identify and diagnose customer needs. The focus of IT is therefore on sharing information to leverage new service / products development processes and facilitating communication flow within the new service development project groups and the flow of information to people participating in the new service development process (Menor and Roth 2007). Ray, Barney and Muhanna (2004) have suggested that managers in the information systems unit must understand the business operations of the customer service unit and how to use IT to improve customer service. At the same time, managers in the customer service unit must recognize the potential of IT as a tool to increase the productivity (efficiency) of the customer service representatives and how to use IT to enhance customer service value.

At last, the structure of workforce is transformed from hierarchical arrangement to a horizontal, network-like structure based on service consumer-service provider relationships (Crawford et al. 2005). How to develop a service climate within work force becomes an important issue in SOE. Service climate is defined as employee perceptions of the practices, procedures, and behaviours that are expected, supported, and rewarded with regard to customer service and customer service quality (Schneider et al. 1998). To align with such service climate, IT needs to support customer service representatives for handling different situations that are likely to arise in the customer service function. It also needs to facilitate a working environment that encourages open communication and teamwork in the customer service unit and coordination between internal departments to provide quality customer service (Schneider, White and Paul 1998).

3 DEVELOPMENT OF RESEARCH FRAMEWORK

Our research framework is shown in Figure 1. We propose that IT-Business alignment in service-oriented enterprise should focus on the integration of three components in service science discipline: strategy, process, and workforce. Three types of IT-Business alignment are therefore examined in our research model: strategic alignment, operational alignment, and social alignment, which capture the strategic focus, process focus, and workforce focus of service science discipline respectively. Quality of customer service is the dependent variable, considering employee perceptions of the practices, procedures, and behaviors that are expected, supported, and rewarded with regard to customer service (Schneider et al. 1998). The hypotheses are described in detail in the following sections.

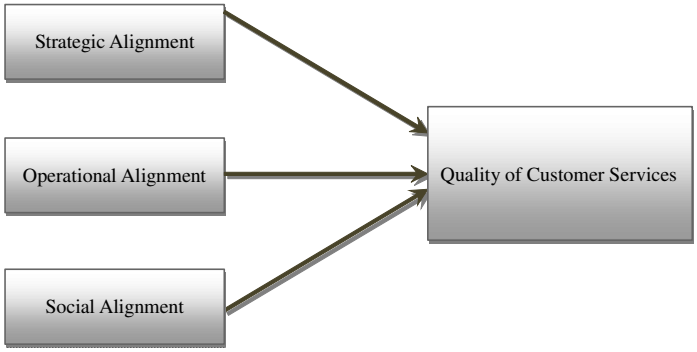

Figure 1. Research framework

3.1 Strategic alignment

Strategic alignment has been mentioned by Tallon and Kraemer (1999) as the extent to which the IS strategy supports, and is supported by the business strategy. Luftman (2003) considers strategic alignment is not a static state; it's a continuous maturing process over the long run. Huang and Hu (2007) further emphasize that strategic alignment should consider the integration between IT planning and business planning. Moreover, Oh and Pinsonneault (2007) posit that strategic alignment is the degree to which the priorities, goals, and objectives of the IS strategy are aligned with the priorities, goals, and objectives of the firm's business strategy. Maes et al. (2000) have suggested that the strategic alignment is the continuous process of consciously and coherently interrelating to all components of the business–IT relationship in order to contribute to the organization's performance over time. Built upon the previous research, we define strategic alignment in the context of service-oriented enterprises as the degree to which the business process and information can support corporate service strategies.

Since strategic alignment implies that any new service or product development is largely driven by overall business strategy (Menor and Roth 2007), we can expect enterprises with high strategic alignment are more able to design the product and services that better tailor customers' need. Furthermore, Peak and Guynes (2003) indicate that enterprises with high strategic alignment possess more qualitative information to support their market learning and market response behaviors, and thereby achieve better quality of customer services. The hypothesis is as follows:

Hypothesis 1*: There is a positive relationship between strategic alignment and quality of customer services.*

3.2 Operational alignment

Past literature has recognized the importance of IT alignment to business operations. Chan (2002) suggest that IS alignment should consider the integration of the IS function with the business unit structure. Moody (2003) has defined that IT alignment is the alignment of an organization's IT resources with the objectives of its business unit. Weiss et al. (2006) posit that IT alignment requires the integration and coordination of IT and business resource within organizational units. Based on above literatures, we define operational alignment in the context of service-oriented enterprise as the degree to which information systems fulfill the information and process needs of service orientation.

Since operational alignment can help identify and create new IT strategies and resources that can support IT systems to include the effects of competition (Rockart et al. 1996), enterprises are more able to design standardized, readily accessible services that are easily consumable by other clients or applications to deliver timely customer services (Bieberstein et al. 2005). As a result, we can expect

that an information system that can fulfill the needs of business processes and information is more able to deliver services that enhance the quality of customer services. The hypothesis is set forth:

Hypothesis 2*: There is a positive relationship between operational alignment and quality of customer services*

3.3 Social alignment

Reich and Benbasat (2000) have suggested that IT alignment should capture a social dimension in which business and IT executives share a common vision of the ways that in which IT will contribute to the success of the business unit. Following the reasoning, Huang and Hu (2007) define social alignment as the efforts of enterprises to maintain effective communication channels in order to institutionalize the culture of alignment. According to the previous studies, we define the social alignment in the context of service-oriented enterprises as the degree to which a common service climate is shared between IT and business units.

A good communications between IT and business managers and an effective channel for sharing domain knowledge with each group of people are critical factors to achieve social alignment (Reich and Benbasat 2000). According to Crawford et al. (2005), the structure of service-based enterprises is horizontal and network-like, and based on a consumer-service provider relationship. Such structure facilitates open communication and teamwork. Staff can freely exchange or share their information and knowledge, thereby increasing the potential to create innovative customer services and enhance the service quality (Schneider et al. 1998). So, we propose that the existence of a common service climate facilitated by formal communication channels can encourage knowledge sharing and therefore improve the quality of customer service. Here is the last hypothesis:

Hypothesis 3*: There is a positive relationship between social alignment and quality of customer services.*

4 RRESEARCH METHODOLOGY

4.1 Operationalization of constructs

The measurements for each construct are shown in Table 1.

Components	Items	Measurements
Dependent variable		
Customer Service Quality	CSQ1	Frequency of introducing new services and products (Menor and Roth 2007).
	CSQ2	Degree of identifying and diagnosing customer needs (Menor and Roth 2007).
	CSQ3	Extent of new offerings based on customer needs (Meno and Roth 2007).
	CSQ4	The degree to which the business strategies are driven by beliefs about how to create greater value for customers (Narver, Slater, and MacLachlan 2004).
	CSQ5	The degree to which the business objectives are driven primarily by customer satisfaction (Naver, Slater and MacLachlan 2004).
Independent variables		
Strategic Alignment	STA1	The degree to which the formulation of new service development strategy is supported by the current business processes (Menor and Roth 2007).
	STA2	The degree to which the current business processes can respond to changes in the competitive environment (Menor and Roth 2007).
	STA3	The degree to which the enterprise seeks out information actively to support business needs (Menor and Roth 2007).
	STA4	The degree to which ideas for new service/product development are largely driven by the service's overall business strategy (Menor and Roth 2007).
	STA5	The degree to which policies and procedures are established to deliver excellent customer service (Schneider et al. 1998).

Operational Alignment	OPA1	The degree to which information systems are established to share available market information (Kohli et al. 1993).
	OPA2	The degree to which information systems can quickly detect changes in our customers' product preferences (Kohli et al. 1993).
	OPA3	The degree to which information systems can quickly detect fundamental shifts in our industry (e.g., competition, technology) (Kohli et al. 1993).
	OPA4	The ability of information systems to measure customer satisfaction systematically and frequently (Naver, Slater and MacLachlan 2004).
	OPA5	The degree to which information systems can quickly recognize crucial changes made to major customers (Naver, Slater and MacLachlan 2004).
	OPA6	Degree of system standardization (Bieberstein et al. 2005)
	OPA7	Degree of system modulization (Bieberstein et al 2005).
Social Alignment	SOA1	The degree to which top management regularly discusses competitors' strengths and strategies (Narver et al. 2004).
	SOA2	The degree to which domain knowledge is frequently shared among IT and business managers (Reich, Benbasat 2000).
	SOA3	The degree to which an open communication and teamwork environment are established in the customer service unit (Schneider et al. 1998).
	SOA4	The degree to which a common understanding between managers in customer service units and information systems units regarding how to use information technology to improve customer service (Ray et al. 2004).
	SOA5	The degree to which managers in the information systems unit understand the business operations of the customer service unit (Ray et al. 2004).

Table 1. Measurements for Alignment Construct

4.2 Data Collection

To test our hypotheses, we target at the companies whom have applied the concept of service integration in their customer service systems. Developed upon IBM SIMM, four levels of service integration for customer service systems are proposed: data integration, application and functional integration, process integration, and eco-system integration. The detail definition of each level is shown in Table 2. Data were collected using a web questionnaire instrument. The respondents were first asked to select the service integration level of their customer service system. Only those respondents whose service integration level is equal to or higher than level 1 (data integration) are eligible to answer the remaining questionnaire, because based on our assumption, their companies have achieved or at least on the road of service orientation. The total data set constitutes a representative sample of n=300. Among all returned questionnaires, 96 were found to be complete and usable; this represented a response rate of 32 percent.

Among all the respondents, 38 are in the data integration level, 19 are in the application and function integrated level, 23 are in the process integration level, and 16 are in the eco-system integration level. Besides, our samples show that 51% of respondents have worked for two years and 37% have worked between 2 and 5 years. The majority of respondents' companies have more than 1000 employees and have capitals between 2 and 10 ten million. Most of the companies' annual sales are between two and ten million dollars. At last, most samples belong to computer and peripherals industry.

Level	Description
Data integration	The organization owns a basic enterprise website for customers to send comments and complaints. The website has an independent member system, from which customers can browse the website to join member, subscribe company e-paper, search information about the products and services, apply for services, or give comments. There is no direct connection between the website's member system and the company's inner CRM system. The employees of the customer service have to manually transform the data of the website's member system and import the data into the CRM system for further processing the requests for the customers.
Application and functional	The enterprise website has connections to the internal (e.g. CRM, ERP) and external (e.g. SCM) systems of the organization. There are standardized format of transformation (e.g.

integration	XML). The transformation can be scheduled as automatically executed tasks within a certain period by batch, or be designed as synchronized tasks to import data synchronously into other related systems of the organization without manual operations. The automation only refers to those data interchange with no flows (e.g. receive order form or add new member). For the processes which are involved with flows or complicated logistics should rely on manual operation or other process to be accomplished.
Process integration	For enterprise the interaction between internal/external systems becomes more automatic. It not only makes customers register the services on line and transfers data into the internal system automatically but also disposes the processes of business knowledge (e.g., identify a form which the departments belong to, understand how to dispose in different situation). For example, when a user makes an order, the system will activate the processes to fulfill the order needs automatically, if the order involves the cooperation of external factories and stores, system will sends the order information to them in order to reach the best route planning and fast to fulfill the order needs.
Eco-system integration	Any service component is modulized and independent. To fulfill customer needs, the system is able to recombine different service components to form a new one. For example, customer service system can be divided into the following service components: member service, order service, and distribution service. User can selects the service which he needs and makes the service join to his systems or processes.

Table2. Definition of Service Integration Level for Customer Service Systems

4.3 Instrument Validation

We conduct factor analysis to assess the construct validity (Molla and Licker 2005). A minimum eigenvalue of 1 is set as cutoff value. We use principle component analysis and Varimax rotation method to extract factors. Each item loads with its hypothesized factor. There is no item with a factor loading less than 0.5 on all factors or greater than 0.5 on two or more factors. The result shows that our theorized constructs have a satisfactory validity. We use Cronbach's alpha to assess reliability. The alpha values range from 0.865 to 0.882, indicating adequate reliability. Convergent and discriminate validity are assessed afterwards. The result shows violations in five factors: OPA1, OPA4, CSQ3, CSQ4, and CSQ5. Therefore, we drop these factors, resulting in a model of 17 items.

5 RESULTS AND DISCUSSION

5.1 Results

Our samples are distributed across four levels of our proposed service integration level of customer service systems. We categorize the samples that belong to the level one and level two as weakly-matured service integration (SI), and those that belong to level three and level four are strongly-matured service integration. We test the impact of different alignment factors on customer service quality with the samples of all integration levels first. The results are shown in Table 3. We find that operational alignment is not significant.

Model Summary								
R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.608(a)	.370	.350	0.89537	.370	18.031	3	92	.000

Coefficients (b)					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Strategic	.553	.092	.498	6.024	.000

Alignment					
Operational Alignment	.118	.092	.106	1.287	.201
Social Alignment	.369	.092	.332	4.018	.000

a. Dependent Variable: Customer Service Quality; b. Selecting only cases for which level <= 4

Table 3. Model Summary and Coefficients —The Full Samples

We then distinguish the samples into two groups (weakly-matured SI v.s. strongly-matured SI) and conduct the same test for each group. The results of the regression analysis for weak-matured SI samples are shown in Table 4. The results indicate that the p values of two factors – strategic alignment and social alignment – are 0.000 and 0.000 respectively, showing that both factors significantly lead to better customer service quality, thereby supporting hypothesis 1 and 3. On the other hand, the effect of operational alignment is insignificant with p value equals to 0.795.

Model Summary								
R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.597(a)	.357	.320	0.96290	.357	9.792	3	53	.000

Coefficients (b)					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Strategic Alignment	.555	.115	.536	4.818	.000
Operational Alignment	-.036	.137	-.029	-.261	.795
Social Alignment	.323	.120	.303	2.685	.010

a. Dependent Variable: Customer Service Quality; b. Selecting only cases for which level <= 2

Table 4. Model Summary and Coefficients (2) – Weakly-Matured SI Samples

Table 5 shows the regression results for testing the strongly-matured SI samples. The F test shows that the model is significant at $p<0.001$, indicating that the model can well explain the customer service quality. The strategic alignment is significant with p value=0.005, supporting hypothesis 1. The p value of operational alignment is 0.012, supporting hypothesis 2, and the social alignment's p value is 0.027, supporting our hypothesis 3.

Model Summary								
R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.662(a)	.439	.391	0.77341	.439	9.124	3	35	.000

Coefficients (b)					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Strategic Alignment	.513	.170	.391	3.023	.005
Operational Alignment	.446	.168	.345	2.654	.012
Social Alignment	.363	.157	.306	2.313	.027

a. Dependent Variable: Customer Service Quality; b. Selecting only cases for which level >= 3

Table 5. Model Summary and Coefficients—Strongly-Matured SI Samples

5.2 Findings and Discussion

Three research findings are derived and discussed as follows.

Finding 1. A good strategic alignment leads to better customer service quality.

1a. Strategic alignment has the strongest impacts on improving customer service quality compared with the other two alignment factors.

Rockart, Earl and Ross (1996) have proposed that IT management must be knowledgeable about the strategic and tactical thinking of senior management to ensure that investments in IT are targeted at strategic priorities. Our study confirms this statement and furthering suggests that strategic alignment plays a significant role in improving customer service quality no matter the enterprise's service integration is strongly or weakly-matured. Further, it has the highest contribution to service quality compared with the other two alignment factors.

1b.Strategic alignment is particularly influential to customer service quality for enterprises with weakly-matured SI.

Comparing with Table 4 (enterprises with weakly-matured SI) and Table 5 (enterprises with strongly-matured SI), the standardized coefficients of strategic, operational, and social alignment are 0.536, -0.029, 0.303 and 0.391, 0.345, 0.306 respectively. The findings of the results show that enterprises with strongly-matured SI place equal emphasis on the three alignment factors; however those with weakly-matured SI place the greatest emphasis on strategic alignment. The reason may be that, for enterprises with weakly-matured SI, business processes are relatively simple and non-standardized, and therefore they are particularly difficult to support business strategies. Since executives must spend much more time working on the strategic alignment, the enterprises with high strategic alignment are able to deliver more distinguished customer service than their competitors.

Finding 2. Operational alignment can not contribute to superior customer service quality for enterprises with weakly-matured SI; however it turns out to be a significant contributor when SI becomes more matured.

Day (1994) proposes that all organizations should tinker with their procedures and practices and take actions aimed at improving productivity and customer satisfaction by open minded inquiry. Our result of findings suggests that Day's argument is only true when the enterprise has strong SI. The findings in Table 4 (enterprises with weakly-matured SI) show that operational alignment can not lead to successful customer service quality (with standardized coefficient -0.029 and p value 0.795), reflecting the fact that enterprises with weakly-matured SI don't think a well-aligned IT system can bring any customer benefits. In SOE, the process design is real-time and dynamic based on execution results of sub-processes (Crawford et al. 2005). However, enterprises with weak SI usually do not have capabilities to design such processes, and therefore even their information systems can align with their processes, few benefits can be delivered.

Finding 3. No matter the enterprise's SI is weakly or stongly-matured, social alignment is significant to customer service quality.

Our study confirms that social alignment plays a significant role in improving customer service quality no matter the enterprise's service integration is strongly or weakly-matured. A well communication channel reduces the information gap between IT and others departments. It effectively helps employees understand the advantages that IT can support. When each department provides clear systems' requests to IT department and discuss the feasibility with the IT personnel, the enterprise's IT planning can become more and more aligned with business planning. Such design facilitates a continuous communication with customers, effectively assisting enterprises to deliver innovative customer services and retain customers with good service quality.

The contribution of this research is multi-folded. Enterprises at different level of SI can determine which alignment should be focused on. The validated customer service quality measures and alignment measures can also help managers better gauge the shortcomings of existing customer service system. Besides, IT researchers can build upon this model to further examine the factors that are discovered. This model has limitations. Although we propose three business-IT alignment factors, there may be other alignment categories that we haven't discovered. In the future, we can extend our proposed framework to include other alignment factors, making this model a more general principle that can effectively help managers to measure all kinds of systems or processes. Besides, to simplify the research design, we use IBM's service integration mutuality model to measure the level of service integration in enterprises' customer service systems. However whether IBM's model is industry-wide accepted still needs to be further justified. Furthermore, we make assumptions that enterprises are service-oriented if they deploy the concept of service integration. This assumption also needs to be verified in the future work.

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